



Exposure of Medical Education System to Digital Divide Due to COVID-19

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Abstract

The coronavirus disease 2019 (COVID-19) pandemic has become one of the most challenging conditions for universities and educational institutions. The provision of online medical education is more difficult than other disciplines due to the nature of its practical and clinical courses. Problems related to limited access to information and communication technologies and the internet and lack of specialized knowledge and skills related to the provision of online content and educational videos, use of specialized educational software and hardware, and special online platforms have made the digital divide more apparent in this period. This commentary aims to address the digital divide in medical education during the COVID-19 pandemic and quarantine.

Keywords: Medical Education, Digital Divide, Online Learning, Pandemic

1. Introduction

Over the past few decades, the medical education system has undergone significant changes with the emergence of e-medical education and web-based medical education (1). Following these changes, the use of information and communication technology has been considered an essential part of student education. Information and communication technologies (ICT) is mainly used in the teaching-learning process and various fields, such as theoretical and clinical teaching and evaluation (2).

The World Health Organization declared coronavirus disease 2019 (COVID-19) a pandemic in March 2020 (3). The pandemic impact on health care and education systems has been unprecedented and has brought about many changes in all areas of medical education. The increasing and dangerous spread of COVID-19 has led to the closure of many social and educational institutions. "Lockdown" is a technical term used by health authorities to refer to any form of mandatory geographic quarantine or non-mandatory recommendations, including staying at home, not holding social gatherings/events, and closing certain businesses and educational institutions (4). Following the announcement of lockdown in many countries and the need to observe social distancing and personal protective equipment, many medical universities canceled their face-

to-face training processes (5).

Under these circumstances, ICT and the digital world helped universities and other educational institutions more than ever. The vast majority of universities have used distance education and online platforms. This change in approach occurred so rapidly that Hodges et al. (2020) called it emergency remote teaching, which they believe is significantly different from planned online learning. In their opinions, planning and production of effective scientific content should begin 6 to 9 months before the start of the online learning; however, they have been urgently prepared and presented in pandemic conditions (6).

One year after the beginning of the pandemic, online education using ICT and the Internet could maintain the continuity of educational processes, and many theoretical, practical, and even clinical courses are presented to students by this method. However, with all the benefits of online and offline approaches in medical education, these approaches have necessitated the access of students and faculty members to ICT and the Internet and led to a growing digital divide in this period (4)(7). Such circumstances have widened the gap between those who can access online learning opportunities and those who cannot (8).

2. Arguments

2.1. Digital Divide

Since the second half of the 1990s, the concept of the digital divide has been used to refer to unequal access to and use of new technologies between different groups of individuals (9). The digital divide limits opportunities for those who either do not have access to the Internet and ICT or do not have sufficient knowledge and skills to use them (7). It is noteworthy that the digital divide not only limits the physical access to ICT but also includes other dimensions, such as sufficient motivation, skill, and knowledge to use it (10).

The digital divide has long existed between different societies; nevertheless, it has never been as painful as in the pandemic period when the use of the Internet and digital technologies became a necessity. The view that digital exclusion is limited to certain countries is wrong; instead, it should be addressed by all countries. The results of a study conducted in the UK have shown that there are many similarities between digital inequalities in Egypt and the UK (11). However, following the pandemic, the digital divide has become more pronounced in developed and undeveloped countries.

Although the use of educational technologies in some educational institutions is exciting, it has posed obstacles to some universities that, if not eliminated, could threaten the quality of education received by students. Online education following the pandemic has led to the emergence of a gap in the gap, which makes the adverse effects of the digital divide in universities more pronounced. Herein, we discuss the issues that have led to the phenomenon of the digital divide in medical education during the pandemic.

2.2. Digital Divide Due to Limited Physical Access to ICT

Mason and Dodds (2005) defined the digital divide as a gap between individuals who have access to digital technology at home and those who do not (12). Students deal with the Internet and ICT on a very large scale due to their professional needs. Following the closure of universities and the provision of online education during the pandemic, access to the Internet at home has become an essential need for students (4). Therefore, the students of a university, who previously accessed the internet and ICT due to the facilities available at the university, faced the digital divide during the pandemic and quarantine (13).

The closure of public libraries, lower bandwidth at home, internet inaccessibility for some students, lack of access to personal computers and appropriate hardware, financial restrictions on access to required software and high costs of digital devices, hardware and software resources, and online content for students have widened the

digital divide between rich and poor students. The importance of using instructional videos and methods, such as augmented reality and virtual reality in medical education, has made it necessary to access high-speed internet and special hardware and software. This issue also contributes to the phenomenon of the digital divide in medical education.

2.3. Digital Divide Due to Lack of Sufficient Knowledge and Skills in the Field of ICT

In addition to having access to ICT, digital knowledge and skills are also effective in determining the extent of the digital divide. Digital skills include operational, informational, and strategic skills (10). A part of the digital skills is related to English language knowledge and computer skills required to use ICT and the internet (14). Miller (2014), in his book "Minds Online", writes that technology problems are among the most common complaints of students in online education. He argues that many students may not have the technical skills needed for online learning activities, and being able to operate and manage online social networks and media does not mean that they are fluent in educational technologies (15). In other words, the lack of digital fluency is another factor in creating a knowledge gap. This issue was less prominent in the pre-pandemic period when students and peer groups were present at campuses; however, it has become more critical during the quarantine period due to reduced social support. Therefore, it is necessary to teach students how to use different online education platforms and learning management systems (4).

The digital competence of faculty members is another dimension of the digital divide in medical education (10). Multimedia and educational videos are required in medical education to present the courses online. To produce instructional videos, professors should not only be experts in the field of content but also have sufficient expertise in the technology used to deliver the content, as well as in the teaching and learning methods underlying a particular instructional format (16). In addition, another important factor in providing effective online education is the technical skills of working in the digital space and various applications and platforms (1). As previously mentioned, online education suddenly happened without prior planning during the pandemic, and professors did not have enough time to properly prepare and plan for online courses; therefore, it is very difficult for professors to achieve digital fluency in such a stressful period.

All the above-mentioned factors contribute to the widening of the digital divide in medical education among different universities. One year after the beginning of the pandemic and the various experiences of universities in

the field of online education, it is time for education policymakers to address these issues and take timely action to prevent the widening of the digital divide in medical education.

3. Conclusions

The particular condition of the pandemic and its significant effects on the educational system of universities has led to an increase in the use of ICT in the teaching-learning process. The use of technology in student education can improve the quality of education and facilitate students' achievement of learning goals. To realize this valuable potential, it is necessary to recognize the digital divide caused by the pandemic and take action to eliminate or reduce it. Using ICT and submitting curricula online in a pandemic is a necessity, not a facilitator or luxury. Therefore, educational policymakers in different universities, while examining the digital needs of their professors and students, should take necessary measures to provide free or low-cost online resources and make libraries accessible and pave the way for teaching digital skills.

Footnotes

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