

THE HYBRID FUTURE OF MEDICAL EDUCATION

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Abstract: The use of digital technology in health professions education can help in overcoming some of the health workforce-related challenges by providing more accessible, standardized, relevant, timely, and affordable medical education and training. Until recently, digital education was perceived as primarily supporting in-person health professions education. The social distancing measures introduced to control the COVID-19 pandemic have dramatically changed the delivery of health professions education worldwide. Many medical schools and health professions education institutions had to pivot to digital education. With this sudden shift, research and evidence in digital health professions education have become even more important.

Keywords: *digital technology, social media, information, challenge, education.*

While much has changed since the 1950s, few shifts have been as impactful in medical education as the proliferation of digital technologies. Through modalities such as social media, podcasts, or streaming video, our increasingly digital world has altered the landscape of how we interact with one another and how we learn the art of medicine. While it has been ongoing for several years, the digital transformation was accelerated by the COVID-19 pandemic. Physical distancing mandates created a vacuum in traditional in-person didactic curricula, spurring a rapid proliferation in digital platforms and content. In this new educational landscape, the digital space has become integral to how we access information and communicate with one another. Thus, the modern medical educator must be able to deliberately appraise both the advantages and pitfalls of the digital world and traditional modalities. Our challenge now is to thoughtfully integrate digital and traditional platforms to help the modern learner effectively acquire information and build community (Figure 1). Therein lies tremendous opportunity.

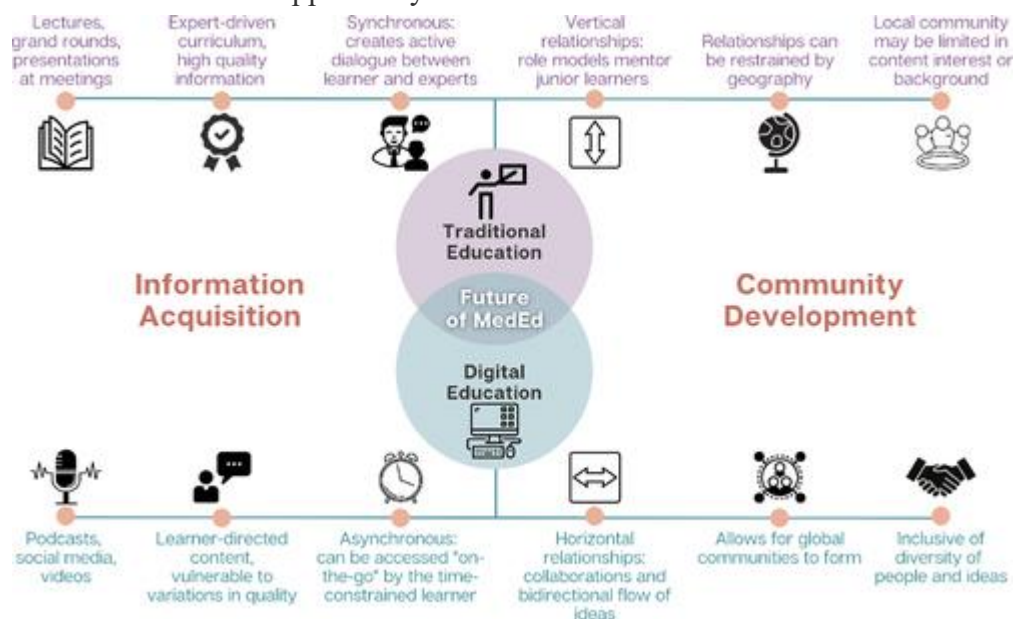


Figure 1

Two primary goals of medical education are to learn the information needed for patient care (information acquisition) and to grow a professional identity within the medical community (community development). Traditional modes of education and novel digital platforms each have unique attributes with regard to these goals as detailed in the figure. A hybrid model, building on the strengths and cautiousness of the caveats of both traditional and digital paradigms, would best serve the needs of the modern learner.

