Chapter 30

Digital Technologies for Teaching for Allied Healthcare Students and Future Directions

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ABSTRACT

Digital technologies are an integral component of the allied healthcare curricula, including dental technology, physiotherapy, pharmacy, nutrition, nursing, and laboratory medicine. Various digital technologies are implemented for the education of allied healthcare students. They have been used for curriculum design, engaging and facilitating the understanding of fundamental concepts in various disciplines, the development of active learning strategies, and designing critical thinking and clinical reasoning education. Online digital atlases and libraries provide flexible resources as study tools for students in the classroom and on industry placement. Adaptive digital learning, communication technologies, and virtual reality for teaching have become an essential component of the allied healthcare education. As students develop skills for their profession, the digital technologies have provided a platform for the documentation of their competencies and progress through industry placement, allowing academic staff to chart their progress and employers to assess the graduate competencies.

INTRODUCTION

The purpose of this book is to review the use of digital technologies for the education of students in Allied Health programs including Medical Laboratory Science, Nutrition and Dietetics, Pharmacy, Dental technology and Physiotherapy. It is recognised that there is a rapidly changing work force, where Millennials (individuals born between 1977 and 1997), can expect to have 17 careers across 5 industries over the course of their working lives (Owen, 2016). Not only are universities educating students for their

current careers, it is essential that universities endow students with a range of skills that enable them to be employed in their current professions, but flexible and agile enough to adapt to changes within their discipline or enter new or future occupations.

BACKGROUND

All Allied Health students irrespective of the field of study, through meticulous curriculum design, are required to learn concepts relevant to the field, be able to communicate with patients and other Health professionals, use critical analysis or clinical reasoning to devise plans for implementation strategies and, have the skills to test or construct resources. Uniformly across tertiary institutions both nationally and internationally, laboratory teaching hours and access to clinical placements are declining due to the increased pressure of student enrolment numbers. The authors in this discuss innovative ways in which digital technologies have been implemented for curriculum design, for skills development and training and monitoring students during clinical placements. The final chapters discuss the use of digital technologies to document a student's competences and abilities for assessment and employment.

MAIN FOCUS OF THE CHAPTER

Digital Technologies for Curriculum Design

Education is undergoing a significant shift, moving away from teacher led instruction to student centred approaches (Ramsden, 2003). Digital native students have been exposed from an early age to a range of digital technologies and have developed novel learning styles. Students therefore require educational resources other than traditional teaching methods to engage in the learning process (Prensky, 2009), as they expect technology to be integrated into their learning experiences (Berman, Fall, Maloney, & Devine, 2008).

They therefore require educational resources other than traditional teaching methods to engage in the learning process (Prensky, 2009). In this day and age, students expect technology to be integrated into their learning experiences (Berman, Fall, Maloney, & Devine, 2008). However, with the exponential growth of digital technologies and associated resources, we are being inundated with e-learning programs. While e-learning tool designers are producing products that are attractive, they can have limited educational benefit if designed with no specific focus on pedagogy. Pedagogical knowledge amalgamates cognitive, social and developmental theories of learning and how they apply to students in the classroom (Harris, Mishra, & Koehler, 2009). The impact of e-learning tools on student learning is currently evaluated using student attitudes or overall grades without investigating the direct influence of digital technology on learning.

Overall, appropriate education principles for the design of e-learning tools are required so that students are not inundated with too much content, with too many distractions impeding learning due to loss of direction and attention. An understanding as to how students learn and transform information into knowledge is important. Students use distinct processes to learn material, with the auditory system processing narrative information while the visual system processing images (animation). Students learn

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