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BO‘LAJAK MUHANDISLARNI TAYYORLASHDA MUSTAQIL TA’LIM ORQALI O‘QUV MATERIALLARINI IMMITATSION-VARIATIVLIK ASOSIDA MODELLASHTIRISH TEXNOLOGIYALARI

ТЕХНОЛОГИИ МОДЕЛИРОВАНИЯ УЧЕБНЫХ МАТЕРИАЛОВ НА ОСНОВЕ ИМИТАЦИИ-ВАРИАЦИИ ПОСРЕДСТВОМ САМОСТОЯТЕЛЬНОГО ОБУЧЕНИЯ В ПОДГОТОВКЕ БУДУЩИХ ИНЖЕНЕРОВ

TECHNOLOGIES OF MODELING EDUCATIONAL MATERIALS BASED ON IMITATION-VARIATION THROUGH INDEPENDENT EDUCATION IN THE TRAINING OF FUTURE ENGINEERS

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Annotatsiya

Ushbu maqolada immitatsion-variativlik asosida virtual jarayonlarni modellashtirish texnologiyalari hamda bu bilan bo‘lajak muhandislarni tayyorlashda mustaqil ta’lim orqali o‘quv materiallarini immitatsion-variativlik asosida modellashtirish texnologiyalarining ilmiy ahamiyati ochib berilgan. Oliy texnik ta’limning o‘quv jarayonidagi mustaqil ta’limiga doir texnologiyalar asosida shakllantirish muammolari va ta’lim jarayonining pedagogik faoliyatini rivojlantirish metodikasi mustaqil ta’limni tashkil etish misolida yoritib berilgan. Mazkur maqolada tadqiqotning maqsadi hisoblangan mustaqil ta’lim jarayonida talabalarga o‘quv materiallarini Imitatsion-variativlik asosida o‘qitishni takomillashtirish texnologiyalarining nazariy asoslarini tadqiq etishdan iboratligi, tadqiqotning metodlari hisoblangan tadqiqotda pedagogik, didaktik, psixologik va metodik adabiyotlarni o‘rganish, korrelyatsion, nazariy va qiyosiy tahlil, ijtimoiy so‘rov (anketa, analitik suhbat, intervyu, tashxis), pedagogik kuzatish, modellashtirish, pedagogik tajriba, ekspert baholash, matematik statistik qayta ishlash metodlaridan foydalanilganligi hamda xulosa qismida xorijiy tajribalar va innovatsion g‘oyalar asosida mustaqil ta’lim jarayonida talabalarga o‘quv materiallarini Imitatsion-variativlik asosida o‘qitishni takomillashtirish texnologiyalarini rivojlantirishga qaratilgan didaktik ishlanmalar, savol va topshiriqlar, modulli texnologiya ta’limiga oid masalalarning takomillashtirilganligi va tizimlashtirilganligi, mustaqil ta’lim jarayoniga tatbiq etishga yo‘naltirilgan ilmiy-metodik tavsiyalarning ishlab chiqilganligi bilan izohlangan.

Аннотация

В данной статье раскрывается научная значимость технологий моделирования виртуальных процессов на основе имитации-вариации, а также самостоятельного изучения учебных материалов на основе имитации-вариации. Технологии и методика развития педагогической деятельности образовательного процесса освещены на примере организации самостоятельного *образования. В данной статье отмечается, что целью исследования является исследование теоретических основ технологий совершенствования обучения студентов на имитационно-вариативной основе в процессе самостоятельного обучения, методами исследования являются изучение педагогической, дидактической, психологической и методической литературы, корреляционный, теоретический и сравнительный анализ, социальный опрос (анкета, аналитическая беседа, интервью, диагностика), педагогическое наблюдение, моделирование, педагогический опыт, экспертная оценка, дидактические разработки, вопросы и задания, направленные на развитие технологий совершенствования обучения студентов на имитационно-вариативной основе в процессе самостоятельного обучения на основе зарубежного опыта и инновационных идей, совершенствование и систематизация вопросов, касающихся модульного технологического образования, что объясняется разработкой научно-методических рекомендаций, направленных на внедрение их в самостоятельный образовательный процесс.*

