Modelling Intention to Accept Gamification in Learning among University Students in Malaysia

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Abstract
Gamification tries to increase user enjoyment and engagement by incorporating common game design features into non-game settings. This study, which was inspired by the growing interest in these phenomena in the field of education, attempts to look into how perceived enjoyment, perceived ease of use, and perceived usefulness affect people's intentions to accept gamification in the classroom. In an effort to do this, the Technology Acceptance Model (TAM) will act as the study's theoretical foundation. Purposive sampling was used to collect data via online questionnaires, which were then analyzed using SPSS software. The undergraduate students enrolled in the Faculty of Business and Management at the UiTM Johor Segamat Campus make up the study's population. According to the findings, perceived enjoyment and perceived usefulness have a favorable impact on the decision to accept gamification in education. While the intention to accept gamification in learning is unaffected by perceived ease of use. Following various recommendations for future research, this paper next looks for an explanation for these findings.
Keywords: Gamification, Perceived Enjoyment, Perceived Ease of Use, Perceived Usefulness

Introduction
    Kruk & Zawodniak (2020) state that "insufficient teacher engagement, the repetitive use of the same instructional instruments, and lack of purpose un learning" are the causes of students' boredom. Many kids struggle academically (Nind et al., 2019). It may be argued that a student would benefit much from an entertaining learning process. Currently, gamification is an emerging notion used to sweeten up the learning process by incorporating game elements into learning sessions (Landers & Callan, 2011). Gamification in education "may boost levels of students' involvement comparable to what games can do, to develop their specific abilities and optimise their learning," according to (Smiderle et al., 2020). Because it "allows social interaction, engagement, feedback, and greater learning," gamification is highly

suited to education (Cheong et al., 2014). Despite the fact that many educational institutions are aware of the various advantages of "gamifying" learning activities, gamification in teaching and learning is still not frequently used by some.

Literature Review
Gamification in Education

Gamification in education's major goal is to "raise learners' motivation and engagement to enhance their abilities when participating in eLearning activity" (Koivisto & Hamari, 2019). The systematic application of gamification has developed into a very well-liked learning aid in recent years (Panagiotarou et al., 2020). Hamari et al (2014) "investigated the effects of game elements and found that they inspired students to advance in their lessons and thereby improve learning outcomes: "Gamification provides feedback to measure players' growth towards outcomes, while the players can influence progress by their actions and overall strategies of play (Bayerl et al., 2019). Currently, gamification is an emerging notion used to sweeten up the learning process by incorporating game elements into learning sessions (Landers & Callan, 2011). Gamification in education "may boost levels of students' involvement comparable to what games can do, to develop their specific abilities and optimise their learning," claim (Smiderle et al., 2020). Because it "encourages social interaction, engagement, feedback, and greater learning," gamification is a good fit for education (Cheong et al., 2014). Other than that, one virtue of educational games is its capacity to "encourage student-to-student engagement and peer learning" (LeCroy, 2006).

II. Technology Acceptance Model (TAM)

The theoretical foundation for this study will be provided by the Technology Acceptance Model (TAM). The Technology Acceptance Model developed by Davis has been used extensively in literature to forecast adoption intentions or evaluate usage (1989). TAM is an outgrowth of the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior developed by Ajzen and Fishbein in 1980. (TPB). According to TAM's hypothesis, perceived utility and perceived simplicity of use have an impact on people's acceptance behaviour. Many scholarly studies have used TAM extensively to forecast the adoption of information systems and information technology. PEOU is "the degree to which a person believes that using a system would be free of effort," according to (Davis,1989). Existing scientific publications frequently note the significant impact of usability on perceived utility (Amin et al., 2008). According to TAM, a person's attitude will dictate how they will use technology, which in turn will be influenced by how beneficial and simple the information systems are to use (Camilleri & Morris, 2017). The main factors influencing how people feel about using computers are perceived usefulness and ease of usage (Teo, et al., 2009). Both were discovered to be strongly correlated with the teachers' perception of computers (Davis, Bagozzi & Warshaw, 1989). The degree to which a person believes that employing a system would improve his or her ability to accomplish a job is described as perceived usefulness (Davis, 1989). In a study on ease of use and intention, Ramayah & Lo (2007) discovered that "ease of use positively predicts the intension to use."

