



Learning Styles and Teaching Preferences of Medical Students: Insights for Effective Medical Education

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Dear Editor-in-chief

In medical education, understanding how students learn through different sensory modalities is vital for enhancing teaching effectiveness. Research indicates that approximately 65% of students are visual learners, while about 30% are auditory learners, and the remaining 5% rely on kinesthetic learning methods (1-3). This distribution emphasizes the need for educators to adopt multimodal teaching strategies that align with these preferences, as such methods foster active learning and deeper comprehension. Medical students particularly favor interactive and practical approaches, such as clinical skills labs and problem-based learning, which promote greater engagement and knowledge retention (3). By recognizing these preferred learning styles, educators can create inclusive environments that meet the diverse needs of all students. This letter aims to review recent research on the preferred learning styles and teaching methods of medical students, highlighting their implications for effective medical education.

Key Words: Education, Learning Styles, Teaching Preferences, Medical Students.

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1. Key Senses in Learning

- **Visual Learning (65%):** Visual learning is the most prevalent style among students, with approximately 65% absorbing information through images, diagrams, and visual aids. This underscores the need for educators to incorporate visual elements into their teaching strategies to enhance understanding and retention.
- **Auditory Learning (30%):** About 30% of students identify as auditory learners, thriving on lectures and discussions. This highlights the importance of verbal communication in education. To support these learners, educators should include interactive discussions and audio resources in their teaching methods.
- **Kinesthetic Learning (5%):** Only 5% of students prefer kinesthetic learning, benefiting from hands-on activities and movement-based experiences. Despite being a minority, it is essential for educators to incorporate practical exercises and simulations to effectively engage these learners (2, 4, 5).

The learning preferences of medical students reveal a significant reliance on sensory modalities, particularly visual and auditory methods. Research indicates that a majority of students prefer multimodal learning styles, with a notable percentage utilizing both their auditory and visual senses in their educational experiences (6, 7). Understanding the preferred learning styles and teaching methods among medical students is crucial for enhancing educational effectiveness.

Research indicates that medical students exhibit diverse learning preferences, which significantly influence their choice of teaching methodologies.

2. Preferred Learning Styles

Research shows that a significant number of medical students prefer multimodal learning styles, with approximately 54% to 64.2% favoring this approach, particularly bimodal styles at 30% (7). Kinesthetic learning is notably popular, with 30% to 36.8% of students identifying it as their primary mode (8). Additionally, studies indicate that 32% prefer kinesthetic modalities, while 26% lean towards auditory methods and 21% towards visual methods (8). Interestingly, around 68.9% of students also favor unimodal styles, with visual learning being the most common (2). This variety in preferences highlights the necessity for educational strategies that accommodate different learning styles to enhance student engagement and understanding.

To effectively meet these diverse needs, educators should employ a range of teaching methods, including visual aids, auditory materials, and hands-on activities. For example, clinical skills labs are highly favored by 64% of students, particularly those who prefer kinesthetic learning (9), while bedside teaching is preferred by 29.9% (8), underscoring the importance of real-world applications in medical education. The trend towards multimodal learning styles indicates a shift in educational preferences among medical students. By creating inclusive learning environments that cater to various sensory inputs, educators can improve student engagement and foster better academic outcomes across the diverse medical student population.

3. Preferred Teaching Methods

Research indicates that medical students have a strong preference for interactive and practical teaching methods, which significantly shape instructional design in medical education. Specifically, 52% of students favor practical classes, while 39% prefer discussions with

teachers, and only 5% support traditional lectures (8). This trend underscores the importance of incorporating hands-on experiences and interactive discussions to enhance engagement and improve learning outcomes.

Among preferred teaching methods, clinical skills labs lead with 64%, followed by interactive lectures at 59% and practical sessions at 20.6%. Additionally, demonstrations are highly valued, with 81.2% of students expressing a preference for this method (10). These findings suggest that aligning teaching strategies with students' learning styles can enhance academic performance and engagement (2, 11). While many students embrace innovative approaches like problem-based learning, some still prefer traditional methods such as blackboard teaching (12). This highlights the need for a balanced approach in medical education that integrates both modern and traditional teaching strategies.

In summary, prioritizing interactive and practical teaching methodologies is crucial for medical education programs. By incorporating hands-on training, engaging discussions, and innovative lecture formats into their curricula, institutions can better meet student needs and enhance educational effectiveness in preparing future healthcare professionals. This adaptive approach not only supports academic success but also fosters a more engaging and effective learning environment for all students.

4. Implications for Medical Education

Recognizing and addressing students' learning styles allows educators to tailor their teaching approaches effectively. For example, integrating interactive techniques such as problem-based learning (PBL) and practical demonstrations engages students who prefer active learning modalities (2, 11). Additionally, multisensory strategies enhance learning experiences, improving engagement and retention (13), while inclusive classrooms that accommodate diverse sensory needs lead to better outcomes for all students (14).

The implications for medical education are significant. Aligning teaching methods with students' preferences can enhance academic performance and engagement. However, these preferences do not always correlate with academic achievement (10, 15, 16), underscoring the need for ongoing assessment and adaptation of teaching strategies. Furthermore, some students still prefer traditional methods, such as blackboard teaching, indicating that a balanced approach incorporating both innovative and traditional strategies is essential (12).

In conclusion, medical education programs should prioritize interactive and practical methodologies. By integrating hands-on training, discussions, and innovative lecture formats into their curricula, institutions can better meet student needs and enhance educational effectiveness in preparing future healthcare professionals. This adaptive approach fosters a more engaging learning environment for all students.

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