

Students Perception of a Gamified Student Engagement Platform as Supportive Technology in Learning

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Abstract

Students are increasingly turning towards Web-based learning materials to supplement their education. One such approach would be the introduction of Gamified student engagement platforms (GSEPs) to instill a new learning culture. Data was collected from closed-ended questions via content analysis techniques. About 81.8% of college students from the Monash University Foundation Year agreed that GSEPs (Quizizz) was an effective tool for learning. Approximately 85.5% of students *disagreed* that games were a waste of time. Most students (94.5%) agreed that Quizizz made learning Chemistry fun. Gamified student engagement platforms (Quizizz) were highly effective among students to facilitate the learning process.

Keywords: Education, Game-Based, Quizizz, Learning Platform, Students, Technology

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Introduction

The Internet has many beneficial advantages especially as an information distribution channel for our current generation of students (Kiili, 2005). We need to further engage and motivate students in their learning process by applying some of the Internet technologies widely available today. As such, the introduction of Gamified student engagement platforms (GSEPs) in education may elicit a novel learning culture that corresponds better with students' interests (Jabbar and Felicia, 2015). In fact, games can provide an engaging environment for learning and are usually associated with fun.

Generally, games are designed to induce positive feelings in the players and are most successful if it facilitates the "flow" experience (Kiili, 2005). This "flow" experience is defined as a state of total and complete absorption in a particular activity which is referred to the optimal experience. It was first conceptualized after studying people involved in activities such as dance, rock climbing and chess (Csikszentmihalyi and Larson, 2014). The psychological state of a person during this "flow" period is so goal-driven that everything else pales in comparison during this duration because this experience encompasses a combination of action, awareness, concentration and sense of control (Chen et al., 1999).

With the advent of online learning, some students do not feel motivated to learn but would prefer to play games. A survey showed that 21-year-old Americans spend 2,000–3,000 h on reading, while averaging more than 10,000 h playing various games (Zeng et al., 2020). As such, there is tremendous interest to incorporate GSEPs in the pedagogical process to motivate and stimulate learning interest. The GSEPs are effective in facilitating learning as it can provide a good environment for problem-based learning and are good structures for students to solve smaller linked problems that constitute part of the big picture. Games permit students to apply new ideas and concepts, rather than the traditional rote learning of memorizing information to score well in assessments. Students also become active participants of the learning process, instead of passive learners of material presented.

It is understandable that lecturers maybe concerned if GSEPs would elicit positive learning outcomes or affect learning efficiency. As such, researchers have conducted empirical studies to verify the efficacy of GSEPs. Calvo-Ferrer (2015) reported that students learning vocabulary via a GSEP performed significantly better, found the materials more appealing and their vocabulary skills had improved more compared to those in the control group (Calvo-Ferrer, 2015). Cheng et al (2013) also discovered that their students who learnt complex immunology concepts via a GSEP statistically outperformed those who learned via the traditional route. The GSEP assessed the students understanding of procedural knowledge and higher-level cognitive processes (Cheng et al., 2013). GSEPs have been found to stimulate internal motivation, improve learning efficacy, increase knowledge retention, and promote higher-order thinking development (Zeng et al., 2020).

As such, this study also aims to attain valuable students' insights on how a GSEP such as Quizizz can enhance teaching and learning. The feedback of students on the usage of Quizizz and a few usability issues were also investigated in this study. A questionnaire was designed by the author to examine students' perceptions related to the utilization of a GSEP as a supportive technology in teaching and learning.

Methodology

The participants were 55 Pre-university students from the Monash University Foundation Year (MUFY) in Sunway College, Malaysia. The MUFY program is designed by Monash College and it provides an academic bridge for students to transition into various Monash University's undergraduate degrees. Students who join MUFY are generally 17 or 18-year old's who just completed high school or IGCSE 'O'-Level examinations. They consist of a mix of ethnic groups and international students from urban city backgrounds.

