NEW APPROACHES TO MEDICAL AND NURSING EDUCATION

Nursing

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KEYWORDS

"Teaching Is The Highest Art; Before The Doctor, There Was A Teacher"

- **Steve Perry**

Medical educators tasked with curriculum reform may find it difficult to implement fresh pedagogical strategies[1]. Although it may be attractive to accept new improvements to the curriculum, these attempts are frequently based on insufficient evidence. Despite the extensive use of innovative educational modalities, there are little direct comparative data and no explicit curriculum prescriptions. Although active learning methodologies are believed to be better to traditional lecture formats, the strategic deployment of specific active learning components has been less precisely defined[2]. Consequently, curriculum leaders are frequently uncertain about how to blend small groups, e-learning, and traditional lecturing to create the optimal learning environment[3,4]. Unfortunately, emerging modes of information transmission can exacerbate uncertainty[5].

Despite the fact that this should be the most important element driving educational innovation, no study has yet compared numerous novel educational modalities within an established medical school curriculum.

Strategies For Teaching

Didactic lectures (DL) have been the Holy Grail and most prevalent technique of traditional teaching and learning. DL is dependent on the instructor, who teaches enormous volumes of information with low student interaction, and is often conducted in an instructor-centered classroom, with the instructor at the focus of students' knowledge, content, and involvement. Despite traditional inclinations for the simplicity of lecture presentations, their suitability for crowded classrooms, and their capacity to communicate vast volumes of theoretical content, students are exposed to large amounts of information that are difficult to store, remember, and interpret[7]. However, learning is an active process in which students and instructors must collaborate to make this knowledge-sharing process entertaining and easy to comprehend. Teaching should encourage the development of analytical approaches to a topic and address crucial areas for optimal learning. Students should be able to apply classroom knowledge and abilities to their professional goals, while being equipped with varied learning styles and having the chance for feedback and conversations on their learning process, so boosting their learning outcomes[8]. Thus, it is vital to employ a method of teaching and learning that suits the pupils' individual requirements[9]. Therefore, modern education systems should incorporate a variety of different teaching and learning methodologies that are well-validated and applicable to a regular medical school classroom situation.

Modern Techniques Of Teaching And Learning:
Case Based Learning (CBL):

Clinical case-based learning (CBL) is a teaching-learning method that uses clinical cases to supplement standard lectures. CBL encourages active learning and has recently been utilised to substitute for the lack of motivation in traditional didactic lectures. Students are given the opportunity to examine actual patient cases that include patient history, signs, symptoms, and clinical and laboratory data (Singhal, 2017). Through teamwork and peer interaction, students evaluate the case and create investigations and management strategies. The objective is to instil in students the ability required for critical analysis.CBL promotes inquiry-based learning strategies by connecting theory to practise.

Students are placed in groups and given clinical cases to imitate real-world situations. The students then discuss and analyse the case as a team to determine differential diagnoses, management options, and future plans[10,11].

Evidence Based Medicine (EBM):

EBM offers students with the necessary tools to learn, analyse, and evaluate medical literature. EBM consists of five steps: a) translation of indeterminate information into an answered question; b) retrieval of the best available evidence; c) critical comprehension of evidence for internal validity; d) application of results to practise; and e) evaluation of performance. It promotes lifelong learning and disciplined thought by permitting the meticulous and rational application of current medical evidence in patient care decisions[12].Although EBM has been contrasted to the distinction between experimental and personal equilibrium, the early adoption of EBM in medical schools has successfully altered the thought processes of medical graduates. Students are better equipped with analytical and decision-making skills, which has a good effect on competency development. Implementing EBM into the traditional medical curriculum enhances students' research knowledge, personal application, viewpoint, and future application of the learnt methodologies . In contrast to the inclusion of evidence-based medicine (EBM) into traditional medical curricula, new approaches to medical education emphasise creativity and spontaneity. It also improves the ability to think logically and critically, making it more suitable for comprehending the background of an illness and its subsequent care[13].

Problem Based Learning (PBL):

PBL is a contemporary teaching approach that combines complimentary educational elements in the form of a clinical problem. It focuses on enhancing the quality of educational results through collaborative, integrated, self-directed, and all-encompassing learning. An important and fundamental principle of problem-based learning is "problem-first" learning, in which students seek to answer a problem before receiving formal lectures on the subject. Typically, PBL is delivered through small group tutorials in which the instructor relays instructions as a facilitator. Typically, these tutorials consist of multiple sessions, each of which is devoted to a certain subject and includes a period of independent research and information collecting. This allows pupils to pursue and establish a solid basis for self-directed learning. Medical students are supposed to co-construct their own meaning and comprehension of reflective information through social interaction, as opposed to passively receiving pre-synthesized knowledge. PBL is recognised as an effective approach for fostering higher-order cognitive processes among group members. [14].

