

# The trend toward digital in medical education – playing devil’s advocate

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Digitalization of medical resources has completely revolutionized medical education. Nowadays, medical information is readily accessible online. If a doctor needs to learn about Lesch–Nyhan syndrome, he or she can just search online – thousands of digital resources, explaining everything from simple pathophysiology to the latest genetic research into the condition, can be found; even videos of patients with the condition are available and easily located by using a search engine such as Google. Could there possibly be any downsides to this?

One argument is that traditional textbook-based medical teaching has been around since as early as the *The Edwin Smith Surgical Papyrus*, written in 3000 BC.<sup>1</sup> In contrast, how long have digital medical resources been available? The maximum timeframe may be 25 years, at best. In fact, ancient teaching methods have stood the test of time and have created some of the best physicians in their eras. If ancient methods have been proved to be so successful in the past, is there a need to change? After all, physicians love “evidence-based” methodologies. There are over 5,000 years of evidence supporting traditional medical teaching versus a few years of evidence supporting the value of digital medical teaching.

Moreover, one of the proposed positives of digitalizing medical education is the ease of access of information. For example, it is common for students (and even doctors) to use the Google search engine to find information on ward rounds. Information ranging from normal values for hormones, pathophysiology of conditions, or even differential diagnosis is available. Finding information so quickly online would have been impossible 10 years ago. So, how did students and doctors of old access this information? The answer is simple: in the past, they memorized this information. The information was therefore readily accessible in their memories. We argue that the increased accessibility of information today has led medical professionals to become lazy. We do not have to work hard for information anymore; therefore, there is less value in spending time and effort to commit it to memory. The question of how many times a medical professional has searched a disease online and has been able to readily find out everything about it, only to forget a short while later, needs to be asked.

Another downside to digitalizing medical education is the danger that even the practical side of learning medicine is transferred away from the wards of hospitals. Listening to heart murmurs on YouTube,<sup>2</sup> watching open surgery through Google Glass,<sup>3</sup> and practicing communication skills over Skype<sup>4</sup> are some examples of current online learning. However, being a good physician is hugely dependent on real-life experi-

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ences, not digital “counterfeit” experiences. An audio clip of a heart murmur will never be able to emulate the experience of carefully positioning a stethoscope and hearing a murmur from a live, beating heart. Unfortunately, it is much easier and cost effective to search for literature on heart murmurs on the Internet than it is to experience it in real life. Digital resources can therefore serve to create dangerous shortcuts in the education of doctors.

## Conclusion

To end lets refer back to the father of medicine and the Hippocratic Oath: “I will reverence my master who taught me the art”.<sup>5</sup> Will the master trainers for the next generation of doctors be Google, Wikipedia, and YouTube? How absurd is that proposition? What would Hippocrates say?

## Disclosure

The authors report no conflicts of interest in this work.

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