

Abstract

This study set out to investigate computer simulation as a mechanism to enhance adult students understanding of Anatomy and Physiology curriculum. More specifically to determine the main issues faced by this set of students and in what ways does computer simulation improve the level of understanding of complex curricula. To address this, a series of e-lessons were designed using the ADDIE instructional design model (Arkün, 2008). The research began by evaluating ten simulation software applications against criteria derived from Gagne's 9 Events of instruction design (Gagne, 2008). Once a specific application was chosen a series of lessons were developed in line with action research methods (Mills, 2000). During the induction phase students were shown a series of demos (worked examples) on how to use the simulation software, this approach was used to reduce cognitive load on the students (Wyeld, 2016). After the induction, five instructor lead lessons ran over a seven-week period whereby students created portfolios using the simulation software. For this task the Biodigital simulation software was used as the primary resource. Students were required to carry out various investigations of systems in the body and present a portfolio of work in the final class. The mixed methods approach produced both quantitative and qualitative data. The quantitative analysis found students who participated in the simulation lessons reported low cognitive load scores and reported improved understanding of the subject matter. Qualitative evidence from the follow up surveys and the focus groups showed most students had a more enjoyable experience learning A&P using the Biodigital simulation software. The results from this study supports the use of computer simulation for adult students who are returning to education or those who are less academic and are faced with the challenge of learning complex curricula. There was evidence to support the use of computer simulation to address the learning difficulties with adult students in a given domain under specific circumstances.