Abstract

In this article, the scientific significance of modeling technologies of virtual processes on the basis of imitation-variation, as well as on the independent education of training materials on the basis of imitation-variation, is revealed. Problems of formation on the basis of related technologies and the methodology of development of pedagogical activities of the educational process are highlighted on the example of organizing independent education. This article notes that the purpose of the study is to investigate the theoretical foundations of technologies for improving student learning on an imitation-variative basis in the process of independent learning, research methods are the study of pedagogical, didactic, psychological and methodological literature, correlational, theoretical and comparative analysis, social survey (questionnaire, analytical conversation, interview, diagnostics), pedagogical observation, modelling, pedagogical experience, expert evaluation, didactic developments, questions and tasks aimed at the development of technologies to improve student learning on the imitation-variative basis in the process of independent learning based on foreign experience and innovative ideas, improvement and systematisation of issues related to modular technological education,

which is explained by the development of scientific and methodological recommendations aimed at their implementation in the independent educational process.

Kalit so'zlar: *immitatsion-variativlik asosida virtual jarayonlarni modellashtirish, ta'lim texnologiyalari, modellashtirish, texnologiya pedagogik faoliyatini rivojlantirish metodikasi, virtual jarayon, pedagogik mahorat.*

Ключевые слова: *моделирование виртуальных процессов на имитационно-вариативной основе, образовательные технологии, моделирование, методика развития технологии педагогической деятельности, виртуальный процесс, педагогическое мастерство.*

Key words: *modeling of virtual processes on the basis of imitation-variation, educational technologies, modeling, methodology of technology pedagogical activity development, virtual process, pedagogical skills.*

INTRODUCTION

Imitative-variational pedagogy mainly consists of teaching the analysis of the internal structure of texts in order to train and develop future personnel in the field of technical higher education. The main focus is on understanding technical texts with the help of pedagogical technologies, as well as expanding the possibilities of imitative-variability and visual-practical orientation of educational materials through a synergetic, hermeneutic and praxeological approach. It is aimed at forming in the minds of students the importance of content and technical education of teaching improvement technologies.

The information sphere is a constantly expanding area of human activity associated with the production of new information products, services and technologies. Today, the information sphere includes not only research and information centers, networks, libraries and archives, but also office systems, mass media, educational, electoral and information technologies, which generally form the industry of creating, storing, processing and distributing information in all areas of human activity [1].

A wide and interesting discussion of the problem of transition to active teaching technologies in higher education continues, which allows preparing a future teacher who is able to work in conditions of uncertainty, making a decision on changing existing educational practices. It is known that the traditional education system guarantees the subject training of teachers [2], but does not fully ensure the formation of all the necessary competencies in them. Judging by the study of the experience of pedagogical universities in the analysis of scientific literature and the organization of the educational process, in the preparation of future specialists, first of all, conditions are created for the formation and development of a student as a subject, while professional activity is not taken intoaccount.

Today, the rapid development of the innovative sector in the life of society, the growth of the share of intellectual products, information and scientific-technical and innovative activities in the economy has led to the fact that innovations, like minerals, production capacities and intellectual potential, are considered the wealth of the country. Effective use of innovative and scientific and technical potential for the benefit of our country and each of its citizens would not have been possible without the formation of a comprehensive innovation policy in the country and the creation of legislative foundations for its implementation [3].

METHODS

With the implementation of market reforms, the integration of the country into the world community, the change of the world economic system towards the growth of the role of knowledge and information, the strengthening of relations between new technologies and the capital market, the transition of our country's economy to the path of innovative development becomes of urgent importance.

Thus, the updated system of pedagogical education faces the practical task of updating the content and technological components of education based on knowledge about the essence of pedagogical activity [4]. At the same time, it is necessary to focus efforts on modeling the conditions that bring the teacher as close as possible to the real processes of professional activity.

One of the most discussed topics in modern conditions of globalization is the use of the technology of imitation modeling of pedagogical activity, which allows students to work out practical pedagogical actions in the learning process. Simulation means creating an artificial model of a real process. Thus, in the learning process, it is possible to create behavioral models, separate stages of the pedagogical process, life situations. The educational process based on the technology of imitation modeling includes a complex of educational and self- educational processes aimed at

solving the problems of the formation and development of pedagogical activity - explanation (objecting), testing and imitation of the pedagogical process using an artificial system [5].

