

BLENDING OLD AND NEW TEACHING METHODS AND TOOLS IN MEDICAL EDUCATION

Naseer Hassan¹, Alamzeb Jadoon², Junaid Ahmad Khan³, Zahid Irfan Marwat⁴, Raza Hassan⁵,
Muhammad Zahid⁶, Momina Saleem⁷

Correspondence

²Alamzeb Jadoon, Associate Professor, Physiology Department, Nowshera Medical College, Nowshera
☎: +92-300-8550585

✉: alamzebkhajadoon@gmail.com

¹Associate Professor / Head of Neurosurgery Department, Nowshera Medical College, Nowshera

³Assistant Professor, Cardiac Surgery Department, Sheikh Mohammad Bin Zayed Al Nayan Institute of Cardiology, Quetta

⁴Professor Biochemistry Department, Nowshera Medical College, Nowshera

⁵Assistant Professor Orthopedic Department, Northwest General Hospital and Research Center, Peshawar

⁶Assistant Professor Physiology Department, Nowshera Medical College, Nowshera

⁷Trainee Medical Officer, Orthodontics, Khyber College of Dentistry

How to cite this article

Hassan N, Jadoon A, Khan JA, Marwat ZI, Hassan R, Zahid M, et al. Blending Old and New Teaching Methods and Tools in Medical Education. J Gandhara Med Dent Sci. 2023;10(1): 33-36
<https://doi.org/10.37762/jgm.10-1.387>

INTRODUCTION

The use of technology in teaching has flourished like all other fields of life.¹ In medical education, teaching has changed from teacher-centred lectures to student-centred, interactive lectures, Small group discussions, and problem-based learning. Similarly, teaching tools have also changed during the last few decades. The traditional lecture method has long been replaced in American medical schools.² Different methods like lectures, collaborative patterns, group discussions, problem-solving, e-learning, clinical education, evidence-based medicine, and medical-based simulations are used in medical education.^{3,4} Many factors like attention span, learner's readiness, motivation and participation of learners affect the lecture, but medical education still relies on lectures.^{5,6}

ABSTRACT**OBJECTIVES**

To identify a preference for current teaching methods and use new teaching aids through feedback by medical students and teachers of first and second-year MBBS.

METHODOLOGY

This cross-sectional study was conducted on 91 MBBS students and teachers of Nowshera Medical College (NMC), Nowshera. Both male and female students and teachers of NMC of class first and second-year MBBS participated in the study. A feedback proforma-based questionnaire was filled out by all the participants online using Google forms. Participants were given the option to select more than one option in the case of the mode of teaching and tool of teaching. The data was collected, analyzed and presented in tabular and graphical forms using SPSS version 23.

RESULTS

Out of the 91 participants who responded to our research, 45 (49.5%) were males, and 46(50.5%) were female. The majority, 74 (81.3%), were MBBS students, while 17(18.7%) were MBBS teachers. Most of the participants selected more than one option. Most 48(52.7%) of the participants preferred lectures as the mode of delivery while 35(38.4%) opted for SGD, for demonstrations 14(15.3%), PBL 33(36.2%), assignments 13(14.2%) and notes opted by 4(4.39%). 60.4% (55) were selected to use whiteboards and markers. Only 15.3% (14) were in favour of Powerpoint use, dissection 25(27.4%), models 29(31.86%), and figures 11(12%).

CONCLUSION

Lectures remain the most preferred teaching method in basic medical sciences among teachers and students, along with other teaching methods. Multiple teaching tools must be used during the class instead of solely depending on Powerpoint presentations.