Inclusion of Perceived Enjoyment in TAM model

As TAM only takes utility and simplicity of use into account as independent variables when making an acceptance choice, the use of TAM in forecasting the intention to embrace gaming in learning is potentially insufficient. In reality, other elements of perceived satisfaction also

impact the decision to gamify (Khan, 2015). Perhaps the most crucial factor in successful gamification is even fun. Instead of an unpleasant learning activity, a student will be driven to learn in an entertaining learning activity. The definition of perceived enjoyment is "the degree to which the activity of using the computer is regarded to be enjoyable in its own right, independent of any potential performance repercussions" (Malone, 1981). Through various game design components like missions and quizzes, gamified practises "enable individuals to experience fun, flow, autonomy, mastery, and accomplishment" (Xu et al., 2014). Student enthusiasm, enjoyment, and absorption increased when a board game was used to convey a brand-related topic, claim (Khan & Pearce, 2015). As a result, this study is convinced that students' intentions to adopt gamification in learning would be influenced by their perception of fun.

Key factors that draw people to gamification, according to Palmer et al (2012), include (1) Progress Paths, (2) Feedback and Reward, (3) Social Connection, and (4) Attractiveness. A gamification platform cannot be implemented without all of these essential elements. Progress Paths, also known as "the use of challenges and evolving narratives to increase task completion," Feedback and Reward, also known as "the use of rapid indications of success through virtual and monetary rewards," Social Connection, which makes use of a customer's social networks to foster competition and provide support, and Interface and User Experience, which must be appealing to users. According to Li and Yeh (2010), aesthetics affect how useful, simple, and enjoyable technology is judged to be. The study by MacDonald and Atwood (2014), which demonstrated a strong correlation between aesthetic perceptions and usability, lends credence to this idea. Aesthetics refers to the beauty that can be expressed through components like layout, font, colour, or images, indicating the requirement that the gamification interface and user experience must be appealing to people.

Perceived Usefulness

A person's perception of a technology's "perceived usefulness" (PU) is how much they think it will improve their ability to accomplish their job (Davis, 2019). The degree to which a person feels that technology will enable him or her to carry out a specific task effectively and efficiently is referred to as the PU. Consequently, the PU construct is focused on the anticipated total influence of technology on the person's performance at work (in terms of process and outcome). The ATU, or intention to use and actual use of the technology, of an individual is directly impacted by the PU (Lee & Lehto, 2013). Thus, it is widely acknowledged that perceived utility is a valid consideration when creating educational games. Since business simulation games are increasingly being employed in business and management schools (Tao, et al., 2009) developed a research model on students' intention to play these games using the TAM and other theories.

Perceived Ease of Use

Perceived ease of use, or PEoU, is the degree to which a person thinks utilising a specific system would be effortless, according to (Davis, 1989). The author looked into how much people believe technology is simple to use and requires little effort. The PEOU measures how strongly someone thinks gamification will be simple to use or effortless. That indicates that employing gamification for training does not result in the learning of skills. According to earlier research, the PEOU has a direct positive impact on users' views and how valuable they believe technology to be (Malaquias & Huang, 2008). Alternately, people can discover that the

technology is challenging to comprehend and apply. It is quite likely that they will reject the technology if they believe it to be difficult, tiresome, or time-consuming (Thong et al., 2002).

Methodology

Research Methodology refers to the exact tactics or procedures used to identify, pick, quantify, and examine data regarding a subject. In a research report, the system section enables each user to critically assess an examination's overall veracity and unwavering quality (Libguides, 2021). All undergraduate students enrolled in the Faculty of Business and Management at UiTM Johor Segamat Campus will make up the study's population. Purposive sampling will be utilised to gather data for this study utilising a structured online questionnaire with five elements (demographic characteristics, felt enjoyment, perceived ease of use, perceived usefulness, and intention to adopt gaming in learning). The aim of the pupils to adopt gamification in learning will be modelled using SPSS software.

