Evaluation on the effectiveness of using 3D rat model for teaching blood withdrawal technique among undergraduate students

ABSTRACT

Usage of 3D model in medical education is very important in this era as part of 21st century teaching method. Application of 3D printing model in medical education helps to improve student spatial visualization skill and also will increase their interest in difficult topic or subject specifically in the science-based issue. This study aims to evaluate the effectiveness of using a 3D rat model for teaching blood withdrawal techniques among undergraduate students. Workshop of usage of 3D model rat was conducted among all students. Students were exposure to classical teaching method of blood withdrawal and follow by workshop using 3D rat model. A set of questionnaire was given to students before and after usage of 3D- printed rat model. Data collected used a questionnaire consisting of socio-demographic, pre and post- test question and assessment towards 3D models. A total of 117 participants were tested. 3D-printed rat model was used as part of the paired sample t-test. The result supported the hypothesis that the 3D- printed rat model in teaching blood withdrawal techniques is more effective compared to the using classical teaching method in the classroom ($p<0.05$). Study also showed that students satisfy with usage of 3D model for teaching blood withdrawal techniques. This study further demonstrated the 3D print rat model is beneficial for interactive education and enriching student learning capacity.

Keyword: Three-dimensional (3D); Anatomy; Blood withdrawal; Rat