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Innovative Approaches to the Study of Medical Disciplines: Research on the Effectiveness of Interdisciplinary Learning

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Abstract: Interdisciplinary learning combines knowledge, methods, and future perspectives from several different disciplines for a single purpose. In medical education, this approach requires students to discuss medical data from multiple perspectives. In this study, we analyze the impact of interdisciplinary learning on the effectiveness of medical knowledge acquisition and subsequent practice in the healthcare sector. The study includes a review of various methods of implementing knowledge from different fields: biomedicine, digital technologies, foreign languages. The role of the latest information technologies in improving the quality of medical education was also considered. The results of this study demonstrate that an interdisciplinary approach to education contributes to better training of medical professionals to master complex material and practical skills.

Keywords: interactive learning, medical education, pedagogical strategies, educational methods.



Introduction

Medical education requires continuous improvement not only in the clinic but also on a theoretical basis. In addition to outdated traditional approaches to education that focus only on highly specialized knowledge, there is a growing need for innovative methods that will promote a better understanding of complex medical topics and readiness for interdisciplinary work (Bilash, 2023).

Interdisciplinary learning has become one of the most promising approaches that combines terms, knowledge and methods from different disciplines to achieve a holistic and practical approach to medical issues for students (Bondar, 2023). The interdisciplinary approach involves the integration of different fields into medical disciplines, i.e. the combination of knowledge, approaches, methods of several disciplines to solve complex problems. In medical education, this involves creating an understanding of complex biomedical processes in students (Cai, 2022). In addition, interdisciplinary learning promotes communication between different departments and faculty collaboration.

Research Aim and Research Questions

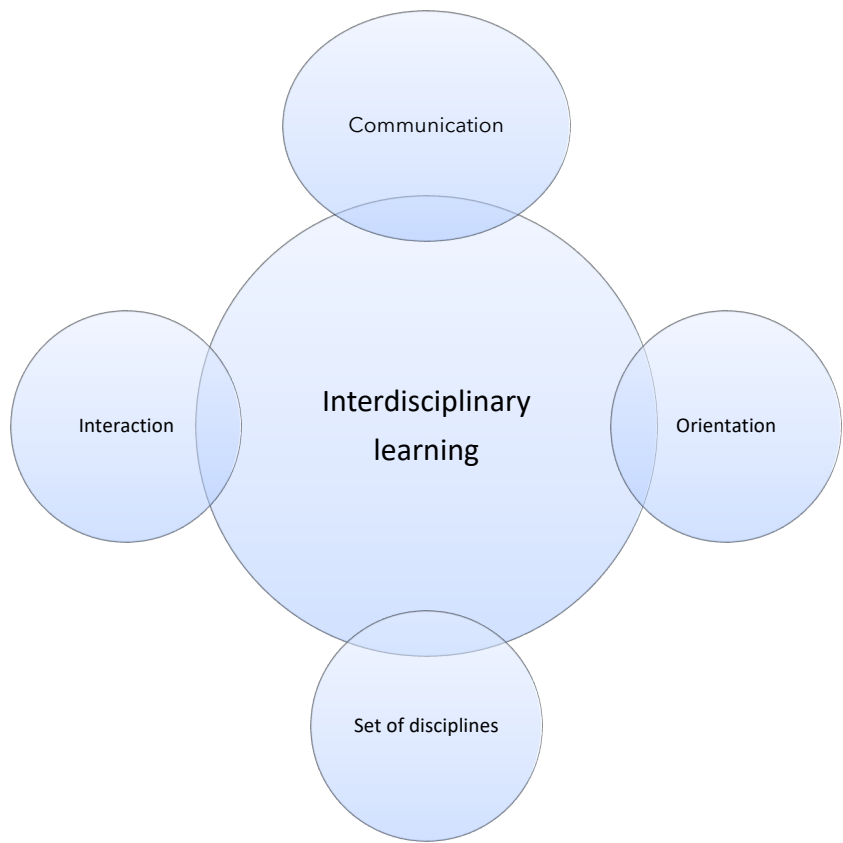
The purpose of this paper is to determine the impact of interdisciplinary learning on the effectiveness of learning medical disciplines by analyzing the literature on PubMed over the past five years, as well as the impact of this method on the formation of critical thinking of students and the application of the acquired knowledge in clinical practice.

