World Academy of Science, Engineering and Technology
International Journal of Medical and Health Sciences
Vol:13, No:04, 2019

Developing a Virtual Reality System to Assist in Anatomy Teaching and Evaluating the Effectiveness of That System

Authors : Tarek Abdelkader, Suresh Selvaraj, Prasad Iyer, Yong Mun Hin, Hajmath Begum, P. Gopalakrishnakone

Abstract : Nowadays, more and more educational institutes, as well as students, rely on 3D anatomy programs as an important tool that helps students correlate the actual locations of anatomical structures in a 3D dimension. Lately, virtual reality (VR) is gaining more favor from the younger generations due to its higher interactive mode. As a result, using virtual reality as a gamified learning platform for anatomy became the current goal. We present a model where a Virtual Human Anatomy Program (VHAP) was developed to assist with the anatomy learning experience of students. The anatomy module has been built, mostly, from real patient CT scans. Segmentation and surface rendering were used to create the 3D model by direct segmentation of CT scans for each organ individually and exporting that model as a 3D file. After acquiring the 3D files for all needed organs, all the files were introduced into a Virtual Reality environment as a complete body anatomy model. In this ongoing experiment, students from different Allied Health orientations are testing the VHAP. Specifically, the cardiovascular system has been selected as the focus system of study since all of our students finished learning about it in the 1st trimester. The initial results suggest that the VHAP system is adding value to the learning process of our students, encouraging them to get more involved and to ask more questions. Involved students comments show that they are excited about the VHAP system with comments about its interactivity as well as the ability to use it solo as a self-learning aid in combination with the lectures. Some students also experienced minor side effects like dizziness.

Keywords : 3D construction, health sciences, teaching pedagogy, virtual reality
Conference Title : ICHAP 2019 : International Conference on Human Anatomy and Physicology
Conference Location : Dublin, Ireland
Conference Dates : April 25-26, 2019