Framework

Accordingly, this study proposed a model with three core constructs perceived enjoyment (PE), perceived ease of use (PEOU) and perceived usefulness (PU) as the independent variables with intention to accept gamification in learning (INT) as the dependent variable
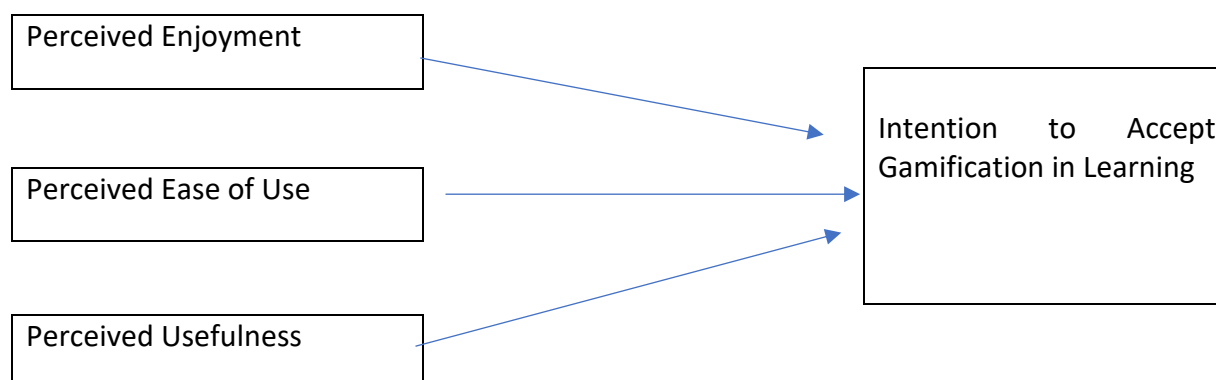

Figure 1.0: Theoretical Framework

Hypothesis

This paper models the relationship between the three beliefs about gamification in learning which are perceived enjoyment, perceived ease of use and perceived usefulness towards the intention to accept gamification in learning.

H1: There is a positive influence of perceived enjoyment on the intention to accept gamification in learning.
H2: There is a positive influence of perceived ease of use on the intention to accept gamification in learning
H3: There is a positive influence of perceived usefulness on the intention to accept gamification in learning

Table 1.0
Result Analysis

	Unstandardized Coefficients Beta	Std Erorr	Standardized Coefficients Beta	t	Sig
PEM	0.304	0.075	0.277	4.040	0.000
PEUM	0.150	0.079	0.140	1.884	0.061
PUM	0.320	0.077	0.312	4.150	0.000

*PEM (Perceived Enjoyment), PEUM (Perceived Ease of Use), PUM (Perceived Usefulnes

Result of The Study

In this regression, it is used to evaluate the relationship between variables of two or more and needs to decide whether independent variables explain the dependent variable effect. In table 1.0 is the result of analysis for modelling intention to accept gamification in learning among students which involved the 295 students from Faculty Business Management, Universiti Teknologi MARA Johor, Malaysia. From the table 1.0 above, PUM is the variable that most influential towards intention to accept gamification in Learning, (β =.312, $p < 0.05$), followed by PEM (β = 0.277, $p < 0.05$) and PEUM made the least contribution (β= 0.140, $p > 0.05$). Perceived Enjoyment (PEM) is the first component. The table 1.0 shows that Perceived Enjoyment (PEM) coefficient 0.277, which is 27.7%. It assumes that for each one percent increase in the Perceived Enjoyment (PEM), a 27.7% percent increase in intention to accept gamification in learning, that assumes the other factors will remain the same. The probability value is 0.000, which is less than the 5 percent significance level. This means that the null hypothesis has to be discarded as the result is significant which Perceived Enjoyment has the positive influence on intention to accept gamification in learning. Perceived Ease of Use is the second component. Base on the result Perceived ease of Use (PEUM) coefficient 0.140, which is 14%. It is assuming that for each one percent increase in the Perceived Ease of Use (PEUM), a 14% increase in intention to accept gamification in learning, that assumes the other factors will remain the same. The probability value is 0.061, which is more than 5 percent significance level. This means that the null hypothesis has to be accepted as the result is not significant which Perceived Ease of Use (PEUM) has no influence on intention to accept gamification in Learning. Perceived Usefulness is the third component. Result from the Table 1.0 on Perceived Usefulness (PUM) coefficient 0.312, which is 13.2 %. It is assuming that for each one percent increase in the Perceived Usefulness (PUM), a 13.2% increase in intention to accept gamification in learning, that assumes the other factors will remain the same. The probability value is 0.000, which is less than 5 percent significant level. This means that null hypothesis has to be rejected as the result is significant which Perceived Usefulness (PUM) has the positive influence on intention to accept gamification in learning.

