Students' Perception on the Application of Gamification in Education during Covid-19 Pandemic

Noorhidayah Sunarti*[1], Nik Fatma Arisya Nik Yahya[1], Bernard Lew Chun Liang[1], Mazura Mahdzir[2]

[1] Faculty of Engineering and Quantity Surveying, INTI International University, 71800 Negeri Sembilan, Malaysia

[2] Faculty of Built Environment, Tunku Abdul Rahman University College, 50728 Kuala Lumpur, Malaysia

*Email: noorhidayah.sunarti@newinti.edu.my

Abstract: Covid – 19 Pandemic that hit the world had given a huge impact on all sectors of the economy including the education sector. As coronavirus continues to spread, many countries have a total lockdown. The same goes for Malaysia which the education sector needs to be closed due to Movement Control Order (MCO) 1.0, March 2020. Challenges are faced by educators as they have to conduct classes online. To gain student willingness and interest in the lesson becomes a major problem that needs attention to enhance students' learning experience. Many educators especially in higher learning institutions using gamification apps as a method of teaching to approach and increase students' motivation and engagement in the online classroom. Gamification refers to the application of game elements to non-gaming activities and has been applied to a variety of environments, including education. It brings a positive impact in terms of students' behavior and academic performance. This paper aims to investigate the students' perception of the application of gamification during the current pandemic situation. The advantages of gamification and tools to conduct gamification i.e. Kahoot, Gamified teamwork learning, and Scoreboard System have also been identified in this paper. To achieve the aim of this study, an online survey was conducted by distributing the questionnaire to the students from five selected local private universities. The data has been analyzed using descriptive statistical analysis data. The majority of the respondents agreed that gamification provides a better learning environment, increased motivation, increased understanding and memory, promotes well-being, and increased their academic performance in their learning process. The results from the survey conducted proved that these students hold a positive perception i.e. it is important to be applied in the learning process as it is being easy to use, fun, motivated, and more effective. They also feel that the lecturers shall apply gamification in the lesson.

Keywords: Gamification; Education; Motivation; Engagement; Teaching approach

Introduction

Covid-19 Pandemic has given a huge impact on educative institutions from all levels kindergarten, primary school, secondary school, and even university students. As coronavirus continues to spread, the education sector needs to be closed to reduce the epidemy. Thus, almost all teaching has quickly transitioned to distance education to provide appropriate social distancing (Johnson et al., 2020). The sudden development of the COVID-19 outbreak made it

difficult to plan empirical studies that tested the use of gamified tools, with the majority of educators doing huge efforts to move from a face-to-face classroom environment to online lectures through videoconferencing tools (Nieto-Escamez and Roldan-Tapia, 2021). Nowadays, the increasing of students losing their willingness and interest towards lessons, become a major problem that the lecturers should pay attention to enhance students' abilities in education like Malaysia. (DİŞLEN, 2013). In accordance to enhance the students' learning experience, many universities have started to use gamification apps or concepts in education, there is important to determine the suitable way to ensure the students have the effectiveness learning through the gamification. (Stott and Neustaedter, 2013) To improve students' educational level, gamification has a positive impact on downstream behaviors such as participation and academic performance, especially in the short term. (Golubovskiĭ, Nekuchaev and Ponomarev, 1998). The previous researcher also addressed that to enhance students' motivation and commitment through online classes, educators need to develop new teaching strategies. Among different strategies, gamification has attracted the interest of educators, who in the last times have been exploring its potential to improve student learning (Dichev and Dicheva, 2017; Majuri et al., 2018; Koivisto and Hamari, 2019). According to Kapp, gamification is "using game-based mechanisms, aesthetics and game thinking to attract people, stimulate action, promote learning and solve problems." (Kiryakova, Angelova, and Yordanova, 2018) Gamification refers to the application of game elements to non-gaming activities and has been applied to a variety of environments, including education. (Nah, 2014).

