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APPLICATION OF INNOVATIVE EDUCATIONAL TECHNOLOGIES IN HIGHER EDUCATION: RESULTS OF A PEDAGOGICAL EXPERIMENT

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Abstract. In the context of the ongoing transformation of higher education, the application of innovative educational technologies aimed at improving the quality of student training has become increasingly significant. The study was conducted between 2022 and 2024 at Andijan State University, Navoi State University, and Kokand State University of the Republic of Uzbekistan, involving 529 third-year students and 15 academic staff members. To evaluate the effectiveness of the proposed approach, questionnaires, pedagogical observation, self-assessment methods, and mathematical-statistical data analysis using the chi-square (χ^2) criterion were employed. The findings demonstrated a positive dynamic in the level of students' readiness to perceive and apply innovative educational technologies and confirmed the effectiveness of implementing the technology for developing critical thinking in the educational process of higher education institutions.

Keywords: educational process; higher education; innovative educational technologies; innovative learning; integral readiness; pedagogical experiment; students; technology for developing critical thinking.

Introduction. In the context of the ongoing transformation of the higher education system, there is an increasing need for the application of educational technologies that ensure not only the acquisition of educational content but also the development of analytical thinking, independence, and students' ability to actively participate in the educational process. One of the promising directions in the modernization of education is the use of innovative educational technologies aimed at developing students' subject position and improving the quality of training future specialists (Azizkhodjaeva, 2005; Selevko, 1998).

Among contemporary educational approaches, a special place is occupied by the **technology for developing critical thinking**, which is considered a means of organizing learning activities based on information analysis, argumentation, reflection, and independent construction of conclusions. The use of this technology makes it possible to move from predominantly reproductive learning toward active student engagement in the process of knowledge acquisition (Halpern, 2000).

Despite the active development of research devoted to innovative educational technologies and the technology for developing critical thinking, the issue of their practical influence on the formation of students' readiness to perceive and apply innovative educational technologies in the context of teaching pedagogical disciplines remains insufficiently studied. The analysis of educational practice demonstrates that the implementation of innovative approaches in higher education is often fragmented and accompanied by limited use of diagnostic tools for assessing educational outcomes. Therefore, there remains a need for the experimental verification of pedagogical solutions aimed at developing students' readiness to use innovative educational technologies within the educational process.

The purpose of this study was to experimentally verify the effectiveness of applying innovative educational technologies based on the technology for developing critical thinking in the educational process of higher education.

Materials and Methods. The study was conducted between 2022 and 2024 at three higher

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education institutions of the Republic of Uzbekistan. A total of 529 students and 15 academic staff members participated in the research. To evaluate the results, questionnaires, pedagogical observation, self-assessment, and mathematical-statistical data processing using the chi-square (χ^2) criterion were applied.

The assessment of students' readiness level was carried out according to motivational, cognitive, activity-based, and reflective criteria, followed by the classification of results into corresponding levels of development.

Results and Discussion. At the diagnostic stage of the study, an assessment was conducted to examine teachers' and students' attitudes toward the application of innovative educational technologies, and the initial level of readiness of participants in the educational process to use innovative forms of learning was determined. The obtained data demonstrated that the majority of teachers positively perceived the implementation of innovative educational technologies and recognized the importance of developing critical thinking in the contemporary educational process. At the same time, several methodological and organizational difficulties were identified, mainly associated with insufficient experience in the systematic application of innovative approaches in educational practice.

The results of the student survey also demonstrated a positive attitude toward innovative learning, accompanied by different levels of understanding of the nature of innovative educational technologies and the possibilities of the technology for developing critical thinking. It was found that students' readiness to engage in active forms of learning exceeded their actual experience of participation in such formats, indicating the potential for expanding innovative educational practices in higher education.

To evaluate the effectiveness of the developed structural-functional model, a comparative analysis of the levels of students' integral readiness in the experimental and control groups was conducted. The results of the initial assessment did not reveal statistically significant differences between the groups ($\chi^2 = 4.15$; $p > 0.05$), which confirmed the comparability of the initial research conditions and the validity of participant distribution.

During the formative stage, the educational process in the experimental groups within the course *General Pedagogy* was organized based on the application of the technology for developing critical thinking**.** The structure of the classes included methods and techniques aimed at activating cognitive activity and developing analytical thinking, argumentation, and reflection. The control groups continued learning within the framework of the traditional organization of the educational process. This made it possible to compare the effects of traditional and experimental approaches to organizing the educational process. The quantitative results obtained are presented in Table 1.

Table 1

Dynamics of the levels of students' integral readiness in the experimental and control groups based on the results of the pedagogical experiment

Readiness Level	Experimental Group (Before), %	Experimental Group (After), %	Control Group (Before), %	Control Group (After), %
High	18.7	29.6	18.3	23.3
Medium	30.3	43.8	32.8	36.3
Low	32.6	22.1	36.6	33.1
Very Low	18.4	4.5	12.2	7.3

Note: The distribution of readiness levels was calculated based on the results of the diagnostic assessment of students in the experimental and control groups before and after the

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implementation of the structural-functional model for the application of innovative educational technologies.

Analysis of Results. The data presented in Table 1 demonstrate a positive dynamic in the changes of students' integral readiness levels in the experimental groups compared to the control groups, which indicates the effectiveness of implementing the proposed approach.

The statistical verification of the results revealed significant differences between the experimental and control groups ($\chi^2 = 11.5$; $p < 0.05$). The average level of students' integral readiness in the experimental groups (88.24 points) was higher than that of the control groups (79.27 points).

Discussion of Results. The obtained results demonstrate that the use of the technology for developing critical thinking contributes to increasing the level of students' readiness to perceive and apply innovative educational technologies. The identified positive dynamics confirm the possibility of applying this approach in the educational process of higher education institutions.

Practical Significance of the Study. The practical significance of the results lies in the possibility of applying the proposed approach in the implementation of pedagogical disciplines within the higher education system.

Conclusion. The conducted study confirmed the effectiveness of applying innovative educational technologies based on the technology for developing critical thinking in the educational process of higher education institutions. It was established that the use of active and reflective teaching methods contributes to increasing the level of students' readiness to perceive and apply innovative educational technologies.

The obtained results may be used in organizing the teaching of the course *General Pedagogy* and require further verification under the conditions of other educational programs.

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