The participants in this study were full-time students who had enrolled in a Chemistry class. All participants had used the World Wide Web for over 6 years and were using the Web daily for educational purposes. After they have completed the learning of an important subtopic, a Quizizz was conducted. The format of the quiz and number of questions were dependent on the individual lecturer. The Quizizz platform is free and particularly suitable for students aged six years and above. Alternatives to the Quizizz GSEP would be platforms such as Kahoot, Poll Everywhere, Mentimeter and Blackboard Learn.

A questionnaire with eight structured questions was created and distributed after students had completed the Quizizz. The design of the questionnaire was to measure the effectiveness of using Quizizz as a supportive technology in learning. The questions focused on whether Quizizz was an effective tool for learning, assisted in memory retention of concepts, and explored several usability issues. As such, the structured questions ranged from whether Quizizz helped increase understanding about certain facts, to whether the platform added variety in the teaching process, on whether Quizizz made learning fun, to the necessity of having more of such online games in future. Other usability issues investigated were whether students felt GSEPs were a waste of time and if students felt stressed or pressured when playing Quizizz.

Results

It would be interesting to have a gauge of the effectiveness of Quizizz in learning Pre-University Chemistry. Based on Fig. 1, approximately 81.8% of college students from the Monash University Foundation Year (MUFY) agreed that Gamified student engagement platforms (GSEPs) such as Quizizz was an effective tool for learning. Only 3 students (5.4%) disagreed that it was an ineffective tool to supplement the teaching and learning process. About 14.5% of students gave a neutral response, indicative that they neither agreed or disagreed that Quizizz was an effective pedagogical tool.

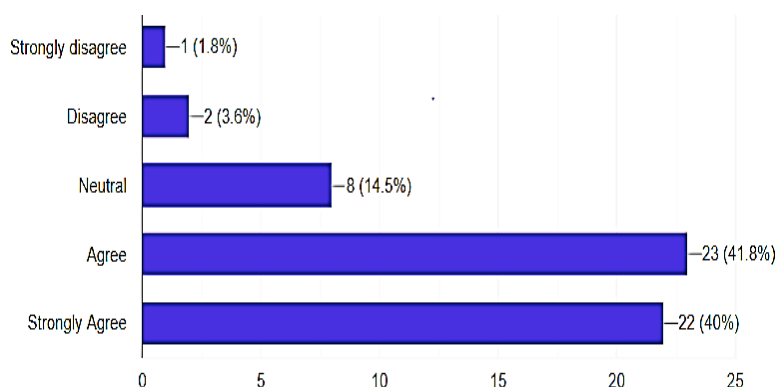


Figure 1: Students response towards the question on whether Quizizz was an effective tool for learning.

It was expected that a large proportion of students would find GSEPs fun and engaging in facilitating learning. Adding an occasional “game” to the traditional class will produce a break in the monotony of classroom lessons. In addition, games lower boredom and stress levels as student participation is high. Based on Fig. 2, a large majority of students (94.5%) agreed that Quizizz made learning Chemistry fun. About 5.5% students were neutral in their responses. There were some technical glitches when running Quizizz as a few students were not able to log onto the Quizizz website. This could have contributed to the 2 students who strongly disagreed that Quizizz was fun as they were probably frustrated they could not participate in this GSEP. They could only be passive participants, only being able to observe the Quizizz game in action and the excited faces of their classmates. Therein, lies the disadvantages of any online tool as it is subjected to technical glitches, slow broadband width or low capacity electronic gadgets.

