

Implementation of addictive learning in medical education

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ABSTRACT

Addictive learning represents a specific type of learning wherein medical students become highly motivated and engaged to continuously remain involved in the learning process. Considering the volume, depth, and complexity of information that a medical student must acquire, there is an immense need for sustained engagement to aid students in absorbing this information, and there lies the importance of addictive learning. Acknowledging the significance of addictive learning in medical education delivery and in facilitating the attainment of learning competencies among students, many teaching-learning strategies have been proposed and implemented globally. In conclusion, the concept of addictive learning in medical education can significantly enhance student engagement and thus play a crucial role in gaining knowledge and acquisition of skills. The need of the hour is to adopt different strategies to promote the implementation of addictive learning by creating a conducive learning environment for medical students.

KEYWORDS

Addictive Learning; Engagement; Gamification; Medical Education

INTRODUCTION

In the field of medical education, students are expected to acquire multiple competencies and traits during their period of training (1). Acknowledging the huge number of subject-specific competencies and the necessity to acquire them to become a successful future clinician, students must be engaged in the learning process (2). Addictive learning

represents a specific type of learning wherein medical students become highly motivated and engaged to continuously remain involved in the learning process (3). This form of student engagement depends on a number of internal and external parameters, including the learning environment and the role of teachers, which ensures that students are constantly encouraged, challenged, and rewarded, and

thus students tend to have sustained interest and active involvement in the learning process (2,4).

Addictive learning in medical education: Significance

Considering the volume, depth, and complexity of information that a medical student must acquire, there is an immense need for sustained engagement to aid students in absorbing this information, and there lies the importance of addictive learning (2,3). In the cognitive domain, addictive learning plays a defining role in knowledge retention, as students tend to revisit the knowledge component, and this also enables better understanding and retention of complex medical concepts (5). In the psychomotor domain, addictive learning enables students to repeatedly practice and refine their skills in controlled settings (like simulations or virtual reality), and thereby be ready for real-world settings (3,5). It is important to note that when the learning is addictive, there is a reduced probability of stress or burnout, rather students adopt a positive approach to learning (6). Further, this form of learning promotes intrinsic motivation that encourages students to take specific initiatives to attain the intended learning objectives (7).

In other words, it encourages self-directed learning and also instills seeds for lifelong learning that happens to be one of the core competencies worldwide (3). This form of learning becomes crucial in the acquisition of critical thinking and problem-solving skills and is extremely important in the act of diagnosis and treatment of patients (5). As this form of learning often involves the incorporation of technology, students become familiar with and thus are well-equipped to even adapt to advanced technologies in clinical practice (8). Further, many addictive learning strategies include group projects and discussion forums, and thus students learn the importance of teamwork which is of paramount importance in healthcare settings (9,10). The inclusion of all the above elements makes the learning process engaging and fun-filled and thus brings about a significant improvement in the

academic performance of the medical students (6-9).

Implementation of addictive learning: Strategies and Tools

Acknowledging the significance of addictive learning in medical education delivery and in facilitating the attainment of learning competencies among students, many teaching-learning strategies have been proposed and implemented globally. The inclusion of game-like elements (like points, leaderboards, badges, levels), which is quite common among individuals of medical students' age can prove to be a promising strategy as these features aid in the creation of a competitive and rewarding learning experience for them (11). In medical colleges, students can be awarded specific badges once they acquire a specific skill or complete a learning module (11). Another strategy could be to adopt virtual reality and high-fidelity simulations to provide students with a real-world-like experience of clinical scenarios (12). In-fact, such kind of immersive learning experiences aid students in repeatedly practicing the desired skills in safe settings till they master them (12). In alignment with the adult learning principles, students should be exposed to clinical or simulated cases that have practical and clinical relevance, as this will give them an opportunity to apply their knowledge in clinical settings (acquire problem-solving and decision-making skills) (13).

The adoption of adaptive learning technologies that ensure that the educational content and its difficulty level are customized depending on the performance of individual students can also be an effective strategy for facilitating addictive learning (14). This is accomplished by engaging individual students in the learning process by aligning the delivery of content with the pace and level of understanding of an individual medical student, and thus they don't feel the pressure of their peers or being overwhelmed (14). Along similar lines, it is a proven strategy to not overburden students with complex topics and multiple assignments, rather the same things can be segregated into smaller sub-topics, which goes a long way in

helping students manage their studies along with other personal commitments and responsibilities. The learning can also be made addictive, if we provide immediate feedback to students about their performance, as this will make them understand the relevance, and where they went wrong, and motivate them to take steps to rectify their shortcomings (15). Addictive learning can also be encouraged by giving a platform for students to engage in peer learning (*viz.* group assignments, peer teaching, etc.), as this will enable discussion, improve comprehension, and play a vital role in the development of communication skills (9,10). Teachers can also adopt strategies of storytelling to engage students in the learning process, as this ensures that students can relate to the scenario and even imagine the developments (16). The inclusion of interactive multimedia elements (such as videos, animations, etc.) in both teaching and assessment practices can help students easily absorb complex concepts (17). Even the approach of the flipped classrooms can play a vital role in the engagement of students as the entire class duration is used for discussion and practical application (18). Further, the use of social media applications like WhatsApp groups can also act as an effective strategy to facilitate engagement of students, and thereby promote discussion and sharing of learning resources (19). In mentoring sessions, mentors can encourage their mentees to set individual learning goals and help them to identify customized strategies to work in the direction of attainment of these goals (20). Further, the institution can also implement some tools that can help individual student monitor their own learning progression over a period of time (21). This visual progression acts as a strong motivating factor for students to take proactive measures towards the attainment of learning competencies and thus they are on the track of continuous improvement (21). The approach of problem-based learning, wherein students are presented with a scenario, brings about a significant engagement in the learning process (22). This is predominantly because upon the identification of the problems, students engage in extensive research, do critical

thinking, and perform clinical reasoning to arrive at the possible solution to the given problem (22). Finally, the introduction of mobile applications or learning management systems in the educational delivery allows students to learn on the go and/or beyond the classroom hours, and this makes the entire learning process flexible and inclusive (23). The introduction and implementation of all the above strategies are expected to make the learning environment engaging and will act as a source of constant motivation, deeper understanding, and long-term retention of knowledge and skills

CONCLUSION

In conclusion, the concept of addictive learning in medical education can significantly enhance student engagement and thus play a crucial role in gaining knowledge and acquisition of skills. The need of the hour is to adopt different strategies to promote the implementation of addictive learning by creating a conducive learning environment for medical students.

RELEVANCE OF THE STUDY

It is the responsibility of medical teachers to make the learning process engaging, meaningful, and relevant to the needs of the students.

AUTHORS CONTRIBUTION

All authors have contributed equally.

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CONFLICT OF INTEREST

There are no conflicts of interest.

DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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