

## EDITORIAL

# Transforming Medical Students Learning: Are Pakistani Medical Institutions and Educators Prepared to Embrace Digital Technologies?

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Technological advancement has taken the world by storm with far reaching implications in education as well as on the learning process of students. Inspired by Ronal Harden's recent blog<sup>1</sup> on adaptive learning that personalizes the student's learning experience in an adaptive curriculum and talk of Khan's Academy founder Salman Khan<sup>2</sup> on his global success stories of promoting personalized learning through free online education, I chose to raise the issue of Pakistani medical leadership and educators' preparedness for embracing digital technologies.

In his blog, Harden describes adaptive learning process whereby students master the main concepts through personalized guidance and students learn more effectively at a pace that matches their knowledge needs.<sup>1</sup> On the other hand, Khan mesmerized the audience with his rich experience of Khan Academy free online mastery-based personalized learning which empowers students to complete knowledge gaps at their own pace through a broad curriculum and most recent technological tools.<sup>2</sup> Living in the world of technology, there is increased evidence that the emergence of Web 2.0 has transformed the role of educators whose authority has diminished as the subject expert.<sup>3</sup> For decades, medical students have been trained to learn through lectures and experiences of subject authority; however the technological era now provides greater learning options to students who could learn beyond classrooms and training settings from available established resources and learning communities on the web.

On the other hand, in medical education, self-regulated learner and self-regulated learning has gained prominence in recent literature.<sup>4,5</sup> Evidence shows that health professional learning is embedded in both the study environments and the learning strategies that students or trainees adapt within their respective settings.<sup>3,4</sup> For example, imagine a medical student recognizing knowledge gap regarding hyperkalaemia and if trained how to learn, the student will draw on resources to build knowledge on aspects surrounding potassium metabolism and its clinical significance. The example describes the learning process adapted by self-regulated learner which can be promoted by institutions and supported by trained

educators for training students and trainees on how to learn in any setting.<sup>4,5</sup> There is increased evidence that students can add knowledge or overcome the knowledge gap at their own pace through utilization of the best of variety resources available within and from internet resources such as videos, practice exercise, or dashboard analytics.<sup>2,3,4,5</sup> Medical practitioners require such skills particularly when faced with unusual cases in clinical practice, and if trained on how to adapt to strategic approaches will understand and manage the patient case effectively in short time.<sup>4</sup> Evidently, medical institutions have to assume major responsibility of fostering such learning approaches, and ensuring that faculty is adequately trained for students and trainees to utilize technology at their own pace within and beyond the institutions.

With increasing use of online learning, social media, and mobile technologies, heutagogy<sup>6</sup> has been unveiled as a theory that is built on Knowles adult learning principles and self-directed learning<sup>7,8</sup> with increased relevance to emerging technologies in distance education and for guiding distance education practice and how distance educators should develop and deliver instructions using newer technologies. In recent literature heutagogical approaches have gained prominence although it was in 2001 that Hase and Kenyon introduced 'heutagogy' as learner-centric, who study subject matter in addition to tips on *how* to learn with emphasis on development of overall learning capabilities for the complexities of today's work environment.<sup>6,9,10,11</sup> In Pakistan, medical education has been slow to embrace technology across the continuum. There is growing need for institutional leadership and educators to understand that technology is here to stay. Despite increased evidence, medical institution's reluctance to invest in information technology will not benefit the next generation of doctors. The resistance to use technology is more of traditional mindset rather than financial limitations. As compared to medical educators, students entering Pakistan's medical institutions are more comfortable at using iPhones, smart phones, emails, social media and other digital resources. Medical institutional leadership need to be wary of the fact that students' learning approaches change with greater use of technology and laggard response towards technology will demotivate and frustrate students and trainees in training institutions and later as practitioners in any settings.<sup>5</sup>

Pakistan has initiated degree programs in Health Professions Education aimed at leadership development in Health professions Education.<sup>12</sup> Hence, the emphasis of future leadership programs should be on preparing

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next generation of self-regulated practitioners who through training 'how to learn' will apply skills and competencies in an ever-changing, complex world of medical and health care.

**REFERENCES:**

1. AMEE MED WORLD. Available from <http://www.mededworld.org/reflections/reflection-items/July-2016/HARDEN-S-BLOG-By-adaptive-learning-I-mean-an-adapt.aspx> Jul 26, 2016.
2. Education Reimagined. June 22, 2016. Retrieved from <http://olc.worldbank.org/about-olc/when-education-reimagined-khan-academy>.
3. McLoughlin C, Lee MJW. Personalized and self regulated learning in the Web 2.0 era: International exemplars of innovative pedagogy using social software. *Australasian Journal of Educational Technology* 2010;26(1):28-43. Retrieved from <http://www.ascilite.org.au/ajet/ajet26/mcloughlin.pdf>.
4. Butler DL, Brydges R. Learning in the health professions: what does self-regulations have to do with it? *Med Educ* 2013;47:1057-9.
5. Brydges R, Butler D. A reflective analysis of medical education research on self regulation in learning and practice. *Med Educ* 2012;46:71-9.
6. Hase S, Kenyon C. From andragogy to heutagogy. In *UltiBase Articles*.2000. Retrieved from <http://ultibase.rmit.edu.au/Articles/dec00/hase2.htm>.
7. Huda N. Adult learning principles and its applications. *JBUMDC* 2014; 4(2):66-8.
8. Jaleel A, Rahman MA, Huda N. Problem-Based Learning in Biochemistry in Ziauddin Medical University in Karachi Pakistan. *Biochemistry and Molecular biology Education* 2001;29:80-4.
9. Blaschke LM. Heutagogy and Lifelong Learning: A Review of Heutagogical Practice and Self-Determined Learning. *The International Review of Research in Open and Distance Learning* 2012;13(1): 56-71. Retrieved from:<http://www.irrodl.org/index.php/irrodl/article/viewFile/1076/2113>.
10. Lee MJW, McLoughlin C. Teaching and learning in the Web 2.0 era: Empowering students through learner-generated content. *Instructional Technology and Distance Learning*, 2007; 4(10). Retrieved from: [http://itdl.org/Journal/Oct\\_07/article02.htm](http://itdl.org/Journal/Oct_07/article02.htm).
11. Canning N. Playing with heutagogy: Exploring strategies to empower mature learners in higher education. *Journal of Further and Higher Education* 2010; 34(1):59-71.
12. Foundation for Advancement of International Medical Education and Research. [www.faimer.org/resources/mastersmed.hp](http://www.faimer.org/resources/mastersmed.hp). Accessed on August 20, 2016.

