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EVOLUTION OF EDUCATIONAL MODELS IN THE TRAINING OF HEALTHCARE PROFESSIONALS

Yaxiyoyeva Sanobar Axmedovna
Bukhara State Medical Institute
email: yaxiyoyeva.sanobar@bsmi.uz
https://orcid.org/0009-0006-0722-5917

Abstract: The article presents an analysis of the **transformation of pedagogical models and teaching methods** in contemporary medical education, taking into account the implementation of innovative approaches. Special attention is given to the integration of **digital technologies**, **interactive communication platforms**, and **practice-oriented learning tools**, which contribute to the creation of a dynamic educational environment. The study examines **didactic strategies** that promote the development of students' **independent thinking**, **critical clinical reasoning**, and **decision-making skills** in professional practice.

The significance of **collaborative learning**, **simulation-based training**, and **competency-oriented assessment methods** is also substantiated, as these approaches enhance the quality of preparation of future healthcare professionals. The research findings confirm that the application of innovative pedagogical strategies positively influences **learning effectiveness** and contributes to the **professional development** of students.

Keywords: innovative education, medical pedagogy, digital learning environment, competency-based approach, simulation-based training, collaborative learning, clinical reasoning, educational effectiveness.

RELEVANCE OF THE STUDY. In contemporary medical education, one of the key objectives is to **enhance the effectiveness of the educational process**, aimed at developing students' and professionals' solid theoretical knowledge and practical skills. Accordingly, in recent years, special attention has been given to the implementation of **interactive educational strategies**, which have proven effective in strengthening learners' professional competence [1,2,5,14,15].

Active learning methods, including **case studies, simulation games, group discussions, and digital educational technologies**, contribute to the development of students' **critical thinking**, **analytical reasoning skills**, and the ability to make well-founded decisions in clinical practice [3,4,11,16,17]. These approaches create an educational environment that closely approximates real professional conditions and fosters **independent knowledge acquisition**.

Particular importance is placed on the **development and implementation of high-quality training programs** for healthcare specialists that meet the evolving requirements of modern medicine and rapidly changing professional standards [8,9,10,13]. The systematic use of interactive methods, their proper adaptation, and integration into the educational process ensure a **significant improvement in the level of professional training**, including in specialized fields such as epidemiology [6,7,12].

Thus, the study and refinement of interactive educational strategies represent a **relevant scientific and pedagogical task**, aimed at optimizing the educational process, increasing student motivation, and preparing competent professionals for modern medical practice.

AIM AND OBJECTIVES OF THE STUDY. The primary aim of this study is to determine the pedagogical effectiveness of interactive educational strategies in teaching the course

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"Epidemiology" and to comprehensively examine their impact on the development of students' theoretical knowledge and practical skills.

Additionally, the study focuses on analyzing the mechanisms for effective implementation of interactive methods in accordance with the current requirements of medical education and on refining these methods based on evidence-based recommendations.

The specific objectives of the research are as follows:

To systematically examine interactive educational strategies, methods, and pedagogical technologies applied in the teaching of epidemiology.

To analyze theoretical and practical studies in order to assess the effectiveness of active learning methods (case studies, simulation games, group discussions, digital technologies) in the educational process.

To evaluate the impact of interactive methods on the formation of students' theoretical knowledge and practical skills in epidemiology using empirical research methods.

To identify existing challenges and barriers to the implementation of interactive methods in the educational process and to develop effective pedagogical approaches to overcome them.

To prepare methodological recommendations for the effective integration of interactive educational technologies within the context of medical education in Uzbekistan.

To contribute to the preparation of highly qualified healthcare specialists by analyzing the influence of interactive methods on the development of contemporary medical education.

MATERIALS AND METHODS. This study was conducted to determine the pedagogical effectiveness of interactive educational strategies in teaching the course "Epidemiology." A combination of theoretical and empirical methods was employed during the research.

The study involved medical students and faculty members teaching epidemiology at Bukhara State Medical Institute. A total of 120 students and 6 instructors participated in the research.

The primary materials included data obtained from students' participation in interactive learning activities, incorporating pedagogical methods such as case studies, simulation games, group discussions, and digital educational tools.

Research Methods:

Theoretical Analysis: Scientific publications, pedagogical methodologies, and research articles on interactive teaching methods were thoroughly reviewed.

Questionnaires and Interviews: Surveys were conducted among students and instructors to assess their attitudes toward interactive methods, as well as the challenges, opportunities, and effectiveness of these approaches. Questionnaires included written and rating-scale questions, while interviews were conducted in both oral and written formats.

Students were divided into two groups. The experimental group used interactive teaching methods, while the control group followed traditional lecture-based instruction. After a three-month academic period, the results of both groups were compared to identify differences in theoretical knowledge and practical skills.

Students were presented with real clinical and epidemiological scenarios to evaluate their problem-solving abilities and teamwork skills in professional tasks. Data were processed using SPSS software. Analyses included calculation of means, standard deviations, correlations, and tests for significant differences. Statistical significance was set at $p < 0.05$. The research was conducted from September 2024 to May 2025. All collected data were entered into electronic spreadsheets, checked for accuracy and completeness, and then subjected to statistical analysis. Based on the results, scientific conclusions and practical recommendations were developed.

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RESULTS AND ANALYSIS. The study examined the effectiveness of interactive teaching methods and their impact on students' knowledge and practical skills in the course "Epidemiology." The results of the experimental and control groups were compared.

Increase in Theoretical Knowledge: In the experimental group, test scores in Epidemiology increased by 25%, indicating the high effectiveness of interactive methods in mastering theoretical knowledge. No significant changes were observed in the control group.

