Gamification for Collaborative Learning in Information Systems Education

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Introduction

Gamification employs game elements such as points, badges and ranking systems to create an enticing experience (Landers, 2014). Diverse fields, including education, marketing and health are gamified. Virtually any activity or context in an organisation can be gamified. Gamification, however, beyond rewards. In Information Systems education, and education in general, it is suggested that gamification's value lies in the following capabilities (Landers, 2014):

- It has the potential to instil the concept that the players can fail in a task and replay it without serious risk ;
- it stimulates feelings of achievement and game immersion to keep players engrossed in an learning task;
- Promotes a sense of connectedness with team members while competing (against other teams) ; and
- Gamification is flexible in providing rapid feedback for measuring player competency .

Research Problem

Gamification presents challenges, which stems from dualistic ontological positions. Here, games and students are considered two separate, closed systems. This is a misconstrued behaviouristic approach (Vermeulen et al., 2016). For example, students at the top of a leaderboard following a gamified ICT learning task may feel a sense of accomplishment. However, leaderboards can also be harmful insofar as students, who are at the bottom of a leaderboard, becomes demotivated. Their poor performance is likely interwoven with the socio-cultural background e.g. limited or no exposure to ICT education reflects in the poor gameplay performance. Games, thus, is context-specific.

Methodology

Instead of imposing gamification on students, the researcher believes that students should collaborate on the planning and implementation of the gamification strategy. The research candidate further follows a dialectical approach, as opposed to a dualistic approach. Here, gamification and games are viewed as the same and the value of game elements (e.g. leaderboards) depend on the meaning and value players assign to them. Also, the benefit of collaboration is that students can voice their desires and concerns to introduce meaningful gamified ICT learning (Vermeulen et al., 2016). This research study, therefore, adopts the transdisciplinary action research strategy. The action research model is characterised by a collaborative "iterative cycle of plan-act-reflect" (shown as an inset of Figure #1) (Oates, 2005, p. 172).

Figure #1

Diagnosis	Explain the purpose of Gamification
Planning	Jointly choose a gameplay strategy that aligns with learning goals
Intervention	Engage gameplay
Evaluation	Assess whether the game resulted in a more engage and motivating learning experience by conducting interviews and focus groups
Reflection	The transdisciplinary team deliberates on accomplishments of both new theories and outcomes

The students, in teams of three, played game called QUIZLET LIVE (2019). Quizlet Live can be played on a desktop PC or mobile device. QUIZLET allows educators to create educational questions from a specific field of study and present these questions to students. This study focuses on Programming and Communication, two modules of the Information Systems course under inquiry. In QUIZLET LIVE, team members on their respective devices are presented with the same question, but only one member of the team has the correct answer. Students need to work together to determine which member have the correct answer. Meanwhile, the competition between the teams is projected as a race over a data projector screen where teams can monitor their progress against other teams (cf. Figure #2).

Figure #2

Results

- Students showed appreciation for being given agency, i.e., their inclusion as decision-makers.
- Students with low IT self-efficacy criticized lack of agency imposed by the game system. To elaborate, if the team answers a question wrong, the game resets their progress; hence, they need to start from the beginning. If they could have changed the game, wrong answers should only move the team's progress one back. Conversely, students with strong IT-self-efficacy supported a complete reset of a team progress. They argue the complete reset motivate you to think carefully about the possible correct answer and not only guess the answer, thereby hoping that you will be lucky. Learning Motivation, therefore, is affected by this feature.
- Students with low IT self-efficacy the game's feedback and the 'try again' feature. It functions as follow: If a team answers a question incorrectly, the game navigates to a separate screen to indicate their answer is incorrect while also providing the correct answer. The question then reappears later in the game thereby giving teams the opportunity to attempt the questions again. Students with low IT self-efficacy feels that incorrect answers should be addressed on completion of the game; students with strong IT self-efficacy praises this feature, they argue it is good to succeed where you failed. Again learning motivation is affected by this feature.
- Agency presented problems insofar as students who were given the choice to decide chosen team members. Students who were had low ICT literacy skills expressed unhappiness at exclusion from strong teams (lowers self-efficacy). In contrast, they mentioned that participating in a team with members who had strong ICT skills were motivating towards ICT learning and raise self-efficacy.

Conclusion

This research project illustrated how vital a participatory methodology, such as action research is to determine the dynamics of collaboration is toward sound teamwork. Infusing such a methodology with fun activities such as gamification shows excellent promise for bridging relationships between people from different socio-cultural backgrounds. In the scope of this study, socio-cultural backgrounds, inter alia, denotes different ICT cultures i.e. low ICT skills and strong ICT skills liked to prior learning backgrounds. In the second cycle, acculturation has been incorporated to promotes social connectivity – the research candidate is in the process of analysing the data.

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