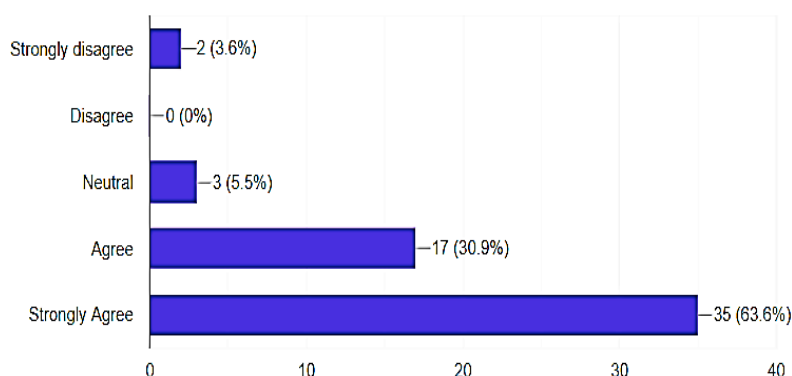


Figure 2: Students feedback on whether Quizizz made learning fun.

It is important to add variety to the pedagogical process to cater to students with varied learning styles, especially in this 21st century of Internet learners. Hence, it was good that 87.3% of students felt that Quizizz added variety to the teaching process. It is highly probable that the 2 (3.6%) students who responded that they did not feel Quizizz made learning fun could also be the same respondents who disagreed that Quizizz added variety in their learning process. Only 7.3% of MUFY student recorded a neutral non-committal response. Nevertheless, the graph is generally skewed in favor of students agreeing that GSEPs were beneficial in their education.

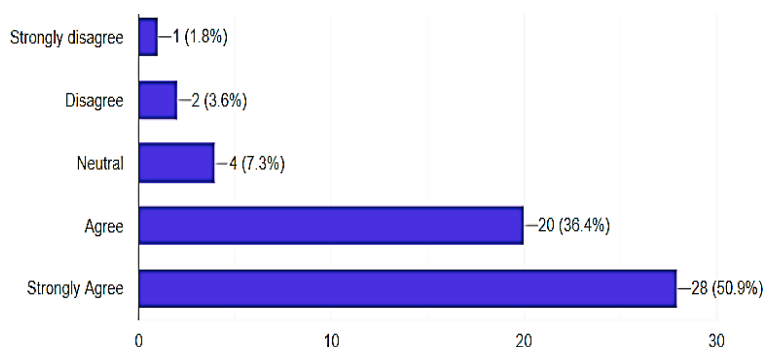


Figure 3: Survey results on whether Quizizz added variety in the teaching process.

It was interesting to determine if playing GSEPs was considered a waste of time and caused a deviation in student’s focus. It was good to note that approximately 85.5% of students disagreed that games were a waste of time. Only 6 students (10.9%) were neutral in their responses, indicative that even in the absence or presence of Quizizz, they would be able to learn Chemistry seamlessly. However, the 2 students who had registered negative responses

for most of the closed-ended questions could very well be the same 2 students who indicated their agreement that GSEPs were a waste of time. It remains plausible that these 2 respondents could have interpreted the question incorrectly and chose an inaccurate response. If that were so, this would give an imprecise representation of the feedback scores.

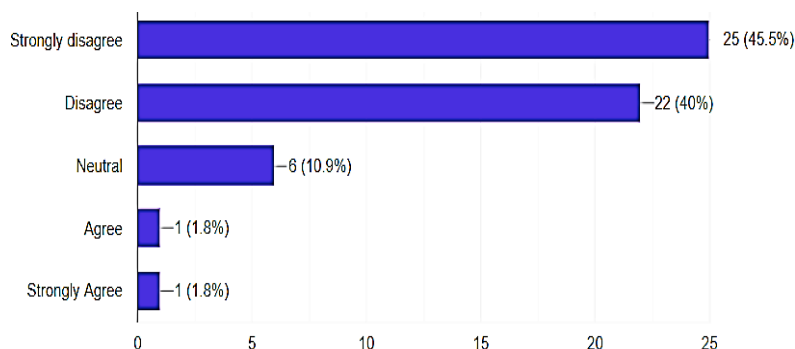


Figure 4: Respondents view whether GSEPs were a waste of time.