KEYWORDS: Basic Medical Sciences, Microsoft Powerpoint, Whiteboard, Tools, Teaching Methodologies

No teaching method or teaching aid can be labelled superior to another. It appears that in the hands of a trained teacher, any teaching aid would be appropriate and effective. Transparencies, overhead projectors, and soft wares like Microsoft PowerPoint (PPT) to Prezi are widely used by teachers, as it saves time and helps use different visual aids for a large number of students. PowerPoint is much more effective as we can cover more coursework in less time, which results in cognitive load.² This highlights the need for formal training in teaching technologies to develop good presentation skills and thus motivate the students.^{7,8} PowerPoint is designed to help the speaker or lecturer assemble professional-looking slides for oral presentations. For most speakers, however, the problem is not with PowerPoint but with how they use it.⁸ Excess of everything is bad. Infinite bullets, points

and paragraphs of text are a recipe for disaster. There are many issues with the preparation of power point slides like layout, background, theme selection, clear legible text and visibility of slides in bigger classes, given that the effectiveness of PowerPoint-based teaching is not related to the technology itself but to the users of this technology.^{9,10,11} It is better to use an integrated approach in the use of teaching aids while teaching instead of solely depending upon PowerPoint use. According to the students, clarity of words, illustrations, real pictures, and summarizations were some of the attributes best dealt with on PPT, whereas explanations, clarity of concepts and learning to draw diagrams are better done on chalk and Board.¹² The curriculum in medical education is changing continuously. One has to keep pace with the learners ever-changing needs and changing education trends. We should try to find out the gaps by taking student's feedback so that teaching-learning can be effective. Feedback from the students is important in improving teaching.¹³ Blended learning, a new approach in educational planning, is defined as applying more than one method, strategy, technique or media in education.¹⁴ Powerpoint has eased the life of presenters, but our students have still not gotten used to it. In this study, we took feedback from students and teachers of Nowshera Medical College, Nowshera, about the methods of teaching basic medical sciences and the use of different teaching aids during our lectures. Lecture-based, small group, problem/topic-based learning, questions and answer sessions, self-study groups, demonstrations, assignments, notes, internet and textbook were compared. The use of whiteboard and markers, models, dissection, PowerPoint presentations, slide projectors, figures and charts were also compared. This research will give an idea about the student's preferences towards class teaching and using teaching tools and technology in classes.

METHODOLOGY

This cross-sectional was done in 2021-22 and included 92 MBBS students and teachers. This study was conducted at Nowshera Medical College, Nowshera, Khyber Pakhtunkhwa. Both male and female subjects were included in this study. A close-ended questionnaire was designed in Google forms and filled out online by all the participants. After data collection, analysis was carried out using SPSS version 23.

RESULT

Of the 91 participants who responded to our research, 45 (49.5%) were males, and 46(50.5%) were female. The majority, 74 (81.3%), were MBBS students, while

17(18.7%) were basic medical science teachers of anatomy, physiology, biochemistry, pathology and pharmacology. Participants were given multiple choices from all the different teaching methods, and many students opted for more than one option. Most of the participants, 48(52.7%), preferred lecture as a mode of teaching while 35(38.4%) preferred small group discussions (SGDs), 33(36.2%) also wanted problem-based learning (PBLs), 24% question and answer sessions, 20% voted for self-study groups, 14% opted for demonstrations, 13(14.2%) in favour of assignments, while only 4% were in favour of internet use. When students and teachers were asked about their preferences in the use of teaching aid, most opted for more than one option. The majority, 55(60.4%), were in favour of whiteboard and marker used during the lecture, 35% of teaching using models, 25(27.4%) were interested in dissection, and 15.3% (14) were in favour of Powerpoint. 13(14.2%) selected slide projectors, 11(12%) opted for teaching using Figures and 10(10.9%) voted for use of charts.