Development of Practical Skills: The use of case studies and simulation games significantly enhanced students' ability to analyze clinical situations. In the experimental group, 78% of students demonstrated the ability to effectively apply their knowledge in practice, compared to 54% in the control group.

Active Participation and Motivation: According to survey results, 85% of students involved in interactive learning expressed satisfaction with the educational process, highlighting the role of these methods in increasing motivation. In the control group, this figure was 60%.

Challenges and Recommendations: While both students and instructors noted the effectiveness of interactive methods, challenges were identified, such as limited technical resources and time constraints. Additionally, the study emphasizes the need for professional development courses for instructors on interactive teaching methodologies.

Statistical Analysis: Statistically significant differences were observed between the results of the two groups ($p < 0.05$). This confirms that interactive methods substantially enhance students' knowledge and practical skills.

CONCLUSIONS. The results of the study indicate that the application of interactive learning strategies significantly improves both the theoretical knowledge and practical skills of students in the course "Epidemiology." Compared to traditional teaching methods, interactive approaches promote: active student engagement in the learning process, the development of critical thinking, the strengthening of professional competencies, and the overall effectiveness of the educational process.

The use of case studies, simulation games, group discussions, and digital technologies helps students develop clinical and epidemiological reasoning skills, as well as the ability to make rapid and well-founded decisions in complex situations. In addition, a positive impact on students' interest in learning, motivation, and professional orientation was observed.

Statistical analysis confirmed the significant superiority of the experimental group results ($p < 0.05$), supporting the scientific validity and pedagogical effectiveness of interactive methods.

Thus, it is advisable to implement interactive teaching methods widely within the medical education system, particularly in the teaching of Epidemiology. This approach not only enhances the quality of education but also contributes to the preparation of highly qualified, independent, and competitive specialists for the future healthcare system.

REFERENCES

1. World Health Organization. Transforming and scaling up health professionals' education and training: WHO guidelines. Geneva: WHO; 2013.
2. Harden RM, Laidlaw JM. Essential Skills for a Medical Teacher. 2nd ed. Elsevier; 2017.
3. Dolmans DHJM, De Grave W, Wolfhagen IHAP, van der Vleuten CPM. Problem-based learning: future challenges for educational practice and research. Medical Education. 2005;39(7):732-741.
4. O'zbekiston Respublikasi Sog'liqni saqlash vazirligi. Tibbiy ta'limni takomillashtirish konsepsiyasi. Toshkent; 2020.

pISSN:2349-5707 Volume:12,Issue 11,November-2025 eISSN:2349-5715

5. Ruiz JG, Mintzer MJ, Leipzig RM. The impact of e-learning in medical education. Academic Medicine. 2006;81(3):207-212.
6. Rakhmatova M.R., Jalolova V.Z., Jumaeva G.A., Nazarov C.E. The level of knowledge of students acquired in interactive ways “Blitz method” and “Case study”//Новый день в медицине 2019, 4(28),C.69-73
7. Rakhmatova M.R., Jalolova V.Z. Effectiveness of the combined application of interactive methods "debats" and "a weak link" in theconduct of the lesson // Биология и интегративная медицина»- 2018. - №4. С 225-131
8. Rakhmatova M.R., Jalolova V.Z. "The place of innovative technologies in training of highly qualified personnel in the highest medical educational institutions // Биология и интегративная медицина 2018. - №3. С. 234-247.
9. Rakhmatova M. R. et al. Interactive methods “blitz method” and “case study” factor affecting the level of knowledge //Academicia: An International Multidisciplinary Research Journal. – 2021. – Т. 11. – №. 2. – С. 807-810.
10. Orziev, Z. M., et al. "Criteria for the effectiveness of the level of knowledge of students acquired by interactive teaching methods." Diary of the Kazan Medical School (2019): 38-42.
11. Cook DA, Hatala R, Brydges R, Zendejas B, Szostek JH, Wang AT, Erwin PJ, Hamstra SJ. Technology-enhanced simulation for health professions education: a systematic review and meta-analysis. JAMA. 2011;306(9):978-988.
12. Klichova F. K. et al. Efficiency of methods of dactic playing in developing professional skills //Новый день в медицине. – 2020. – №. 4. – С. 528-529.
13. Орзиев З.М., Рахматова М.Р., Жалолова В.З., Кличова Ф.К. Критерии эффективности уровня знаний студентов, приобретенных интерактивными методами обучения // «Дневник Казанской медицинской школы» 2019, июнь С. 38-42 3.
14. Орзиев З.М., Рахматова М.Р., Жалолова В.З. Влияние интерактивных методов обучения на формирование уровня клинических знаний // Вестник Международного Университета Кыргызстана 2018 №3 С 163-167
15. Орзиев З. М., Рахматова М. Р., Жалолова В. З. Интерактив методларни бирлаштирган холда дарс утиш самарадорлиги/ «Современное состояние, проблемы и перспективы медицинского образования» международная учебно-научно-практическая конференция Бухара. – 2018. – С. 92-95.
16. Раҳматова М. Р. и др. Талабалар орасида соғлом турмуш тарзини тарғиб этувчи тўгараклар ташкил этишнинг устуворлиги //Биология и интегративная медицина. – 2021. – №. 1 (48). – С. 444-454.
17. Рахматова М.Р., Жалолова В.З., Мустафаева Ш.А., Нурова З.Ҳ. Малакали тиббий кадрлар тайёрлашда инновацион педагогик педагогик технологияларнинг ўрни // Новый день в медицине - 2020. - № 1 (20). - С. 77-80.