On whether Quizizz helped students increase their understanding about certain Chemistry concepts, only 58.2% of students agreed to that question. In addition, 36.4% of students showed a neutral response, implying that they did not agree/disagree that Quizizz increased their understanding about several Science notions. This could be due to the fact that GSEPs were viewed to be more of a revision tool, rather than aiding in comprehension of difficult Chemistry facts and principles. The conventional way of explaining on whiteboard or paper is still regarded as one of the best ways to help students understand complex scientific theories and concepts.

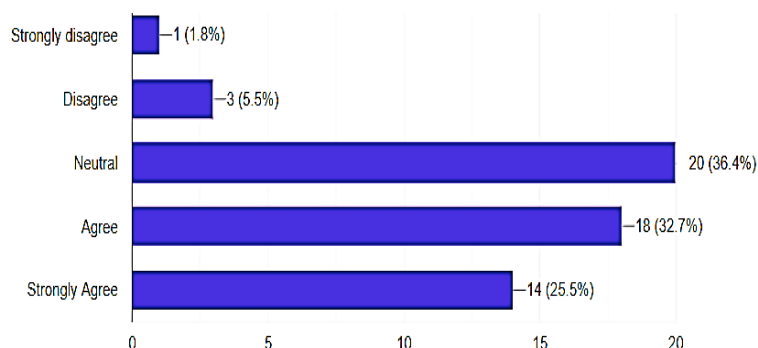


Figure 5: Students' opinion on whether Quizizz helped increase their understanding about certain concepts.

It seems to be a misconception that students felt stressed or pressured when playing educational games due to the time limitations and competitiveness among students. Based on Fig. 6, approximately 18.2% of students *did not* feel pressured when playing Quizizz, in addition to almost half of the students (45.5%) that registered a neutral response. However, there were 21 students (38.2%) who admitted feeling stressed during Quizizz and further research could be carried out to ascertain additional reasons behind this stress factor. It could be possible that this group of students did not respond well to stress as these online games have a time limitation and also because there was indirect competition among classmates due to the ranking factor after each question. This group of 21 students could comprise of the academically strong students who may feel slightly demotivated or stressed when they observe that their ranking has dropped after several questions. This is because they may have

been used to attaining top positions in class and hence, place unnecessary pressure on themselves to perform well, even in a GSEP.

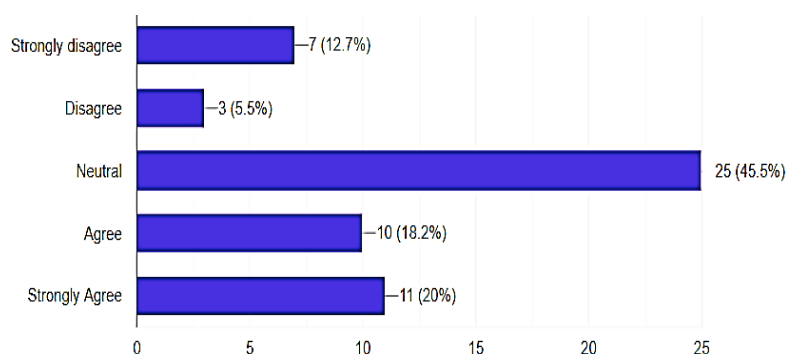


Figure 6: Feedback on whether students felt stressed or pressured when playing Quizizz.

It was encouraging to observe that approximately 74.5% of MUFY students found that Quizizz helped in memory retention of certain Chemistry facts. This Science subject is generally difficult for most students and attaining feedback that GSEPs such as Quizizz could facilitate students learning is indeed promising. There were 16.4% of students who recorded a neutral response, indicative that for this group of students they neither felt that Quizizz helped nor did not help in memory retention. Nevertheless, it is also important to note that 5 students did not find Quizizz helpful in memory retention. This could be due to differing learning styles among this small group of students.

