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The Perceived Usefulness of Gamified E-Learning: A Study of Undergraduate Students With Implications for Higher Education

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Gamification is about applying gaming strategies and game elements to improve learning, and thus, making it more engaging for individuals. The application of gamification in higher education aims to incentivize students and is said to improve the efficiency of self-paced learning. The study aims to explore the perceived usefulness and challenges of gamified learning in the context of a massive open online course. A qualitative exploratory study design was adopted to collect empirical data from 19 undergraduate students about their experiences with gamified learning. An inductive approach was used to interpret the results thematically. A total of four themes emerged from the data analysis. The collected data revealed that Students' competitive behavior has a significant effect on Students' marks in the activities. Moreover, instant gratification from immediate feedback and evaluation was perceived as highly motivating for the students. The article concludes by presenting implications for educators, policymakers, and education researchers derived from the academic and practical discussions based on the findings.

Keywords: gamification, tourism education, student engagement, online learning, technology-enhanced learning, learning management systems

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INTRODUCTION

Gamification of e-learning has created a lot of speculation in higher education (Hung et al., 2017), although traditional face-to-face learning is the common practice in most universities across Thailand (Wongwuttiwat et al., 2020). According to Evans and Myrick (2015) and Kannadhasan et al. (2020), most institutions in higher education were embracing technology and slowly started adapting to online learning due to the popularity of massive open online courses (MOOC). However, due to the outbreak of the coronavirus pandemic (SARS-CoV-2 or COVID-19), there was a sudden and drastic shift toward online education (Fuchs and Karrila, 2021). Institutions in higher education across Thailand were required to apply emergency remote teaching to provide students with continuity for their university studies (Fuchs and Karrila, 2022). There was minimal time to explore and train educators to shift entirely to online education (Hodges et al., 2020). As a result, a new set of challenges emerged and educational institutions needed to address them quickly.

The gamification of learning is an educational approach that seeks to motivate students by using video game design and game elements in learning environments (Monterrat et al., 2017). Gamified learning has the potential to increase learners' engagement (Mohamad et al., 2018) and the quality of learning (Sailer et al., 2017). Moreover, gamification is said to

foster human motivation and performance concerning a given activity (Díaz-Ramírez, 2020). The research trend on this topic shows an increasing number of empirical studies (Rodrigues et al., 2019). Moreover, the paradigm of online education, or e-learning for short, has experienced tremendous growth in previous years, in particular during the coronavirus pandemic (Alqahtani and Rajkhan, 2020). Traditionally, higher educational institutions in Thailand have been more reluctant to adopt e-learning strategies compared with Western universities in Europe or North America (Kew et al., 2018). However, the increased application of e-learning during COVID-19 narrowed the gap, and educators and institutions in Thailand are looking for meaningful e-learning pedagogies and strategies (Wongwuttiwat et al., 2020).

Research Aim and Question

The study aims to contribute to the body of knowledge by critically exploring how undergraduate students in Thailand perceive gamification. Furthermore, the study aims to provide practical implications for institutions in higher education to implement gamified learning, and therefore, improve the quality of education. Lastly, the study is guided by the following research questions "How do undergraduate students perceive gamification as part of their learning experience during their tertiary education?"

LITERATURE REVIEW

Gamification of Learning[1]

Gamification has been on a significant rise since 2014 (Zaric et al., 2017) and is defined as applying game design principles in non-gaming contexts (Robson et al., 2015, 2016) to motivate and interact with users (Hassan et al., 2019). Its developing popularity can be credited to several factors: the desire to foster motivation, change in behavior, equal competition, and customer loyalty. In literal terms, gamification is all about making something that may be potentially tiresome into a game model to make it much more exciting and fun. According to Bernik et al. (2017), gamification involves pursuing a routine practice or activity and incorporating various gaming mechanics, such as awarding experience badges, points, and the levels of the completion practices and leaderboards. One major field that has put gamification techniques into proper use has been the education sector.

Gamification in the education sector refers to the utilization of various gaming elements and gaming experiences during learning procedures (Sailer et al., 2017; Alshammari, 2020). Gamification has been developed to support learning in several ways as well as subject areas. The main idea here has been that it is possible to incorporate gaming techniques in the context of a learning procedure to engage the learners productively and behave in such a great way (Annansingh, 2018). Gamification of learning is one of the most significant modern concepts and has been an emerging concept in research (Hassan et al., 2019). There is increasing proof that gamified learning is widely recognized as a useful teaching tool for constructing attractive learning environments (Saleem et al., 2021).

Gamification Techniques Applied in Formal Learning

Caton and Greenhill's (2015) research on a gamified framework to improve attendance and participation in an undergraduate project used awards and punishment as game elements. They had two groups of students with and without a gamified framework by which they compared the groups' performance, attendance, and participation. Their research shows that attendance during the awarding day was 16% higher than during the control year, which indicated that students were motivated by the chance of winning the award. A higher percentage of students from the gamified group performed well based on their grades and the production of outstanding final projects compared to the group without the gamified framework. Moreover, they concluded that the penalty system proved to be effective in improving participation and attendance.

