

Are we ready for blended learning in medical education?

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EDITORIAL

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Conceptualized several decades ago, blended learning has been discussed increasingly recently as an alternative to the traditional teaching learning method. Although the term blended learning generally means the use of e-learning (electronic learning) in some form to learn at least a part of what students need to know along with the traditional face to face teaching,¹ the definition could be widened to encompass many other components that may be as simple as the additional use of a computer to more complex asynchronous online discussion boards. This means that there exists lot of heterogeneity in the way blended learning is conceptualized and being implemented worldwide. Many medical schools are already using blended learning and many more are in the process of doing so. Amidst all this enthusiasm for blended learning there remains the question – do we have enough evidence to start implementing blended learning across the globe in medical education?

Traditional learning employs didactic lectures to a large extent. It is very well accepted that the average attention span of students in a classroom varies between the first 15 and 20 minutes; the retention rate at the end of the lecture being approximately 20%. The addition of computer or online based learning can to some extent help improve the attention span as well as retention. For example, if following the initial 15 minutes of a lecture the teacher gives a problem that needs to be answered after searching online, students not only tend to

be more involved in the class but also are likely to use higher levels of cognitive domain like assimilation, synthesis and application depending on the problem given. Another advantage of blended learning appears to be the flexibility associated with it. The student can learn at his pace and decide on the time and place of learning.

Blended learning has other indirect positive effects as well. One innovative byproduct of blended learning is the flipped classroom; the sequence of events customary to the traditional classroom teaching are reversed.² Traditional learning starts with the teacher providing a predominant cognitive (knowledge) component and requires the students to follow it up with self-study and expansion of knowledge leading to higher levels of learning. The teacher plays the role of subject expert in general. In contrast, the learning material or at least a major part of it is provided to students before the scheduled class. The teacher uses the face to face session to engage students in interactive discussions, group tasks and other activities. This also has the advantage of making the learning process active, learner-centered and more retentive, reducing distraction and promoting higher levels of learning.^{3,4} Moreover, there is enough data to indicate that students are highly satisfied with the blended learning experience, particularly flipped classrooms.⁵

Nevertheless, as with any other learning method it has its share of drawbacks. An economic analysis of blended learning in South Africa showed that it is far more expensive to implement compared to the traditional learning.⁶ Major contributor to this cost was the staff expenses followed by equipment costs. The results of the same study also indicate that there are no significant differences in learner related outcomes using blended and conventional learning. Medical schools in developing countries might find this financial burden extremely difficult to handle. Another issue with blended learning relates to the computer knowledge and skills of the facilitators and students. Disparity among students' IT skills may affect the learning process as well as outcomes. Similarly the versatility of the instructor in e-learning tools

could influence the quality of sessions and motivation level of students. Few studies have focused on the faculty workload related to blended learning; they consistently show that faculty needs to spend more time and effort leading to increased workload. This increase is due to the time and effort spent on creating online learning activities.^{6,7} Thus the time saved by reduction of contact sessions is literally nullified by the additional workload on faculty.

As with all interventions, whether we can apply blended learning at all levels of medical education depends on how strong the evidence is for relevant outcomes. There are very few high quality randomized studies examining efficacy of blended learning; the variations in definitions of blended learning itself seems to contribute much to this evidence vacuum. Consequent to this, systematic reviews and meta-analysis that enable decision making with high levels of confidence are yet to break silence. If learning outcomes including student performances is considered an important outcome, most studies agree that blended learning does not add anything significant to improve these.⁶⁻⁸ A systematic review in 2012 that looked into effect of blended learning on clinical education also concluded that there is insufficient evidence to claim that integrating e-learning with traditional teaching enhances clinical competencies.⁹ Another recent systematic review that examined blended learning integrated with team based learning came to similar conclusions.¹⁰ On the other hand, there is uniformity among studies that students prefer inclusion of blended learning approaches in their curriculum. The bottom line is that we need more robust evidence for improved learning outcomes with blended learning; this would justify its inclusion in medical curriculum despite higher costs, particularly in resource poor settings.

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