The Effectiveness of Using Gamification Technology in Enhancing Student Engagement and Learning

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Introduction: Teaching institutes are challenged to meet the demands of the 21st century student to create learning environments that are student focused, self-directed, technology enhanced and flexible (Guy & Marquis, 2016). Furthermore, the changing needs of millennial students require educators to expand the scope of traditional face to face courses with online learning (Makarem, 2015). The student diversity requires academics to modify their teaching style to accommodate student learning style. Colleges and universities need to constantly find new ways of delivering the course to accommodate broader student demographics (Bosshardt & Chiang, 2016; Dellos, 2015).

Games have been found to be beneficial for academic achievement, motivation and promoting class dynamics. One of the ways of incorporating games into education is integrating them as part of a traditional classroom lecture to improve learning, motivation and engagement (Wang, 2014). The game based teaching and learning technology Kahoot was chosen for the purpose of engaging students and enhancing their learning during lectures.

Purpose: The purpose of the study was to investigate the effectiveness of game-based teaching and learning technology in student engagement and learning during lectures in Diploma of Nursing students in one organisation.

Methods: A descriptive survey design was used to collect data from Year 1 Semester 1 Diploma of Nursing students. Participants were invited to complete a survey on the use of game-based teaching and learning technology in lectures via survey monkey. A convenience sample of Year 1 Semester 1 students enrolled in both i) apply communication skills in nursing practice (HLTENN002) (198 students) and ii) implement, monitor and evaluate nursing care plans (HLTENN004) (197 students) were invited to participate in the study.

The Kahoot quizzes were implemented by the teacher at the end of lectures throughout the semester. The educator played the role of a game show host and students the competitors. At the end of the semester students were asked to complete a survey (adapted from Calma et al., 2014 and Wang, 2015) using survey monkey on student engagement and learning using Kahoot quizzes. Approval to conduct the research was obtained from Holmesglen Institute Ethics committee. Participation in the research was voluntary and participants were given the option to withdraw from the study if they wished to do so.

Descriptive statistics (percentages, median and IQR) using SPSS (V20) was used to analyse the data. Correlations were undertaken to draw conclusions about the relationships between the data. Thematic analysis was conducted for qualitative data.

Results: The response rate for HLTENN002 was 79.3% (156) and HLTENN004 was 67.0% (132). The median average age of participants was 20 years (IQR 19 - 24) at the time of participation in the study. Half of the participants 50.7% (78) were enrolled as local students and 49.4% (76) were enrolled as International students. Participants were from nineteen ethnic background, with twenty four different primary languages and less than half of the participants 42% (66) have English as their primary language. The majority of the participants 72.6% (114) had used Kahoot before the commencement of Diploma of Nursing.
A large number of participants reported that the use of Kahoot increased their learning and engagement in lectures. The majority of the participants, 88.7% (134) in HLTENN002 and 92.1% (116) in HLTENN004 reported that the use of Kahoot improved their understanding of the unit content. Most of the participants 72.4% (110) in HLTENN002 and 81.8% (103) in HLTENN004 reported that the Kahoot quizzes at the end of lectures improved their interaction with the teacher. Furthermore, majority of participants 82.3% (125) in HLTENN002 and 84.9% (107) in HLTENN004 revealed that the use of Kahoot improved their performance in both units. Participants indicated that the game-based feature in Kahoot made learning fun and was a great learning tool. Moreover participants stated that the use of Kahoot motivated them and simplified learning for them.

**Conclusion:** This study recognises that student participation, engagement and learning in classrooms can be challenging for educators. However, the contemporary approach of game-based teaching and learning technology was able to deliver lectures in a more creative way. The study results have implication for a wider range of courses which accommodates large numbers of students, in promoting active learning in lectures. Furthermore, the use of Kahoot in lectures had a positive impact on student engagement and learning for students from different academic and ethnic background.

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**Title:**
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**Keywords:**
Game based student response system, student engagement and student learning

**References:**


**Abstract Summary:**
Teaching institutes are challenged to meet the demands of the 21st century student; to create learning environments that are student focused, self-directed, technology and innovation in nursing. This study investigated the incorporation of game-based technology in lectures in promoting active student learning.

**Content Outline:**

Content Outline Example (this format is an example only, there is NOT a required format)

I. Introduction
   A. Challenges in teaching
   B. Millennial students
   C. Game-based learning

II. Body
   A. Purpose
      1. Effectiveness of game-based teaching and learning technology
      2. Student learning and engagement
   B. Method
      1. Descriptive survey
      2. Convenience sample
      3. Descriptive statistics
   C. Results
      1. Majority of the participants reported increase in engagement and learning
      2. Kahoot improved their interaction with the teacher and increased student performance

III. Conclusion
   1. Incorporating technology into teaching had a positive impact on student engagement and learning

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publication and an author of a book chapter relating to nursing education. A few presentations at nursing conferences.

**Author Summary:** Auxillia Madhuvu have worked as a nurse for over a decade locally and internationally. Auxillia has taught in Diploma of Nursing for 3 years, currently working as a Lecturer in Bachelor of Nursing. Her research interest focuses on student learning, engagement and clinical practice. Auxillia is also a PhD student at Monash University. She will continue her studies in the field of nursing workforce and patient safety.

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**Author Summary:** Pathma has experience working as an academic and registered nurse locally and internationally for over 20 years. She obtained her Doctor of Philosophy at Monash University in 2011. She previously lectured at Monash University Australia for 4 years. She currently lectures at Holmesglen Institute. From January 2018, Pathma commenced her position as Lecturer in Nursing at the University of Tasmania. Her research interest is palliative care, and technology in enhancing student learning and patient care.

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**Author Summary:** Michelle has been employed in the Diploma of Nursing department at Holmesglen Institute from 2010 to present. In that time she has developed and delivered multiple units in the Diploma of Nursing. Improving student engagement in the classroom has always been a priority for Michelle. In 2014, as part of her Masters in Health Professional Education, Michelle conducted a study to evaluate the use of mobile technology in clinical skills laboratories.