DISCUSSION

Almost all the students and teachers selected more than one option for teaching methods and teaching tools, which shows that teaching different subjects require different tools and aids of teaching depending upon the subject being taught but the lecture delivery using chalk and board is still the most popular choice of students and teachers. In our study, when compared, most participants (51%) preferred chalk and board lecture. The majority (67%) favoured the whiteboard and marker used during the lecture. Only 17% of students opted for PowerPoint during the lecture. The findings suggest that students in the first two years of the medical college are comfortable with the chalk and board method. This is because they have been taught with chalk and whiteboard till now using figures and diagrams. They were never used to Powerpoint as a teaching tool in their classes. That is why it is difficult for them to adjust to the use of technology all of a sudden. Secondly, using technology requires proper expertise in making and delivering presentations; our teachers have not yet developed the skills needed in this regard. So this is another factor that makes PowerPoint less interesting or boring. A researcher reported that the medical students preferred using PPT presentations, while the dental students did not prefer using PPT.⁵ In another study, only a minority of students (29%) felt that PowerPoint uses advanced technology and should be the method of choice for delivering lectures. Most students feel that the bold old chalk & board method should be used along with PowerPoint for lecture delivery.⁸ Petimani et al. reported that the overall preference of students toward

the best teaching aid was blackboard (60.43%), and the remaining 39.56% preferred the PPT teaching method.¹² A Study by Jabeen et al. proves otherwise that most medical students (90.7%) preferred PPT presentations, while only 9.3% preferred the chalkboard method for teaching gross Anatomy.^{15,16} According to the results of our study, most students opted for more than one mode of teaching and teaching tool. Chalk and board, dissection, and models were the most liked teaching tools. This can be explained as a variation in the content of subjects being taught in basic sciences. So there are always different methods to teach different subjects. Subjects like Anatomy will need dissection and the use of models and figures to understand the concept of the subject. Different types of learners will need different teaching tools to be used to enhance learning. We need to include visual, auditory and kinesthetic tools in our presentations. Blended methods had a more positive effect on the scores of the final exam of pharmacy students.^{17,18} It is recommended that student-centred interactive lecture techniques and SGDs, and PBLs may be used in teaching basic medical sciences as no single method is the gold standard for teaching all the subjects. There should be a balanced use of technology along with the whiteboard, markers, charts, and models to enhance teaching effectiveness and learning outcomes. A subject-wise study should be planned to see the choice of students and teachers to achieve an effective teaching tool and method.

LIMITATIONS

In our study of teaching methods and teaching techniques, all the basic sciences subjects were included in the study as a whole. It would have been better if the study was conducted separately for every subject to know the preference of students according to the subject. The study was only conducted in only one college which could affect the preference of students according to the quality of teaching they receive.

CONCLUSION

Teaching different studies require different tools and aids of teaching according to the subject being taught, but the lecture delivery using chalk and board is still the most popular choice of students and teachers. Teachers should not rely upon any single method of teaching and presentation.