“Information acquisition” describes the relationship between learners and educational content; in other words, what content is available, how is it delivered, and when can it be accessed? One major dichotomy exists between information delivered “synchronously” (where the content is simultaneously delivered to and received by learners) and “asynchronously” (where the learner can access previously created content on their own schedule). Many examples of educational content in the traditional, predigital era are synchronous, such as in-person classroom lectures, grand rounds, and presentations at international meetings. Generally, this information is of high quality and is delivered by an acknowledged content expert who determines the key information that all learners should know. Additionally, by having learners and experts present synchronously, a traditional approach to information delivery can encourage dialogue and foster a sense of community. For these reasons, the synchronous and expert-driven nature of traditional information acquisition makes it well suited for forming the shared curriculum for medical trainees. However, digital modalities of information acquisition, which are often asynchronous and learner-driven, create opportunities for augmenting the shared knowledge base offered by traditional curricula. To best understand these opportunities, it is helpful to conceptualize the medical trainee as an “adult learner.” Adult learners are self-directed regarding what they want to learn, internally motivated to learn by a desire to better solve the problems they will encounter, and time-constrained due to responsibilities outside of their didactic education. For these reasons, a digital form of content delivery, such as a medical education podcast, is uniquely poised to meet the adult learner’s needs.

For these reasons, podcasts are uniquely learner-driven, both in how they are accessed and in content the learner chooses to access. Importantly, learner-driven modes of information acquisition cannot exist in isolation, as knowledge of foundational concepts is needed for the learner to recognize their own educational needs. A hybrid model, wherein a synchronous and expert-driven curriculum is complemented by digital, learner-driven content has the potential to provide the most benefit for the modern learner.

In addition to information acquisition, community development plays a pivotal role in medical education. In many ways, learning in medicine is a social activity that occurs between teachers and learners existing in a common community. One goal of medical education is facilitating entry of trainees into the medical community of practice, where members share a common purpose in the treatment of disease, a common skillset needed for patient care and professional collaboration, and a common social fabric, wherein members feel a sense of belonging. Educational relationships are instrumental in building this community. Conventional examples of these relationships are well known to us: attending-trainee, speaker-listener, and teacher-student. These bonds form a key bedrock in our medical education, and we can all likely identify the residents, fellows, and attendings who have mentored us throughout our professional lives. These relationships are often vertical, wherein a

more senior mentor serves as a role model and advisor for a more junior learner. Effective in-person vertical mentorship can be vital in helping learners not only grow their clinical knowledge, but also find their place within the medical community.

The implications of these connections are widespread, from augmenting scientific discourse through Twitter journal clubs to advocating for diversity and inclusion through the creation of online communities. These platforms can also be used to highlight topics that may have been underrepresented in the traditional cardiovascular education curriculum, such as cardio-obstetrics or adult congenital heart disease. Traditional educational content is typically delivered by a trusted and respected source, whether it be your local faculty at noon conference or international experts in a guideline consensus statement. However, a consequence of the open nature of social media platforms is that the content has limited quality assurance. Thus, consumers of digital educational content should be wary of the information they encounter online. To help combat misinformation, creators of digital content should consider having experts review their work, and learners in the digital space should seek out references when assessing the content they encounter. Importantly, the deleterious public health consequence of widespread medical misinformation is itself a call to train health professionals in the effective use of social media to dispel myths and propagate data-driven education. Additionally, the algorithms used to promote content on these platforms are not related to the quality of the content themselves, but rather how often other users engage with the content. The digital transformation in medical education creates several opportunities for learners, teachers, and institutions; appropriately, programs are already embarking on the mission of training the next generation of medical educators.

While the digital era has proved to be a disruptive force in medical education, digital content is most valuable to the learner when utilized in synergy with the traditional curriculum. Somewhat serendipitously, this harmony was well demonstrated in the 2022 Scientific Sessions for the American College of Cardiology—the first in-person American College of Cardiology conference since the dawn of the COVID-19 pandemic. Against the backdrop of springtime cherry blossoms in Washington DC, the interpersonal connections that help form the basis of our cardiovascular community were both formed and renewed. For many, these were not relationships made de novo, but rather an extension of bonds that had already begun to form on social media. Additionally, while in-person attendees could engage in panel discussions and debates regarding the cutting edge of cardiovascular medicine, the content was also available asynchronously to many virtual attendees eager to learn on their own time. Perhaps this hybrid event is the first of many in a new era in medical education, wherein the opportunities of the digital era are blended into and throughout the traditional curriculum to create a truly transformative modern learning environment.

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