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Virtual reality (VR) is a tool that is ripe with potential for simulating real world environments on a global scale and, in the process, introduces students to atypical situations that enable them to take ownership of their learning. Indeed, by taking charge of their preferred mode of learning, students will inevitably remain highly engaged with the material (Merchant et al., 2014). In VR, students are positioned in the heart of the action, with the scene unfolding around them in accordance with their active direction. The passive rote style of memorization is replaced with active experiential education that brings context to theoretical concepts and, in doing so, aids their assimilation. Indeed, researchers such as Merchant et al. (2014) have suggested that using such technologies can increase learning effectiveness as well as student engagement in the subject matter. Nonetheless, as Merchant et al. recognize, the potential replete in VR technology also needs to be equally balanced with a prior consideration of practicalities. In every VR experience, sensory distortion is par for the course, making it a vital imperative for those considering amalgamating this technology into their practice to gain a thorough grasp of its capabilities before integrating it in any context.

Virtual reality technologies also provide educators with the opportunity to take care of pastoral responsibilities within the learning context itself rather than traditionally allocating separate lessons to accommodate such requirements. By providing students with the opportunity to interact with learners from varying countries and cultures, instructors engender student respect for diversity and create an inclusive environment that correlates with a high level of involvement. “Education becomes truly interactive in a virtual setting. Enabling students to meet other students who are learning the same material as they are allows students to leverage their classmates to increase their understanding of the subject material, and generally make learning more fun” (Shuster, 2013). As Shuster emphasises, virtual reality technologies provide students with the opportunity to interact with others studying similar subjects across the globe, which will inevitably elicit fresh perspectives on taught material and can be utilized to show how knowledge is far more subjective than initially imagined. A concept in one country can take on an entirely new meaning in another culture. Consequently, students are likely to be far more inclined to learn of their own volition as previously challenging concepts are renewed by a contrasting cultural perspective that actively invites discovery. This

means that students are provided with the necessary grounding in subjects that may have appeared previously off limits, though those from disadvantaged backgrounds, as Barraket and Scott point out (2010), will need additional support and resources from public institutions to ensure equity and accessibility to such technologies.

In addition, students considering a career in highly competitive fields, such as medicine, may not always have the access and resources necessary to train for this invaluable vocation. In these instances, virtual reality technologies are the ultimate equalizer. VR and medical simulators, such as *Surgery Squad* and *OperateNow*, are increasing in sophistication making atypical scenarios faced by medical professionals accessible. Aspiring surgeons and physicians are provided vital practical training without compromising patient safety to do so. To cite one example, Barsom et al. (2016) found that "Simulation of critical situations creates a promising opportunity for the education of medical professionals in a safe environment... Applications using VR have shown to be able to improve learning outcome for different training procedures for various medical specialists."

Although virtual reality technologies have been utilised for several decades to create simulations for medical education (Freina & Ott, 2015), the simulators available today are taking experiential learning to ever more elaborate heights. Psychomotor skills required for the operating room are far easier to attain with opportunities for instant feedback and guided repetition to improve clinical competence. Simulated spatial awareness tools, such as *Endosim*, focus on smoothing the transition between the VR and practical environment with options to customize simulated experiences to atypical medical scenarios.

While VR technologies focus on generating a fully immersive experience, related augmented reality technologies have similarly been shown to enhance learning and achievment (Akçayır & Akçayır, 2017). In contrast to VR, AR tends to heighten one's sensory experience of the actual surrounding environment, not merely the virtual one. In this way, AR offers the opportunity for students to not just perceive, but question such inputs and share their responses with peers, which can generate invaluable feedback in terms of the ethical dilemmas facing medical professionals on a daily basis, where collaborative input from colleagues is crucial. Yet unlike VR, augmented technologies offer more freedom for the educator in terms of interaction; augmented reality apps, such as *TouchSurgery* and *Human Anatomy* provide real life- real time simulations with text overlaid on screens to guide the instructional process, and enable students to view organs in the human body from several perspectives (Lynch, 2017). As a result, such technologies assist educators in helping their students to gain a more comprehensive overview of individual organs down to the minutest of details; an essential prerequisite for those considering a career as a surgeon, where both deftness and meticulous precision

form a vital part of best practice. These apps epitomize the symbiotic relationship between theory and application that simulated reality technologies provide, enabling students to develop their spatial dexterity through hypothetical, simulated scenarios, which would be challenging to encapsulate via a traditional, standalone lecture. Additionally, these technologies also enable teachers to structure the virtual experience around concepts that are challenging to explain through traditional methods, and lend themselves best to experiential discovery in order to facilitate understanding (Pantelidis, 2010).

In high risk settings, such as hospitals, there are specific skillsets that require intensive development to accommodate critical scenarios where even the most adept medical professional can feel instantly overwhelmed. In response to this pressing need, the company Holovis developed a 'Near Miss Simulator' which offers a realistic view of high-pressure situations and is an accurate representation for the skills and responsibilities required. "While some companies are using VR to raise employee expectations, a few are doing something close to the reverse. The company Holovis offers a Near Miss Simulator that can create non-compliant and unsafe working conditions" (Chandler, 2017). Instead of simply explaining hypothetical situations using a traditional whiteboard, a teacher can implement VR in the classroom through the process of modelling, enabling students to actively reason and examine their hypotheses, and experiences the varying consequences of lapses in judgement, before they directly operate on a patient (Baker, 2018). They can then adapt their approach accordingly in a simulation that bears all the realism of a hospital environment without the potential safety concerns inherent in practicing on patients. Although the upfront costs of such technologies can be substantial, the variety of both augmented and virtual tools on the market ensures simpler solutions for educators on more restricted budgets, as well as tools which offer the benefits of the aforementioned technologies, without requiring significant time and resource to implement (Walsh, 2017). In this respect, *Google Cardboard* certainly appears to have potential, and can afford educators the opportunity to trial the technology for minimal outlay, before they consider more substantial, financial investment.

As VR technologies continue to develop, the prototypes available today will inevitably become ever more astutely refined, as well their potentialities for bridging the theoretical and practical divide. The application of hands on aptitudes will enable students to consolidate their credentials as experts in their respective fields of endeavour with the practical aptitudes they need to succeed; an essential precursor to the world of employment.

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