CONFLICT OF INTEREST: None

FUNDING SOURCES: None

REFERENCES

1. John HC, Izang AA, Owolabi J. Smart classroom: a panacea for effective ICT-based instructional strategies in Nigerian medical colleges. *European Journal of Health and Biology Education*. 2018;7(2):17-26.
2. Schwartzstein RM, Roberts DH. Saying goodbye to lectures in medical school—paradigm shift or passing fad. *N Engl J Med*. 2017 Aug 17;377(7):605-7.
3. Khalil R, Mansour AE, Fadda WA, Almisnid K, Aldamegh M, Al-Nafesah A, Alkhalifah A, Al-Wutayd O. The sudden transition to synchronized online learning during the COVID-19 pandemic in Saudi Arabia: a qualitative study exploring medical students' perspectives. *BMC medical education*. 2020 Dec;20(1):1-0.
4. Butt H, Waheed Z, Butt H, Tahir F, Khan NR, Amjad K. Covid19 pandemic induced barriers to The acquisition of online education Among Undergraduate Dental Students Of Lahore, Pakistan. *NVEO-NATURAL VOLATILES & ESSENTIAL OILS Journal|NVEO*. 2021 Nov 12:2927-35.
5. Cooper AZ, Richards JB. Lectures for adult learners: breaking old habits in graduate medical education. *The American journal of medicine*. 2017 Mar 1;130(3):376-81.
6. Ataei M, Hamedani SS, Zamani F. Effective methods in medical education: from giving lectures to simulation. *Journal of Advanced Pharmacy Education & Research*. 2020;10:37.
7. Seth V, Upadhyaya P, Ahmad M, Moghe V. PowerPoint or chalk and talk: Perceptions of medical students versus dental students in a medical college in India. *Advances in Medical Education and Practice*. 2010;1:11.
8. Harden RM. Death by PowerPoint—the need for a _fidget index_. *Medical teacher*. 2008 Jan 1;30(9-10):833-5.
9. Ahmed S, Khan MI. Use of PowerPoint Presentation by the Teachers for Instruction in Selected Dental Colleges of Bangladesh. *Bangladesh Journal of Medical Education*. 2021 Mar 7;12(1):10-5.
10. Abedini S, Kamalzadeh H, Beigi Broujeni R. Nursing Students Experience with the Effectiveness of PowerPoint-based Teaching. *Development Strategies in Medical Education*. 2021 Mar 10;8(1):33-42.
11. Thomas M, Appala Raju B. Are PowerPoint presentations fulfilling its purpose. *SE Asian J Med Educ*. 2007;1:38-41.
12. Petimani MS, Adake P. Blackboard versus PowerPoint presentation: Students opinion in medical education. *International Journal of Educational and Psychological Researches*. 2015 Oct 1;1(4):289.
13. Husain M, Khan S. Students' feedback: An effective tool in teachers' evaluation system. *International Journal of Applied and Basic Medical Research*. 2016 Jul;6(3):178.
14. Stevens DD, Levi AJ. Introduction to rubrics: An assessment tool to save grading time, convey effective feedback, and promote student learning. *Stylus Publishing, LLC*; 2013 Apr 30.
15. Jabeen N, Ghani A. Comparison of the traditional chalk and board lecture system versus power point presentation as a teaching technique for teaching gross anatomy to the first professional medical students. *Journal of Evolution of Medical and Dental sciences*. 2015 Feb 5;4(11):1811-8.
16. Sadeghi R, Sedaghat MM, Ahmadi FS. Comparison of the effect of lecture and blended teaching methods on students learning and satisfaction. *Journal of advances in medical education & professionalism*. 2014 Oct;2(4):146.

17. Kouti L, Aghsam Z, Bargard MS, Javadi MR, Aghakouchakzadeh M, Eslami K. Comparison of the effectiveness of three educational methods (e-learning, lectures and blended) on pharmacy students knowledge of non-prescription drugs. *Pharmacy Education*. 2018 Jun 27;18:197-201.
18. Balakrishnan A, Puthean S, Satheesh G, MK U, Rashid M, Nair S, Thunga G. Effectiveness of blended learning in pharmacy education: A systematic review and meta-analysis. *PloS one*. 2021 Jun 17;16(6):e0252461.

CONTRIBUTORS

1. **Naseer Hassan** - Concept & Design; Data Acquisition
2. **Alamzeb Jadoon** – Critical Revision; Supervision
3. **Junaid Ahmad Khan** - Critical Revision
4. **Zahid Irfan Marwat** - Drafting Manuscript
5. **Raza Hassan** – Data Analysis/Interpretation; Drafting Manuscript
6. **Muhammad Zahid** - Data Analysis/Interpretation; Drafting Manuscript
7. **Momina Saleem** - Drafting Manuscript; Critical Revision



LICENSE: JGMDS publishes its articles under a Creative Commons Attribution Non-Commercial Share-Alike license (CC-BY-NC-SA 4.0).
COPYRIGHTS: Authors retain the rights without any restrictions to freely download, print, share and disseminate the article for any lawful purpose.
It includes scholarly networks such as Research Gate, Google Scholar, LinkedIn, Academia.edu, Twitter, and other academic or professional networking sites.