

The effectiveness of drama-based activities to teach the cardiac cycle to undergraduate students.

G. Hughes¹, A. Davies¹

¹. Medical Sciences and Graduate Entry Medicine, University of Nottingham, Derby, Derbyshire, United Kingdom.

Active learning modes are thought to promote higher levels of student engagement, understanding and thus, improve test scores and satisfaction. Nevertheless, few studies have used drama as an active learning tool to learn complex physiological concepts despite an understanding that participating in the arts not only engages all learning styles but can improve learning in a variety of different topics (Braund, 2015). As such, we evaluated the use of drama-based activities in comparison to traditional didactic lecture delivery using powerpoints, to teach the cardiac cycle to first year students. Our aim was to ascertain whether this active learning mode could improve their test scores and enhance knowledge retention of the topic. Ethical approval for the experimental protocol and the questionnaires was permitted by the School of Medicine Research Ethics Committee, University of Nottingham. Participants had no prior knowledge of the subject matter and comprised of a convenience sample of 34 undergraduate students. There was no personal reward or monetary incentive for participation. Of the initial pool, 28 students (82.4%, age 19.6 ± 2.01 years (mean \pm SD) consented, participated and completed the study. To protect anonymity, the students were randomly assigned a number which was subsequently used to divide them into a Control group ($n = 14$) to receive the topic via lecture, and a Test Group ($n = 14$) to engage in drama-based activities. The assigned numbers also allowed tracking of individual test scores in online quizzes which were completed immediately after the delivered sessions and three weeks later with the aim to test understanding of the topic and knowledge retention respectively. Completion of brief online questionnaires requiring responses on the Likert scale (Strongly Agree - 5 to Strongly Disagree = 0) was also requested to gain insight in perceived confidence in knowledge gained and satisfaction of the teaching method used. Unpaired t-tests were performed on the results obtained with $P < 0.05$ deemed significant. No significant difference was found between the Control and Test group grades from either the post-session quizzes ($P = 0.43$) or those completed three weeks after the delivered content ($P = 0.15$) suggesting the drama activities did not improve immediate knowledge gain or retention of this topic matter. However, students participating in the drama session reported significantly higher levels of confidence ($P < 0.05$) and satisfaction ($P < 0.0001$) with the mode of delivery for learning compared to students receiving the lecture. These findings suggest that drama activities were just as effective in a traditional lecture for students to learn about the cardiac cycle but beneficially improved their learning experience of this scientific topic.