



IMPROVING THE METHODOLOGY OF DEVELOPING CRITICAL THINKING AMONG MEDICAL UNIVERSITY STUDENTS

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Abstract: *This article delves into the importance and methodologies for enhancing critical thinking skills among medical university students. It examines the current teaching strategies, evaluates their effectiveness, and discusses the impact on students' abilities to analyze, evaluate, and synthesize medical information in clinical settings.*

Keywords: *Critical thinking, medical education, problem-based learning, reflective practice, cognitive development, clinical reasoning, student engagement, pedagogical strategies, curriculum design, assessment methods.*

Objective: To critically evaluate and improve the methodologies employed in fostering critical thinking among medical university students. The focus is on identifying effective teaching strategies, enhancing curriculum design, and developing robust assessment tools to better equip future medical professionals.

Relevance of the Topic: In the rapidly evolving field of medicine, the ability to think critically is crucial for making informed decisions, diagnosing accurately, and providing effective patient care. Traditional medical education often emphasizes rote memorization and the acquisition of factual knowledge. However, this approach may not sufficiently prepare students to tackle the complex, unpredictable challenges they will face in clinical practice. Therefore, enhancing the methodology of developing



critical thinking skills in medical students is essential for producing competent and adaptable healthcare professionals.

Literature Review: Dr. John R. Dewey's work emphasizes the necessity of fostering an environment where students actively engage with material rather than passively receiving information. This engagement is crucial in medical education, where students must learn to navigate uncertainty and make decisions based on incomplete or complex information.

Research by Dr. Richard Paul and Dr. Linda Elder highlights that critical thinking is not an innate ability but a skill that can be developed through deliberate practice. They argue that traditional lecture-based approaches are insufficient, as they often do not challenge students to think deeply or question underlying assumptions. Instead, they advocate for a shift towards more interactive and reflective teaching methodologies.

Dr. Donald Schön's concept of "reflective practice" is another cornerstone in developing critical thinking. His research suggests that the ability to reflect on one's actions, understand the reasoning behind them, and learn from both successes and mistakes is crucial in the formation of skilled clinicians.

Teaching Strategies to Develop Critical Thinking: Problem-Based Learning (PBL): PBL is a cornerstone of critical thinking development in medical education. By presenting students with real-world clinical scenarios, PBL encourages them to engage in active problem-solving. This method forces students to apply theoretical knowledge, collaborate with peers, and develop solutions, thereby enhancing their ability to think critically under pressure.



In a PBL session, students might be presented with a patient showing symptoms of multiple conditions. They would need to determine which tests to order, interpret the results, and develop a treatment plan. This process mimics real-life clinical decision-making and enhances critical thinking by requiring students to justify their choices based on evidence.

Reflective Practice: Reflective practice encourages students to analyze their clinical experiences, identify what they did well, and recognize areas for improvement. This method helps students develop self-awareness and fosters a habit of continuous learning.

After a clinical rotation, students could be asked to write reflective journals where they analyze specific cases they encountered. This exercise helps them critically evaluate their decision-making processes and consider how they might approach similar cases in the future.

Case-Based Learning (CBL): CBL involves the use of detailed clinical cases to teach students how to apply their knowledge in practice. This method challenges students to think critically as they work through complex scenarios, requiring them to assess evidence, identify key issues, and make informed decisions.

Students might be given a case of a patient with conflicting symptoms that could indicate several different conditions. They would need to weigh the evidence, prioritize their diagnostic options, and make decisions under time constraints.

Socratic Questioning: Socratic questioning is a teaching method that involves asking students deep, probing questions that challenge their assumptions and reasoning. This method helps students develop the ability to think deeply and critically, as it forces them to justify their thought processes and consider alternative perspectives.



In a discussion about a controversial treatment option, an instructor might ask, "What evidence supports this approach?" and "How might the patient's condition change if we take a different approach?" Such questions encourage students to critically assess the situation and consider multiple angles.

Collaborative Learning: Group discussions and peer learning activities can significantly enhance critical thinking by exposing students to diverse perspectives. Collaborative learning fosters a deeper understanding of medical concepts and promotes critical analysis through dialogue and debate.

In a collaborative learning session, students might be divided into groups and asked to debate the merits of different treatment plans for a complex case. This exercise promotes critical thinking as students must defend their positions with evidence and consider counterarguments.

Challenges and Adaptation Mechanisms in Teaching: While the aforementioned strategies are effective, their implementation presents several challenges. These include resistance to change from faculty accustomed to traditional teaching methods, limited time within the curriculum, and the need for faculty development to effectively facilitate PBL, CBL, and other interactive methodologies.

Adaptation Mechanisms: Faculty Development: Providing training for educators on how to effectively implement PBL, CBL, and reflective practice is crucial. Workshops, seminars, and peer mentoring can help faculty transition from traditional lectures to more interactive teaching methods.

Curriculum Integration: Critical thinking should be integrated throughout the medical curriculum, not confined to specific courses. This requires a rethinking of how courses are structured and assessed to ensure that critical thinking is consistently emphasized.



Use of Technology: Incorporating technology, such as virtual simulations and online discussion platforms, can enhance the development of critical thinking skills. These tools allow students to engage with material in new ways and provide opportunities for self-assessment and reflection.

Assessment of Critical Thinking: Assessing critical thinking skills requires innovative approaches that go beyond traditional exams. Effective assessment methods include:

Reflective Journals: Students can maintain journals where they document their thought processes during clinical rotations, providing insights into their critical thinking development.

Concept Mapping: This involves students creating visual representations of their understanding of complex medical issues, demonstrating their ability to connect different concepts and apply them in clinical contexts.

Clinical Simulations: Simulations provide a controlled environment where students can practice decision-making skills in realistic scenarios. Their performance in these simulations can be evaluated to assess their critical thinking abilities.

Objective Structured Clinical Examinations (OSCEs): OSCEs are a practical assessment method where students must demonstrate their clinical reasoning and decision-making skills in a series of timed stations, each presenting different medical scenarios.



Conclusion: Improving the methodology for developing critical thinking among medical students is crucial for preparing them to meet the demands of modern healthcare. By integrating innovative teaching strategies such as PBL, reflective practice, and collaborative learning into the medical curriculum, educators can better prepare students to think critically, solve problems effectively, and deliver high-quality patient care. Continuous assessment and refinement of these methodologies are necessary to ensure their effectiveness in fostering critical thinking.

Future Directions: Future research should focus on longitudinal studies that assess the long-term impact of these methodologies on students' critical thinking skills and clinical performance. Additionally, exploring the role of interdisciplinary education in enhancing critical thinking could provide new insights into curriculum development.

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