A new revolution in clinical education: is it time to move on from Oslerian bedside teaching?
Une nouvelle révolution dans la formation clinique : le moment serait-il venu d'abandonner la méthode oslérienne d'enseignement au chevet du patient?

Joe Li Zhou Ting,[1] Yao Kang Shuy,[1] Lavisha S Punjabi[2]

[1]Lee Kong Chian School of Medicine, Nanyang Technological University Singapore, Singapore; [2]Anatomical Pathology, Singapore General Hospital, Singapore

Correspondence to: Joe Li Zhou Ting, email: jting003@e.ntu.edu.sg

The introduction of bedside teaching in the early 20th century by Sir William Osler incited a landmark revolution in clinical education, driving a shift from science-based curricula to patient-centred teaching. This has since become the time-honored foundation of medical education. However, the dawn of the Coronavirus Disease 2019 (COVID-19) pandemic has posed challenges to conventional methods of teaching and learning. Under the banner of safety and isolation, medical students have been denied or restricted opportunities to participate in clinical learning.[1] Yet, all hope is not lost. Advancements in technology have pushed the boundaries of what is possible, equipping educators with a vast repertoire of tools that allows them to surmount these challenges.[2] In this correspondence, we discuss the strengths and limitations of technology in two aspects of clinical education, namely clinical skills and global health.

The jump from academic pre-clinical learning to clinical training marks one of the most stressful transitions in the journey of a medical student.[3] The compounded effect of disruptions brought about by the pandemic has adversely impacted medical students' confidence and preparedness as clinicians, with the lack of student apprenticeship opportunities being cited as the predominant factor.[4] Current circumstances therefore demand that we proactively seek solutions to ease this progression. The unique demands of clinical training can be broadly categorised into procedural and patient-facing skills. One example of the use of technology in the realm of procedural skills is ImmersiveTouch, a tool which utilises augmented reality (AR) to facilitate practice sessions for procedural skills. Included within this tool are a pair of specialised glasses and a hand-held robotic stylus which provide visual and tactile feedback, thereby creating a high-fidelity simulation environment. The advantage of such AR platforms lies in the capacity for scalability and repetition, which is otherwise not feasible in clinical practice. On-demand assessments enable personalised feedback to be administered to the student by the artificial intelligence (AI) software, additionally relieving the burden on clinician educators who may instead be called to serve at the frontlines. With regard to patient-facing skills, applications such as OSCER allow students to train history-taking skills in a conversational setting with virtual patients, powered by AI. Online repositories allow students to select and revise specific presenting complaints, thus broadening exposure to a plethora of clinical scenarios. In contrast, traditional Oslerian bedside teaching skews exposure towards common, non-emergent cases, which reap diminishing educational yield over time. While many of these technologies have gained traction over the pandemic, they are still in a phase of relative infancy, with ongoing trials, optimisation and studies of their outcomes on acquisition of competencies. Therefore, their function has mainly been as supplementary methods or interim measures when in-person opportunities are limited. With future iterations, we are optimistic that technology will cement itself as part of medical education proper.

Given the volatile nature of safety and restrictions regarding international travel, standard global health programs such as international medical electives, which hitherto provided an opportunity to appreciate different healthcare systems and cultures, have unfortunately been suspended at many institutions. As students from a joint medical school of two universities in different continents, this suspension additionally conflicts with the formation of our unique identity. Fortunately, virtual alternatives for international exposure have emerged. This includes Massive Online Open Courses (MOOCs) which are an affordable and flexible means to participate in courses offered by top institutions around the world.[5] Recently, innovative virtual clinical electives have also been introduced in some fields. For instance, PathElective, an interactive website that leverages on the visual nature of pathology, provides an opportunity for a student anywhere in the world to participate in a virtual pathology elective, at any time, without any cost. Prima facie, such platforms seem to allow students to continue to enjoy a global education despite the limitations posed by the pandemic. However, as they typically require considerable investment for development and dedicated in-house teams for maintenance, they are more likely to be offered by resource-rich countries and institutions, paradoxically creating global health curricula that is not truly "global."

In conclusion, although modern technologies offer innovative solutions to current challenges, they are in a stage of relative infancy and they are not without limitations. We therefore conclude that the most successful approach on balance is likely to be a dynamic combination of conventional methods and technology-assisted learning.

References

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