

## Blended Teaching/Learning Approach in Medical Schools: Need of the Day in the 21<sup>st</sup> Century

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Received: 07-09-2020

Revised: 15-09-2020

Accepted: 07-10-2020

Please cite this paper as:

Malik AS, Malik RH. Blended Teaching/Learning Approach in Medical Schools: Need of the Day in the 21<sup>st</sup> Century. Interdiscip J Virtual Learn Med Sci. 2020;11(4):265-268. doi: 10.30476/ijvlms.2020.88050.1055.

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### Dear Editor,

COVID-19 pandemic has challenged educators to creatively develop teaching and assessment methods that can work effectively and efficiently while maintaining the social distancing and avoiding large gatherings in classrooms and examination halls. To address this state of affairs, several online teaching facilities have been employed and the number of institutions offering web-based courses has increased exponentially. For example, Cambridge University has announced that, until summer of 2021, all the lectures will be delivered online only.

However, whereas the solely theory-based courses can be offered online, the theory-plus-laboratory courses must be delivered partly in person since they generally involve hands-on experiments. To effectively manage the latter situation, the blended teaching/learning approach has emerged as one of the popular options. In the following passages we have attempted to explain the theoretical basis of BL, its usefulness in teaching/learning activities and the possible challenges in its

implementation.

The term BL may have different meanings for different people. However, in a general sense, BL simply refers to combining traditional F2F teaching with digital experiences (live or recorded) such as videos, animations, gamification, and live communications. In other words, the blended approach can be conducted in the form of distance learning or F2F teaching in a classroom by incorporating digital resources in an interactive lecture, which creates an engaging experience for learners.

Learning theories such as constructivism and the “community of inquiry” along with “ADDIE” model (analysis; design; develop; implement; evaluation) provide the theoretical underpinning for BL. The attributes of autonomy, motivation and learning styles directly relate to the students receiving education through this mode. In BL, (i) The students have the autonomy to regulate their study of course material at their own pace and time; (ii) A high level of motivation is necessary for progress; (iii) All learning

styles can be covered in this approach i.e. Visual style through videos and animations; Auditory style through recorded sessions; Kinesthetic style through drawings, mind mappings and video shootings; Reading style through shared articles/study materials e.g. for Team-based Learning.

Using the principles of andragogy, BL offers more flexibility and receptiveness in the process of teaching and learning. It can effectively address the constraints of time and classroom space. The flexibility provided by the integration of technology into andragogy facilitates communication among students and staff both synchronously and asynchronously, and promotes student-centered teaching/learning approach (1). Given the extensive use of chat applications in asynchronous communication, this method can be highly beneficial to both students and staff. The staff members find time to think and explore the literature before answering the unanticipated questions posed by the students.

The use of appropriate media plays an important role in promoting learning in BL. By incorporating digital tools, it provides teaching/learning experiences that are impossible to achieve using textbooks alone. For example, videos and animation can enrich the learning experience and clarify the otherwise complex and confusing concepts. The clinical conditions that medical students may not be able to see in clinics/hospitals e.g. status epilepticus or different types of skin rashes, can be shown through videos. Moreover, a larger population of students can be reached without enhancing resources (2), and this is a critical advantage given the current pandemic circumstances.

In this respect, the online components of blended learning can be extensively used to impart knowledge to students without them having to attend crowded academic environments. In addition, online components can help with realizing the four key principles of student-centered learning in PBL, i.e. the learning should be constructive, self-directed, collaborative and contextual (3).

Considering these benefits, various

teaching procedures can be effectively executed through blended mode. We have used BL successfully in the conduct of Case-Based Learning (CBL), Interactive Lectures, Team-Based Learning (TBL) and Problem-Based Learning (PBL) using audience engagement/gamification (e.g. Mentimeter), instant messaging/chat (WhatsApp) and videoconferencing (e.g. Zoom) applications. We received a highly positive feedback from students and found this approach by far more rewarding than F2F interaction.

The ability to use videos and animation for explaining complex concepts was the most striking development in our experiment. BL improved communication among staff and students both synchronously and asynchronously. To our surprise, the students asked more questions during the sessions and continued raising questions and suggestions even after the sessions. Students came-up with more arguments and references in favor of their points of view and answers. The lecturers admit that they agreed with the students on certain suggestions/answers which were not there in the original contents.

Moreover, BL has been credited for improving students' reflective thinking skills (4), self-efficacy (5), clinical reasoning and bridging the gap between theory and practice in clinical scenarios (6). Gordon et al. (7) reported the effect of BL on improving clinical skills including history taking, documentation and patient management. However, when it comes to hands-on practice of these skills, one cannot solely rely on the online component of BL as a replacement for F2F learning. We used videos and live online demonstrations for some clinical skills (e.g. examination of cranial nerves) and asked students to practice these skills at home and record videos of their own. All the students shared their videos and were commented upon by the students in the group and by the lecturer.

BL plays an even greater role in Interprofessional Education (IPE). Chen et al. (8) reported that the blended approach helped them remove various barriers in IPE including time constraints in packed curricula

and scheduling limitations in different schools. They also highlighted the role of online access in facilitating coordination in interprofessional learning: “Having on-line content ensured learners received the same consistent content, and increased flexibility allowing learners to access content when it best fit their schedules and review the material in advance of the face-to-face sessions” (8). This paved the way for more fruitful F2F sessions, allowing learners “to focus on meaningful interaction with interprofessional peers and skills practice and reflection, rather than on providing informational content” (8).

Implementation of BL requires capacity building for both staff and students. Both parties must share the objectives of the course and choose technological tools with mutual consent and understanding. Academic staff transitioning to a blended style of teaching need to decide on the right blend of F2F and online instruction, ensure both activities mutually support one another, and choose most appropriate technical tools when designing a blended course (9).

As technology plays a very significant role in BL, its availability and familiarity-with-it are of paramount importance. The barriers to its use may include digital incompetence, internet connectivity problems, and limited financial resources. It should also be noted that the technological component of BL is liable to overwhelm the academic intent. Technology should only be used to enhance the most appropriate method of teaching a particular topic and should not influence the objectives of the teaching.

Finally, one should realise that a successful implementation of BL in one domain does not necessarily mean that it will bear similar results in another domain. Moreover, like any other innovative approach to teaching, effective implementation of BL requires some cultural changes in teaching practice (2). BL is a “new norm” and is here to stay even after all COVID-19 restrictions are lifted. Stakeholders in all higher education institutions have witnessed its benefits and are convinced to use this approach, at least

partially, in their curricula.

## Funding

No funding or support was provided by any organization/s for this work.

## Conflict of Interest

The authors declare that they have no conflict of interest.

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