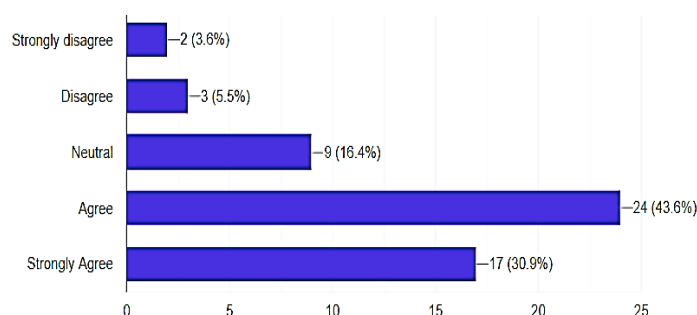


Figure 7: Questionnaire results on whether Quizizz helped in memory retention of certain facts.

Overall, a good gauge on whether a learning tool is beneficial for students is if they would like to experience more of it in the future. If students had a negative experience of an innovative pedagogical tool, they would naturally give feedback that they would not wish to experience more of the particular tool. It was good to analyze that an overwhelming majority of students (89.1%) responded that they would like to have more Quizizz games in the future. Yet again, only 2 students did not wish to have more Quizizz platforms due to technical glitches that contributed towards a not-too-positive experience. Only 7.3% of students gave a neutral response, inferring that they had no special preference on whether there were more GSEPs in the near future.

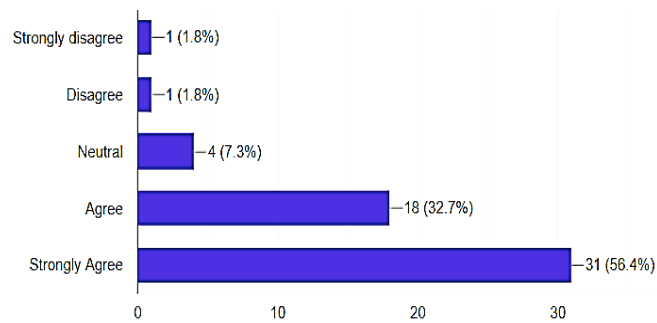


Figure 8: Respondents view on whether they would like to have more Quizizz games in future.

Discussion

This study focused on identifying the effectiveness of student learning experiences with a specific Gamified student engagement platform (GSEPs), Quizizz in facilitating learning. It was analyzed on how these elements created engagement and affected learning and motivational outcomes within Quizizz. Currently, there is limited research performed on the impact of GSEPs on the academic performance of college students.

Elizabeth, H-S. (2016) pointed out that GSEPs shifted students' perspective from extrinsic to intrinsic motivation because games led to an increase in satisfaction levels of achievement and mastery (Elizabeth, 2016, p 227). As such, there have been suggestions of recommendations for future design of GSEPs for teaching and learning (Jabbar and Felicia, 2015, p 740). Other researchers such as Chik (2014) have carried out the utilization of digital games to stimulate second language learners in East Asia (Chik, 2014, p 85).

In this study, Quizizz was used as a supplementary tool to facilitate learning and it registered positive influence among college students. There remains a pressing need to constantly utilize and develop effective strategies to engage and enhance the academic success for this generation of students with varied learning styles. Hence, GSEPs such as Quizizz have to be explored to gauge the level of effectiveness to enhance students learning process. In fact, a direct alignment is required between the game, feedback, learning outcomes, and assessments (Turner et al., 2018).

Based on the results of this study, students found Quizizz an effective tool for learning (Fig. 1), learning was more fun (Fig. 2) and it added variety to their learning process (Fig. 3). Students experienced increased levels of understanding about certain Chemistry concepts (Fig. 5), memory retention of facts (Fig. 7), and expressed hope that there would be more future Quizizz games (Fig. 8). Contrary to popular belief, they did not feel that GSEPs was a waste of time (Fig. 4) and did not experience much stress or pressure during the "flow" of the game (Fig. 6). These findings are in accordance with previous research that GSEPs have a positive impact on the motivation and academic progress of students (Snow, 2016, p 5), as well as increased students' satisfaction and interest in their studies (Keller, 2008, p 40).