Simulation Based Learning (SBL):

Simulations are man-made representations of the actual world used for experiential learning. Simulation tools are essential for simulation learning. Simulation has been used in high-risk areas like aviation for decades. Medical simulation allows purposeful practise instead of apprenticeship-style learning. It replaces real patients and clinical situations. Preclinical education uses SBL due to clinical restrictions. Benefits include allowing learners to make and repeat errors without harming patients. Virtual reality could increase SBL learning and patient care confidence. It's cutting-edge technology designed to promote human-machine interaction and narrow the gap between reality and theory-based learning by placing learners in pseudo-

realistic surroundings. It differs in development, authenticity, and end-user compatibility with the virtual background. Understanding haptic feedback can add resistance to virtual instruments. Residents learn laparoscopic and endoscopic instrumentation utilising the same technology.

SBL can simulate clinical situations, but it can also be students' first practical experience, requiring collaboration, patience, teamwork, and excellent guidance. Mannequins, software, and facility spaces need regular maintenance. A session involves time and equipment to guarantee fair student opportunity. All equipment must be properly operated by professors. Simulation training reduces errors and improves medical procedure performance. Teaching complicated medical procedures using simulation improves patient care. Simulation-based learning should begin with fundamental sciences to provide students more hands-on clinical experience. Smaller groups and less instructional supervision promote student involvement and peer discussions[15,16].

5. Social Media And Video Lectures (e-learning):
Social media is a public networking space where end users establish online communities for effective discussion. These online communities are helpful to circulate information, thoughts, and various other contents. There are many social media platforms like Twitter, Facebook, YouTube, and online blogs. The obligation for an advancing education is more important than ever before, thereby incorporation of social media in the modern educational system is a must. Social media platforms can assist subsidiary traditional knowledge and enhance distant learning. Students and learners of all stratums commonly check the internet for details about diseases, therapies, and associated physiology. Furthermore, many organizations have realized that supporting live-tweeting or blogging of medical conferences as well as dispensing opportunities for wide propagation of content can far outdistance the in-person attendance.[17].

8. Flipped Classroom:
Flipped classroom is the newer innovative teaching and learning strategy that incorporates blended learning techniques using online and/or offline instructional content outside the traditional classroom setting. Students are provided with the pre-recorded lectures assigned as homework for class preparation shifting from instructor-centred towards self-directed learning. They solve medical cases by engaging in small groups that will facilitate a team-based approach and promote longer retention of facts (Hew and Lo, 2018). It also supports student interaction amongst each other to fill the void in their knowledge by acknowledging their diversity and learning strengths. Flipped classroom promotes self-directed learning, as students are obliged to look into alternative sources to support the given cases. Current research evidence shows that the flipped classroom approach improves student perception, learning, critical thinking skills, and motivation in comparison to traditional lecturing methods[18].

Mind Mapping Technique
Mind mapping was developed as an effective method for generating ideas by association. In order to create a mind map, you usually start in the middle of the page with the central theme/main idea and from that point you work outward in all directions to create a growing diagram composed of keywords, phrases, concepts, facts and figures. It can be used for assignments and essay writing especially in the initial stages, where it is an ideal strategy to use for your 'thinking'. Mind mapping can be used for generating, visualising, organising, note-taking, problem-solving, decision-making, revising and clarifying your university topic, so that you can get started with assessment tasks. Essentially, a mind map is used to 'brainstorm' a topic and is a great strategy for students[19].

In a study conducted by A Jadhav & J Shinde on mind mapping technique effectiveness on information retrieval among Nursing students, the result signified that this technique was statistically significant on the information retrieval rate.[21]

Jigsaw Puzzle Method
The jigsaw cooperative learning structure fosters cooperative learning by requiring each student to instruct the group on a portion of the content. Within this framework, Students are divided into two distinct groups: "home group" and "jigsaw group." Each student is allotted a chunk of the topic to learn as a "expert" [5] in their home groups. Students then go into jigsaw groups, which are comprised of people from different home groups who have been allocated the same section of the course. In their jigsaw groups, students debate their specific subject matter to guarantee comprehension. Students then return to their home groups and instruct the rest of their group on the content . It is a cooperative learning strategy that enables each student of a group to specialize in one aspect of a learning unit to resolve a task or class Project.[20]

CONCLUSION
Learning is a continuous process, and it is essential to acknowledge that kids have diverse learning styles. CBL, EBM, PBL, SBL, e-learning, the flipped classroom model, team-based learning, the mind mapping method, and the jigsaw puzzle method are examples of contemporary medical education teaching and learning techniques. These student-centered alternative teaching and learning methodologies extend students' perspectives through innovative new methods of constructive knowledge acquisition and increase their professional competence by fostering the development of skills, competency, and leadership in the medical sector. Beginning in the preclinical years, medical education should be sufficiently adaptable to accommodate and include multidisciplinary teaching paradigms in an effective and suitable manner.