RESULTS

The simulation technology is based on the construction and solution of increasingly complex pedagogical situations under the guidance of a teacher. The created situation is virtual, and the sessions are dynamic, based on real experience, trying to put the process into practice as much as possible. By its very nature, a virtual process is a conditional environment in which the reader feels more confident and natural than in a real environment. Practice shows that this approach makes it possible to form the pedagogical skills and competencies provided to students, which can then be easily applied in future activities [6]. To implement the process of introducing a student to pedagogical situations, the following are used: algorithmic exercises for mechanical repetition; simulation models - process formation models; situations associated with the solution of increasingly complexpedagogical problems.

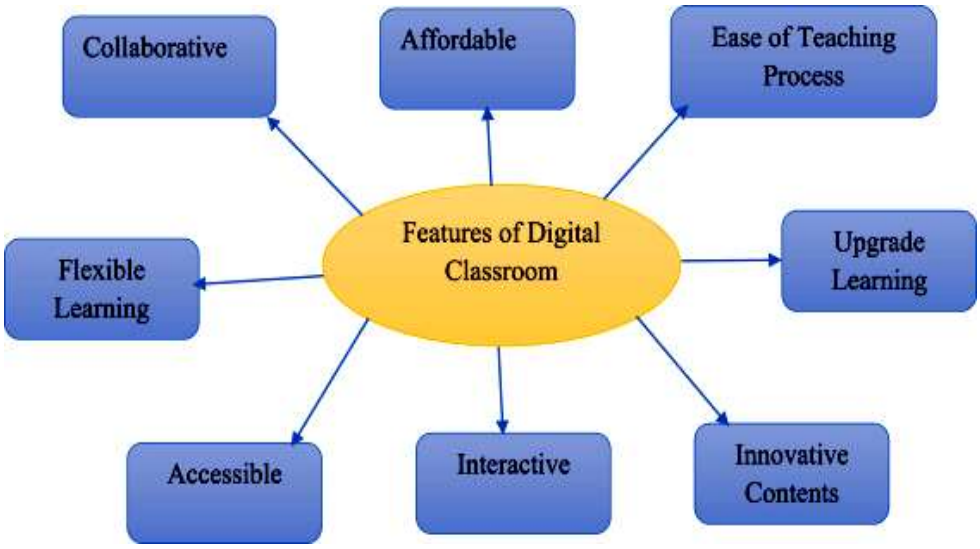


Figure 1. The importance of digital technologies in the process of independent education

The creation of laboratories for simulation models is carried out in several stages. At the first stage, the technical equipment of the laboratory will be carried out. At the second stage, laboratory topics are formed in accordance with the requirements of the state educational standard of higher education and the professional standard approved for the teacher. One of the most important decisions a modeller must make is the choice of this software. If the program is not flexible enough or it is difficult to work with it, then simulation modeling may give incorrect results or even be impossible.

CONCLUSION

Based on the above-mentioned points, it can be concluded that the reflexive and axiological approach determines the complete description of the studied process in terms of content, including the effective planning of technologies for improving the teaching of educational materials to students on the basis of imitation-variation in the process of independent education, provides organization and diagnosis.

The experience of the exchange of professional skills with aspects of the quality management system of the creative-modeling learning environment, which ensures the formation of targeted imitative variability in the future quality education or increasing the importance of independent education, serves to clarify the role of the student in the independent education process. A large part of modern professional educational practices, in one way or another, is a dynamic, complex structure related to the provision of imitative-variability and represents a certain risk for the engineer, and in the scientific literature, often "engineer-machine" intelligence the so-called environment.

In conclusion, we can say that almost all traditional methods of interaction between a teacher and a student can be implemented through simulation. The means of simulation models

can be technical devices, virtual analogs of personal interaction, as well as some processes. The results of the study showed that, in fact, activities in the context of student involvement in modeling professional activities in a specialized laboratory have a positive effect on the formation of pedagogical skills. The development of a professional orientation in the process of mastering the educational process using a simulation model is an important condition for the formation of readiness for future professional activity, as a result of which the interest of students increases, the necessary skills and abilities are activated, skills and professional qualities are developed.

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