Research Results

The analysis of literature sources has shown that the introduction of the interdisciplinary method in medical institutions has a positive impact on all aspects of the educational process (Figure 1).

Figure 1

Components of interdisciplinary learning



Source: Authors' own development



In particular, the data show that students' academic performance is significantly improving, which is manifested in a better understanding of topics, the use of scientific terms in various subjects, and a deeper understanding of theoretical concepts (Figure 2).

Figure 2

The main advantages of interdisciplinary learning

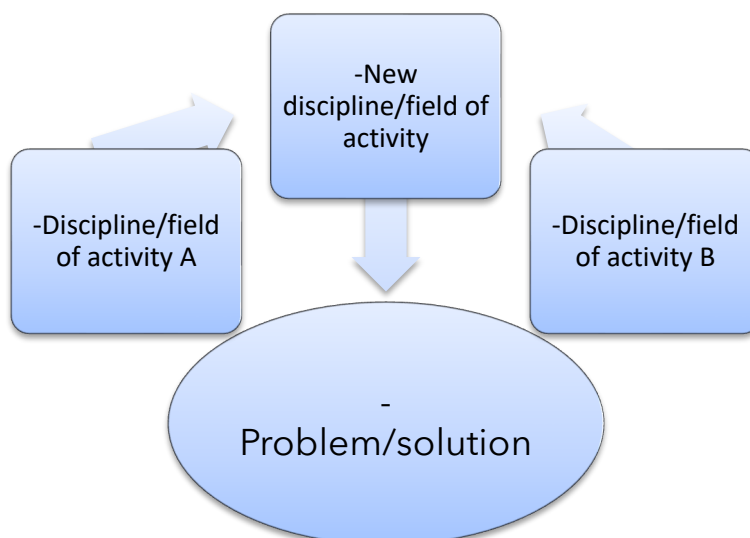


Source: Authors' own development

Interdisciplinary approaches also help to increase students' motivation to study. It was discussed that a set of knowledge from different subjects helps to better master medical knowledge (Figure 3).

Figure 3

An example of building interdisciplinary learning



Source: Authors' own development



Teamwork and interdisciplinary communication were also valued. For example, anatomy, which is the basis of morphology, has developed strong links with Latin (Gohar, 2019). Almost all anatomical terms are of Latin origin, and some anatomical structures use Latinized Greek words. The conciseness and accuracy of the Latin language made it indispensable in the formation of scientific terminology. Today, it remains the main professional language for doctors around the world. For future doctors, learning Latin is of particular importance, as it is the basis not only for anatomical terminology but also for many other professional disciplines. The first introduction to Latin usually takes place at departments specializing in anatomy and professional disciplines, which further helps to correctly name various anatomical structures, diseases, and write prescriptions for various pharmaceuticals (Hasynets, 2024).

Biomedicine also has a place in interdisciplinary education. It is the basis for understanding basic physiological and biological processes. The introduction of biomedical disciplines contributes to a holistic approach to treating patients and understanding their diseases (Kornyska, 2023). Biomedicine is an integral part of computer science, psychology and social sciences, which allows students to get a complete vision of the patient, taking into account the biological, social and psychological aspects of their disease (Kumar, 2021). Such implementation develops clinical thinking of medical students, critical analysis and quick solution of critical problems.

Digital technologies are playing an invaluable role in this regard, as they are beginning to be integrated into the educational process as part of innovative approaches to expanding and improving knowledge (Lepore, 2023). The use of virtual simulators, applications, and interactive tools significantly increases the effectiveness of the classroom (Schijf, 2023). Students note that virtual clinical simulations allow them to acquire practical experience, which in the future helps to reduce stress before working with real patients (Silva, 2023).

Thus, the results of the study show that interdisciplinary learning is an effective tool for improving the quality of medical education. It allows students to better absorb knowledge, develop critical thinking, increase their motivation and preparation for professional activities, which confirms the need for wider implementation of such approaches in the curricula of medical institutions.

Conclusions

The interdisciplinary approach to education helps to form key competencies of applicants, promotes better communication between research and teaching staff from different departments of medical schools. This innovative approach demonstrates a huge potential for better training of students. This study confirms that the implementation of an interdisciplinary approach improves motivation, interest and learning of topics by future healthcare professionals. The importance of this approach lies in preparing better healthcare professionals who are able to work with patients and in a team, making informed decisions.

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