

Editorial

Blended learning and assessment in medical education: important for Nepal

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The outbreak of the coronavirus disease-19 (COVID-19) pandemic in early 2020 caused an abrupt shift to online teaching-learning globally. Nepal was no exception. Like most other countries Nepal has gone through multiple waves of the pandemic and the latest surge led by the Omicron variant started in January 2022. Due to the lockdown in March 2020 and the absence of physical in-person classes, medical colleges in Nepal had to shift overnight to online teaching-learning.

Perception of medical students about online teaching-learning:

A few authors have studied the perception of medical students in Nepal toward online learning. At Chitwan medical college, more than 53% of students were satisfied with online learning [1]. Female gender, use of wi-fi connection at home as opposed to cellular data packages were among the factors associated with greater satisfaction. However, the rest were either neutral or dissatisfied. Another study noted that students perceived online classes as not equivalent to face-to-face learning and students agreed that they offered greater flexibility but provided lesser opportunity to interact with the faculty and provided lesser knowledge gain [2]. Most medical colleges in Nepal like in many other countries have mainly used free versions of the Zoom, Skype, or Google meet software for

online sessions. These have limitations in terms of the number of participants and the duration of a particular session. Sitting in front of a computer screen and conducting a session is also a new experience for most teachers and many had to adapt to this new teaching modality [3]. In Nepal and even in developed nations there are students who lack access to the internet or may lack a stable connection with a good bandwidth. Students may also lack a quiet place to study and may be sharing the internet with other family members.

Left to their own devices?

An article published in April 2020 had requested the authorities in Nepal to start online classes for students and mentioned various resources available for online education [4]. Student and faculty satisfaction with online learning has been mixed. Among the problems mentioned were issues of internet access, lack of previous experience, inefficient support systems and supporting resources, lack of familiarity of faculty (and even students) with technology among others. One of the reasons for many of these problems in my opinion was the fact that faculty were provided with access to mostly free versions of video conferencing software and were required to teach. Students have also not been instructed on accessing resources and learning online. My interactions with faculty members at

different medical schools highlighted the fact that most were not provided with any training or guidelines to use these new resources. Many wrongly assume that recording a lecture session and then posting it online or delivering a face-to-face lecture and slides online is enough to engage and motivate students to participate and learn.

Challenges with online learning:

Online learning differs in several respects from face-to-face learning. Students may be more distracted due to access to a variety of resources and sites during online sessions. There may be distractions in the home environment and the surrounding environment from where they are participating in the sessions. There may be problems with internet connectivity. In a large class of 100 or 150 students, an individual student may feel lost and overwhelmed. Faculty may also feel ill equipped to make the shift to teaching online. They may only have a personal computer and/or a laptop. Institutional support for these resources may be lacking. They may lack a quiet environment at home to facilitate or conduct the sessions. They may not have headphones and microphones to ensure optimal sessions. A place with proper lighting may not be available.

Making online learning interesting and interactive:

At the International Medical University in Malaysia learning was predominantly face-to-face pre-pandemic. However, the university had created a full-fledged e-Learning department and had a variety of material delivered online even before the pandemic. In 2020 and 2021, training sessions were offered to faculty on various aspects of online learning and on making sessions more

engaging and interactive. There are a variety of options and tools to increase interactivity. Free versions with limitations are available but to access the full range of features you may need to have a paid subscription. Nepalese medical colleges can share resources to offer faculty development sessions on facilitating sessions online. An article published in 2020 at the beginning of the pandemic offers suggestions for making online learning interesting and interactive [5]. These include dividing the large class into smaller subgroups, using software to conduct live pools, providing learners with online quizzes using free tools, using Google docs and other shared documents to promote collaborative work, utilizing material and resources available on the internet as prereading for the students, and promoting the co-creation of learning materials by students.

Access to electronic resources:

To facilitate the shift to blended learning, electronic library resources should be available. Nepal has free access to a variety of resources through the Hinari Access to Research for Health Programme. This includes books, journals, and databases. Articles published in Nepalese journals are available for free through their website and/or through Nepal Journals online (NepJOL). Technology is making rapid inroads and mobile communication has become widely available. Access to the internet is also available in several locations though the quality may vary widely. Like in other countries, healthcare practitioners in Nepal will have access to constantly updated information, to data from wearable and other devices and to large datasets. The volume and complexity of data will steadily increase, and doctors should be conversant with using

evidence to make decisions for individual patients.

A variety of resources are available for online teaching ranging from learning management system (LMS), student management systems, online office and communication systems (ranging from MS office to G suite and many others), student engagement resources like Slido, Socrative, Kahoot and so on. Systems like MS Teams offers the ability to message/call other faculty, support staff and students, conduct online meetings (both video and audio), file sharing, screen sharing and other capabilities. Groups can be created to conduct different types of sessions and resources and files can be shared with specific people. Google offers a variety of services for educational institutions. Moodle, the most widely used LMS is available for free and can be customized according to institutional requirements.

Predictions about the future:

Customizing LMS, creating student management systems suited to the Nepalese context, designing student engagement tools can further develop the information technology (IT) industry in Nepal. Due to climate change, increasing population, and greater interconnectedness it is expected pandemics will increase in frequency and intensity. Human interference with Earth systems termed as Anthropocene is increasing and sets the stage for increasingly frequent pandemics [6]. Internet speeds are steadily increasing globally, and fifth generation (5G) telecommunication technology has been rolled out in many places. This opens the possibility of the internet of things, online simulations, and greater use of extended reality applications in education.

The future will increasingly be a blend of physical and virtual interactions even in lower middle-income countries like Nepal. Technology is advancing rapidly and the cost of cloud and on device storage and of the devices themselves is steadily decreasing. Recording online sessions is easy and does not require the use of specialized equipment. These sessions can be played back by students when required and can be powerful aids for information retrieval if combined with a transcript and key word search. The recordings can be used to provide feedback to faculty and to the students and can also be used for quality audit with the requisite permissions.

Assessments:

Assessments can be used for both formative and summative purposes. Adaptive assessment where the system recognizes the level of expertise of a student in a particular topic and adjusts the difficulty level accordingly is now widely used. Paper and pencil assessments are slow, consumes finite resources in terms of paper and ink and may not provide timely feedback for improvement. Online assessments have the potential to provide immediate feedback. Artificial intelligence can provide feedback that can be supplemented by humans. These systems can compare the level of the student with an expected standard and can support the student to reach the required level of knowledge or skill. Like in teaching-learning, a mixture of physical face-to-face and online assessments may be required.

Support at the institutional level:

Face-to-face sessions can be used where required for small group sessions especially in the clinics and wards. Students should also be prepared for telemedicine and tele

consultations and can watch surgeries and other procedures through point of view cameras. A blended mode will be commonly used. Many universities are considering repurposing large lecture halls into venues for group work and for informal interaction among students. Facilities to access the internet and headphones and microphones should be provided. Faculty will need quiet spaces and headphones to facilitate their sessions. Recording studios to record short videos when required will be needed. An e-Learning team could be a shared resource among institutions. Dedicated IT support personnel will be required at each institution. Most countries are investing in blended learning for undergraduate, postgraduate, and continuing medical education. With sustained improvements in internet access, penetration, the rollout of 5G communication technology, artificial intelligence, extended reality, telemedicine, telepresence blended learning and blended working will be the way of the future.

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