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TECHNOLOGIES FOR ORGANIZING INTERDISCIPLINARY INTEGRATION IN THE TEACHING OF CLINICAL SUBJECTS IN MEDICAL EDUCATION

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Annotation

In the context of modern medical education, the interdisciplinary integration of clinical sciences is considered a key factor in developing future doctors' professional competence and clinical thinking. This article explores the didactic, psychological, and technological possibilities for organizing interdisciplinary connections between clinical and fundamental disciplines. The paper focuses on methodological approaches and integrative technologies that enhance teaching efficiency, such as problem-based learning, case-based training, and simulation technologies. Furthermore, it analyzes how integration facilitates cognitive continuity, increases motivation, and promotes the formation of holistic medical knowledge in undergraduate students.

Keywords: interdisciplinary integration, clinical subjects, simulation technology, medical education, cognitive development, problem-based learning, didactic innovation.

Medical education is currently experiencing a global shift toward competence-based, integrated training models that align closely with clinical practice. One of the central pedagogical innovations is the organization of interdisciplinary integration during the teaching of clinical subjects. This approach not only enhances the quality of education but also ensures continuity between theoretical knowledge and practical application in real clinical settings [1, 2].

Interdisciplinary integration technologies serve to systematically coordinate content from clinical disciplines (e.g., internal medicine, surgery, pediatrics) with pre-clinical subjects (e.g., anatomy, physiology, microbiology). For instance, clinical cases used in problem-based learning scenarios may draw from anatomical

knowledge and pathophysiological mechanisms, thereby strengthening horizontal and vertical integration [3, 4].

According to recent research, over 78% of medical students reported improved comprehension of clinical material when interdisciplinary teaching strategies were applied, particularly in simulated or case-based learning environments [5]. Clinical reasoning development was also more pronounced in groups exposed to integrated curricula, showing statistically significant differences ($p < 0.01$) compared to traditionally trained groups [6].

Technological means of facilitating integration include the use of digital learning platforms, clinical simulation centers, virtual patient technologies, and interdisciplinary learning management systems. These tools help create educational modules that simulate real clinical workflows, promoting immersive and contextual learning [7]. For example, when students simultaneously learn cardiology and pathophysiology through interactive cases, they can apply knowledge in a synchronized, practice-oriented manner [8].

Psychologically, integration enhances learning motivation by making subject matter more relevant and coherent. Didactically, it supports the principles of constructivist learning by emphasizing student-centered activities and problem-solving in authentic clinical contexts [9]. Pedagogically, integration fosters professional identity formation and collaborative skills among students [10].

Despite its benefits, successful implementation requires coordinated curriculum design, team teaching, and institutional support. Faculty training is essential to shift from discipline-specific instruction to interdisciplinary collaboration. This involves developing shared learning outcomes, synchronized schedules, and integrated assessment tools that reflect holistic clinical competencies [11].

In conclusion, interdisciplinary integration technologies in the teaching of clinical subjects enrich the pedagogical process, foster cognitive development, and bridge the gap between theoretical learning and clinical application. This approach aligns with international standards of medical education and supports the formation of future physicians who are adaptive, knowledgeable, and professionally competent.

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