REFERENCES
1. Mahan JD, Clinchot D. Why medical education is being (inexorably) re-imagined and re-designed. Curr Probl Pediatr Adolesc Health Care. 2014;44:137–40.
2. Wong G, Greenhalgh T, Pawson R. Internet-based medical education: a realist review of what works, for whom and in what circumstances. BMC Med Educ. 2010;10:12.
3. Muller JH, Jain S, Loeser H, Irby DM. Lessons learned about integrating a medical school curriculum: perceptions of students, faculty, and curriculum leaders. Med Educ. 2008;42(8):778–85.
4. Khalil MK, Kibble JD. Faculty reflections on the process of building an integrated preclerkship curriculum: a new school perspective. Adv Physiol Educ. 2014;38(3):199–209.
5. Delgaty L, Fisher J, Thomson R. The 'dark side' of technology in medical education. Med Ed Publish. 2017;6(2):19.
6. Cook DA. The failure of e-learning research to inform educational practice, and what we can do about it. Med Teach. 2009;31:158–62.
7. Papanna, K., Kulkarni, V., Tanvi, D., Lakshmi, V., et al. (2012) 'Perceptions and preferences of medical students regarding teaching methods in a Medical College, Mangalore India', African Health Sciences, 13(3), pp. 808-813. https://doi.org/10.4314/ahs.v13i3.41
8. Sudarso, S., Rahayu, G. R. and Suhoyo, Y. (2016) 'How does feedback in mini-CEX affect students' learning response?', International Journal of Medical Education, 7, pp. 407-413. https://doi.org/10.5116/ijme.580b.363d
9. Saville, B. K., Zinn, T. E., Neef, N. A., Van Norman, R., et al. (2006) 'A Comparison of Interteaching and Lecture in the College Classroom', Journal of Applied Behavior Analysis, 39(1), pp. 49-61. https://doi.org/10.1901/jaba.2006.42-05
10. Zinski, A., Blackwell, K. T. C. P. W., Belue, F. M. and Brooks, W. S. (2017) 'Is lecture dead? A preliminary study of medical students' evaluation of teaching methods in the preclinical curriculum', International Journal of Medical Education, 8, pp. 326-333. https://doi.org/10.5116/ijme.59b9.5f40
11. McLean, S. F. (2016) 'Case-Based Learning and its Application in Medical and Health-Care Fields: A Review of Worldwide Literature', Journal of Medical Education and Curricular Development, 3(S20377), pp. 1-11. https://doi.org/10.4137/JMECD.S20377
12. Gagliardi, J. P., Stinnett, S. S. and Schardt, C. (2012) 'Innovation in evidence-based medicine education and assessment: an interactive class for third- and fourth-year medical students', J Med Lib Assoc, 100(4), pp. 1-4. http://dx.DOI.org/10.3163/1536-5050.100.4.014
13. Sánchez-Mendiola, M., Kieffer-Escobar, L. F., Marín-Beltrán, S., Downing, S. M., et al.

(2012) 'Teaching of evidence-based medicine to medical students in Mexico: a randomized controlled trial', BMC Medical Education, 12(107), pp. 1-14. https://doi.org/10.1186/1472-6920-12-107

14. 14. Tshitenge, S. T., Ndhlovu, C. E. and Ogundipe, R. (2017) 'Evaluation of problem-based learning curriculum implementation in a clerkship rotation of a newly established African medical training institution: lessons from the University of Botswana', The Pan African Medical Journal, 27(13), pp. 1-8. https://doi.org/10.11604/pamj.2017.27.13.10623

15. 15. Chin, K. L., Yap, Y. L., Lee, W. L. and Soh, Y. C. (2014) 'Comparing Effectiveness of High-Fidelity Human Patient Simulation vs Case-Based Learning in Pharmacy Education', American Journal of Pharmaceutical Education, 78 (8), pp.1-8. https://doi.org/10.5688/ajpe788153

16. Challa KT, Sayed A and Acharya Y. Modern techniques of teaching and learning in medical education: a descriptive literature review [version 1]. MedEdPublish 2021, 10:18

17. Taveira-Gomes, T., Ferreira, P., Taveira-Gomes, I., Severo, M., et al. (2016) 'What Are We Looking for in Computer-Based Learning Interventions in Medical Education? A Systematic Review', Journal of Medical Internet Research, 18(8), pp. 1-21. https://doi.org/10.2196/jmir.5461.

18. Gilboy, M. B., Heinerichs, S. and Pazzaglia, G. (2015) 'Enhancing Student Engagement Using the Flipped Classroom', Journal of Nutrition Education and Behavior, 47 (1), pp. 109-114. https://doi.org/10.1016/j.jneb.2014.08.008

19. Arulselvi E. Mind Maps in Classroom Teaching and Learning. Excellence in Education Journal. 2017;6(2):50-65.

20. Aydin A, Biyikli F. The Effect of Jigsaw Technique on the Students' Laboratory Material Recognition and Usage Skills in General Physics Laboratory-I Course. Universal Journal of Educational Research. 2017;5(7):1073-82.

21. A Jadhav.,J Shinde. Effectiveness of Mind mapping on the information retrieval among Nursing students, printed in July 2019