Literature Review

Advantages of Gamification in Education

Gamification not only engages students but also brings learning contexts and conditions, building understanding through immediate and rewarding feedback loops. (Hässic, 1947) .Effective gamification is a way to attract learners' attention, and then interact with them, and through gamification to enable learners to learn effectively. Combining fun and learning in the classroom will enable students to get a good learning experience and increase students' understanding of their studies. (Furdu, Tomozei and Kose, 2017)

Feedback is a key element of learning. The more frequent and targeted the feedback, the better the learning effect will be. The level design ensures that the player can practice a lot with what they have learned. Educators can use elements of game design to increase feedback mechanisms by "providing continuous forms of feedback to learners through self-paced exercises, visual cues, frequent question-and-answer sessions, and progress bars.". (Stott and Neustaedter, 2013) Feedback is provided immediately, so the students able to know what they know or what they should know. Now, gamification provides indicators that educators can collect students' perspectives more clearly and easily. From a student's perspective, exams and tests, as well as other activities may provide different feedback. It also helps to increase learner engagement for better retention and recall. (Golubovskiĭ, Nekuchaev and Ponomarev, 1998; Furdu, Tomozei and Kose, 2017)

The learning experience is personalized; students can improve according to their different levels. The gamification system in e-learning not only provides an effective and informal learning environment but also helps students practice real situations and challenges in a such safe environment. This may lead to a better and positive learning experience that helps students retain knowledge. (Furdu, Tomozei and Kose, 2017)

A gamified strategy with high engagement improves memory and retention. (Furdu, Tomozei and Kose, 2017). It promotes well-being. Beyond stimulating healthy behaviors, the Gamified app can directly lead to generating positive experiences of the basic psychological needs of happiness satisfaction as well as other elements of happiness such as positive emotions, engagement, relationships, meaning, and achievement. (Furdu, Tomozei and Kose, 2017)

Incorporating this "freedom of failure" into classroom design can effectively increase student participation. . As with game dynamics with "freedom of failure," formative assessments focus on the learning process rather than the result, using it to provide information for subsequent courses and separate them from scores. This may mean that students use continuous self-assessment, or teachers use continuous assessment to inform their teaching or make an opinion. (Stott and Neustaedter, 2013)

Motivation is a theoretical construct used to explain the initiation, direction, intensity, persistence, and quality of behavior. (Buckley and Doyle, 2016) With the longer use of gamification platforms, many gamification elements are seen as an important motivation for continuing to participate in platform activities because it provides them with positive feedback about their capabilities. (van Roy and Zaman, 2019) In education, motivation is considered a key factor in learning success. (Buckley and Doyle, 2016)

Tools of gamification as a strategy; Covid-19 Impact

Kahoot is a student response system that attracts students through pre-prepared or improvisational game-style quizzes, discussions, and surveys. Students don't need a Kahoot account to access the quiz, and they can access the quiz from any device using a web browser, such as an iPad, mobile device, or laptop. However, the instructor does need an account to create the quiz. Creating quizzes, discussions, or surveys is quick and easy. (Dellos, 2015). The Kahoot application, which has gained the idea of student cooperation to win, is easy to use. The biggest advantage of this application is that it is both a web-based application and a free application, and it is supported by mobile devices. (Olesova and Johnston, 2013)

Gamified teamwork learning is defined as a group of individuals who hold independent tasks yet share the responsibility for outcomes. Hence, gamified teamwork learning refers to teamwork detached to game design elements in delivering skills and knowledge. (Trusova, 2020) The main objective of gamified teamwork learning is to increase the engagement of users along the process of learning. (Moccozet et al., 2013)

The scoreboard system is like a scoreboard displaying a sorted and ranked list, and the scoreboard effectively shows students their overall performance. Dr. Carman Neustaedter applied the principles of gamification in the course of about 70 students with the scoreboard system. Examination of the course showed evidence of varying degrees of freedom to fail, quick feedback, progress, and storytelling. (Stott and Neustaedter, 2013). In addition, it shows how individual coursework affects their score because they can visually and digitally identify changes in ranking due to recent submissions.