This study was designed to provide valuable feedback on the effectiveness of GSEPs in enhancing teaching and learning, both for the lecturer and student. This will enable lecturers to more effectively engage this generation of students by supplementing with other innovative educational tools. Although there maybe barriers and implementation issues revolving around GSEPs, efforts by lecturers to give games a try would be worthwhile as it

can provide students with greater exposure to context-specific, student-centered and problem-solving skills which are all critical for the workforce of the future. Future studies can incorporate an even larger sample size to have a better gauge of effectiveness in utilizing GSEPs to facilitate the pedagogical process.

Conclusion

This study demonstrated that Gamified student engagement platforms such as Quizizz could be a good supportive technology in teaching and learning. This was evident from the questionnaire results as students affirmed that the utilization of Quizizz was beneficial in their pedagogical process. Generally, the findings indicate that college students have positive attitudes about the incorporation of online games in education. An important finding was that students were agreeable that Quizizz made learning Chemistry fun as there were additional challenges and music accompaniments that added an exciting aspect to learning. In addition, there was an element of intra-class competition that motivated students to perform prior revision as the lecturer would notify students a day before to prepare and benefit more fully from Quizizz. This GSEP elicited better learning opportunities, catered to students with differing learning styles and had no usability issues. Overall, students showed positive and encouraging outcomes from using Quizizz to complement their traditional teaching and learning process.

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References

- Calvo-Ferrer, J. R. (2015). Educational games as stand-alone learning tools and their motivational effect on L2 vocabulary acquisition and perceived learning gains. *British Journal of Educational Technology*, 48, 1-15.
- Chen, H., Wigand, R. T. and Nilan, M. S. (1999) Optimal experience of Web activities. *Computers in Human Behavior*, 15(5), 585-608.
- Cheng, M. T., Su, T., Huang, W. Y. and Chen, J. H. (2013). An educational game for learning human immunology: What do students learn and how do they perceive? *British Journal of Educational Technology*, 45, 820–833.
- Chik, A. (2014) Digital gaming and language learning: Autonomy and community. *Language Learning & Technology*, 18(2), 85–100.
- Csikszentmihalyi, M. and Larson, R. (2014) Validity and Reliability of the Experience-Sampling Method. *Flow and the Foundations of Positive Psychology: The Collected Works of Mihaly Csikszentmihalyi*. Dordrecht: Springer Netherlands, 35-54.
- Elizabeth, H-S. (2016) Games, Gaming, and Gamification: Some Aspects of Motivation”, *TESOL Q*, 7(1), 227-232.
- Jabbar, A. and Felicia, P. (2015) Gameplay engagement and learning in game-based learning: A systematic review. *Review of Educational Research*, 85(4), 40–779.
- Keller, D. (2008) Tune-up for trainers: Help employees stay on top of their game. *Medical Laboratory Observer*, 40(6), 40–43.
- Kiili, K. (2005) Digital game-based learning: Towards an experiential gaming model. *The Internet and Higher Education*, 8(1), 13-24.
- Pearce, J. and Howard, S. (2004) Designing for Flow in a Complex Activity. *Lecture Notes in Computer Science*, 3101, 349-358.
- Snow, B. (2016) The potential for game- based learning to improve outcomes for nontraditional students. *Muzzy Lane Software Report*, 1-48.
- Turner, P. E., Johnston, E., Kebritchi, M., Evans, S., and Heflich, D. A. (2018) Influence of online computer games on the academic achievement of nontraditional undergraduate students. *Cogent Education*, 5(1), 1-16.
- Zeng, J., Parks, S. & Shang, J. (2020). To learn scientifically, effectively, and enjoyably: A review of educational games. *Human Behavior and Emerging Technologies*, 2, 186-195.

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