



Improving Skill Development for Paramedics through Mixed Media Visualisation via 3D Printing and an Augmented Reality App

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Abstract

Evidence suggests that employers believe that higher education graduates have skill gaps; employers are also not convinced that higher education is using approaches to learning and teaching that will efficiently resolve these gaps. Further reports indicate that universities need to develop and leverage brain power and skills with our hands, thereby supporting development of new technologies that change day-to-day living. Visualisation technologies are vital teaching tools for students on their way to being paramedics, in that they can use visualisation to practice, by running procedures with virtual patients. The use of visualisation in teaching is a key means of improving learning and graduate outcomes, particularly as this approach supports the development of practical skills (i.e. performed with our hands). For this project, selected students were provided with traditional 2D images and video, 3D printed instruments and a mobile phone augmented reality game simulation application that they can use to practice skills. To assist in immersion and accuracy a 1:1 scale replication of the actual physical tools (a 3D printed Laryngoscope with Mac Blade and Magill Forceps) was produced. Through the addition of augmented reality markers, these physical models can be tracked and simulated in the virtual game environment. Outcomes of the project show an increase in skill level in placing and elevating the laryngoscope for students that trained with the 3D printed tools and AR app. Future work will look at enhancing the visualisation with virtual reality and stereoscopic imagery, as well as extending to other institutions and other skills.

Citation

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