Methodology

This research is Quantitative research where surveys using questionnaires were conducted. Determination of sampling size was done by using random sampling targeting Malaysian private institutions. The particular target respondent was selected due to time constraints as involving other educational institutions might consume more time for data

gathering during the pandemic. A total of 216 sets of questionnaires with a 100% response rate have been distributed to the five (5) Malaysian private institutions through Online Google Forms. The data has been analyzed using frequency descriptive analysis. The mean is obtained with the highest and lowest mean will be discussed in the next chapter.

Result and Discussion

Eight (8) advantages have been listed out and a majority of the respondents strongly agree that the implementation of gamification in education gives benefits in their study. Table 1 shows the mean of the advantages that give the benefits to the students.

Advantages	Mean
Gamification in education increased understanding compared to the traditional teaching method.	4.52
Gamification in education is motivated.	4.49
Gamification in education provided a better learning experience.	4.44
Gamification in education provided a better learning environment.	4.42
Gamification in education provided instant feedback.	4.40
Gamification in education allows the students freedom to fail so that they can learn from failure.	4.37
Gamification in education promotes well-being.	4.29
Gamification in education is provided an advantage in academic performance.	4.23

Table 1: Advantages of gamification

The highest mean is; "gamification increased students understanding rather than traditional teaching method" which is 4.52 mean score. Combining fun and learning in the classroom will enable students to get a good learning experience and increase students' understanding of their studies. (Furdu, Tomozei and Kose, 2017). While the second mean as the respondents agreed most is; motivation (4.49). This is in line with a statement by Buckley and Doyle mentioned, in education, motivation is considered a key factor in learning success. (2016). Gamification provides a better learning experience will be the third advantage of students' perception (4.44). Gamification provides a 'fun' experience during the learning process. A gamified strategy with high engagement improves memory and retention. (Furdu, Tomozei and Kose, 2017). The lowest three means chosen by the respondents are; gamification allows students the freedom to fail so that they can learn from the future (4.37); promotes well-being (4.29); and finally, provides an advantage in students' academic performance (4.23).

Data on students' perceptions were also collected and analyzed using the mean score. The majority of the respondents agreed that gamification is important to be implemented in the learning process as 4.60 is the highest mean score, while gamification is perceived ease of use and student have fun using gamification in the learning process sharing the mean score; 4.56. Table 2 shows the detailed mean score and ranking under students' perception. Other perceptions recorded are; gamification can effectively increase the learning process (4.49), motivate the student (4.46) and lecturers frequently use gamification in the lesson (3.89)

Student's Perception	Mean
Gamification in education is important to be used in the learning process.	4.60
Gamification in education is perceived ease of use.	4.56
Students have fun using gamification in the learning process.	4.56
Gamification can effectively increase the learning process.	4.49
Gamification can motivate the student.	4.46
Lecturers frequently use gamification in the lesson.	3.89

Table 2: Student's perception towards gamification in education

Conclusions

Covid -19 pandemic had given an impact on the education sector. The implementation of gamification in education gives benefits to the educator as well as the students to enhance their motivation in the learning process. Gamified increases the fun and engagement of students in class so that students will not be bored with the principal subjects. If the student can gain higher engagement in the course, the academic performance of the student will also well. The new approach will also allow students to interact more with their teachers, which will lead to better relationships and improved student performance in education. Data has been collected from Five (5) private Malaysian institutions to determine the advantages and their perceptions of gamification. The majority of the respondents agreed that gamification in education increased understanding compared to the traditional method, and it motivates them in the learning process with better learning environment.. The results from the survey conducted proved that these students hold a positive perception i.e. it is important to be applied in the learning process as it is being easy to use, fun, motivated, and more effective. They also feel that the lecturers shall apply gamification in the lesson.

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