The result is based on the analysis with three factors which are perceived enjoyment, perceived ease of use and perceived usefulness as independent variables and intention to accept gamification in learning as our dependent variable. Based on the data, we can conclude that perceived enjoyment and perceived usefulness is significant and have positive influence on the intention to accept gamification in learning. The findings in this study are consistent with the argument that digital natives are increasingly immersing themselves in digital technologies (Colbert et al., 2016), including educational games (Bourgonjan et al., 2010). Furthermore, previous studies also have indicated that perceived enjoyment is one of the crucial factors motivating students to use digital game applications during their studies (Baek

& Touati, 2017). In another study, Wang & Sun (2016) also applied TAM to examine students' acceptance of an educational computer game. Their findings showed that perceived usefulness significantly influenced students' acceptance of the proposed game. While for perceived ease of use is insignificant and has no influence on the intention to accept gamification in learning. The result is consistent with Camilleri & Camilleri (2019), which mentioned that there was no significant relationship between the perceived ease of the gameplay among the students.

Conclusions
*From this study finding, it was identified that perceived usefulness is one of the reasons that motivate university students to accept gamification in learning. The students are more likely to commit towards gamification the extend to they percei*ve that gamification is useful for what they want to achieve in their learning; to gain knowledge quickly and conveniently. *As such, the lecturers in university should build trust among these university students that learning through gamified lesson would* be useful for attaining what they want, making them learn in a way that fits well with their needs of shorter learning time and lesser learning effort. The lecturers should design a lesson that draw on necessary knowledge according to the syllabus and incorporate gamified elements in the lesson plan*. With many gamified educational board, apps and software offered* in the market, the university lectures without difficulty can turn learning activity into a game that allows the students to play while they are learning and accomplish *desired academic performance. In this study,* perceived enjoyment has positive influence on the intention to accept gamification in learning. Gamification in education at its core is all about making learning more engaging for students. As such, one of appropriate strategy to make student become engaged in learning is to get along with the way these young learners' favor to learn. Without a doubt, a fun learning which promise amusement and light-hearted pleasure will capture young learners' interest to learn. Students *are more likely to accept gamification* the extent to which the learning activity is perceived to be enjoyable. *If learning with games is fun*, they will be more acceptive towards gamification in learning. As such, the lecturers should keep their gamified lessons as always fun. The lecturers must consider relevant gamified elements that makes learning are joyous to learn and design them according to targeted learning objectives and outcomes. Lecturers may make use of leaderboard, badges and points in their lesson to makes the students have good time when learning and feel happy.

*Gamification can make it easier to learn educational contents and works well for present generation. With m*embers of Generation Y and Z have been using technology since their early age, they *have great ability to endure a new learning process of gamified lesson. In this study, Perceived ease of use evidencing contradicting result compared to Perceived usefulness and Perceived enjoyment. The result indicated that perceived ease of use has no influence on the intention to accept gamification in learning. Whether* the students feel a gamified lesson is easy to use or hard to use, this will bring no impact to their interest in accepting gamification to learn. Neither a less complicated nor more complicated gamified lesson will affect their intention to accept gamification in learning. Students *are more likely to accept gamification in learning* regardless whether the gamified lesson would be free of effort or not. As such, the lecturer has no need worry on how to make it easier learning using the gamified lesson for learning issue and simply design a gamified lesson that suit targeted learning objectives and outcomes.

Recommendations

Two applications of this research are more especially relevant for researchers and practitioners. First, the adoption of a particular instructional computer game by students is strongly impacted by the introduction of a learning technique. This implies that educational computer game developers should include suitable learning methods in the games they try to create because these learning techniques not only boost students' willingness to embrace these games but also improve their learning efficacy. Thus, students will demonstrate their willingness to participate in the games and gain from them. Second, low-achieving or passive students are more concerned with the appearance of enjoyment from educational computer games, which recommends that lecturers should demonstrate both the enjoyment and usefulness of educational computer games to students before introducing them. Computer games that are instructional have a favorable impact on how well children learn in this way.

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