Design and Validation of a Virtual Physical Education and Sport Science–Related Course: A Learner's Engagement Approach

ABSTRACT

Learners' engagement is shown to be a major predictor of learning, performance, and course completion as well as course satisfaction. It is easier to engage learners in a face-to-face teaching and learning format since the teacher can observe and interpret the learner's facial expression and body language. However, in a virtual setting with the students sitting behind cameras, it is difficult to ascertain engagement as the students might be absent-mindedly attending the class. Henceforth, with the rapid transition to online learning, designing course content that could actively engage the students towards achieving the said elements is, therefore, necessary. We applied a data-driven approach in designing a virtual physical education and sport science–related course via a learner engagement model. A fully online course catering to 132 students that runs for a total of 14 weeks was used as a case study to develop the course. The study was conducted during the 2020/2021 academic year, which was the period of the peak COVID-19 pandemic in Malaysia. The delivery of the course content was implemented in stages to achieve three essential educational outcomes namely, skill and knowledge acquisition, and personal development as well as course satisfaction. We hypothesised that the developed learners' engagement approach will promote the students' acquisition of skills and knowledge and foster the personal development of the students through fitness improvement. It is also hypothesised that the students will be satisfied with the course developed upon successful completion. A chi-square analysis projected a statistically significant difference in the skill and knowledge acquisition before and after the programme ($p < 0.001$). A Wilcoxon rank-sum test demonstrated personal improvement in the overall fitness of the student upon completing the prescribed activity of the course content. Moreover, a total of 96.2%, 95.5% and 93.2% of students expressed their satisfaction with the clarity of the learning objectives, good organizational and course content plan, and appropriate workload of the course designed, respectively. There is sufficient evidence to accept all hypotheses formulated, and hence, we postulated that, since students spend more time outside the classroom, out-of-class learners' engagement activity should be considered when designing a virtual course to promote lifelong learning, experience, and higher-order thinking. The

techniques presented herein could be useful to academics, professionals, and other relevant stakeholders in developing virtual course content within a specific domain of interest.