Gamified learning in higher education found that awards and penalties throughout the semester effectively motivate disengaged students (Subhash and Cudney, 2018). Most studies have incorporated comparison-based approaches to assess and measure student engagement in studies correctly. Findings in these studies matched the proper way that gamification tends to affect the Student's engagement in learning positively (Zaric et al., 2017). Boudadi and Gutiérrez-Colón (2020) conducted a meta-analysis to explore relevant empirical research published between 2011 and 2019. After reviewing a corpus of 68 papers, they concluded that the sentiment toward gamification—from the learner and teacher perspectives—were mostly positive. However, both authors also claimed that empirical evidence is still very limited and more empirical studies in higher education are required to access the perceived usefulness (Boudadi and Gutiérrez-Colón, 2020).

The technology acceptance model (TAM) is a conceptual model to access how students come to accept and use a technology (Granić and Marangunić, 2019). TAM's core variables, perceived ease of use and perceived usefulness, have been proven to be significant factors affecting the acceptance of learning with technology (Scherer et al., 2019). However, before conducting confirmatory research (i.e., hypothesis testing), it is important to gather meaningful and rich information with the ability to identify a relationship between the phenomena, educational context, and the students using gamified learning. In related research, Poondej and Lerdpornkulrat (2019) used student interaction data to investigate the frequency of online interaction with the gamified online course content. The authors concluded that gamified learning had positive impacts toward course engagement, however, they were unable to identify the contributing intrinsic factors (Poondej and Lerdpornkulrat, 2019).

[1] Although marginal differences exist in the interpretation of different terminology related to gamified learning, the authors would like to state that the terms "gamification of learning," "gamified learning," gamification of online learning," or "gamification in formal learning" as used interchangeably in context of this article.

Online Learning During the COVID-19 Pandemic

To continue learning safely and maintain student enrollment during the recent COVID-19 pandemic, higher education institutions abruptly moved to online learning. Due to the drastic shift from face-to-face classes to online classes, many institutions applied hybrid or blended learning methods. According to Reed (2020), hybrid learning combines traditional face-to-face instruction with additional offline or distance learning techniques, while blended learning uses online instruction to complement or supplement traditional face-to-face instruction, not replace it. According to O'Byrne and Pytash (2015), hybrid and blended learning are often interchangeable, but hybrid learning is often used. The same research mentioned that hybrid learning gives opportunities for educators to provide personalized lessons and students have more control over their lesson path, pace, time, and place. Moreover, students are generally averse to online teaching if given a choice between studying online and studying on-site (Fuchs, 2021).

The abrupt shift to online learning, especially for institutions with less experience in online learning, resulted in limited time to explore and train for effective online teaching. Dhawan's (2020) study mentioned a few problems associated with online learning; technology such as downloading errors, audio and video errors, a lower engagement rate from students, Students' attention span, teacher-student interactions, and distractions, amongst others. It also mentioned challenges the institution can face, such as ICT infrastructure, quality of education, digital literacy, and technology cost and obsolescence.

Gamification of Online Learning

In online learning, gamification has been cited as one of the most exciting and exciting eLearning technology trends (Annansingh, 2018). Utilizing the various gamification techniques in online learning is unique and distinct from teaching on a face-to-face learning model whereby the instructor can manage and organize the students more instantly. Online learning tools or platforms such as Learning Management System or LMS, has a significant role to play in developing gamification (Zaric et al., 2017). Numerous LMS alternatives are available in the market today and have gamification elements (Hassan et al., 2019). Moodle is the most popular. It is a well distinguished open-source LMS utilized effectively by instructors all over the world to deliver online learning (Annansingh, 2018). As much as Moodle gives various features that aid in gamification in learning, there is a need for experiences in incorporating such elements into the available course requirements.

A study conducted by Alshammari (2020) implemented and assessed a Moodle gamified online learning environment intending to enhance student engagement in online learning. Other studies suggest that limited empirical research has been carried out on implementing the various elements and features in the Moodle platform. These studies implemented gamification features with points, badges, and leaderboards being the most common game features incorporated (Zaric et al., 2017). In the full implementation of gamification, Moodle's most popular game features are the digital badge, whereas other add-on software tools utilize other game features (Hassan et al., 2019). Furthermore, limited studies have attempted to survey the user perceptions of implementing the game features in Moodle. Thus far, only one study has alluded to the reward of digital badges as an important idea and concept in e-learning where there has been no notable standard grading system (Alshammari, 2020).

METHODOLOGY

Study Design

A qualitative study design has been adopted based on good practice (Aspers and Corte, 2019). A qualitative methodology is a suitable approach to collecting rich, nuanced, and meaningful data to answer a relatively unknown phenomenon (Hammarberg et al., 2016). Therefore, an exploratory research approach has been applied to gather empirical interview data. The data was gathered through a combination of focus group discussions as well as semi-structured interviews. Semi-structured interviews encourage two-way communication while providing an opportunity for the informants to express their views on their terms (McIntosh and Morse, 2015). Furthermore, focus group discussions are moderated interviews with a small group of people to find out the perceptions and attitudes of the participants (Nyumba et al., 2018).

Sample

The sample included Thai and international undergraduate students majoring in hospitality and tourism management. Furthermore, the students were full-time students studying toward a Bachelor of Business Administration. The age of the participating students ranged from 18 to 22 years old. All participants had a basic knowledge of Moodle; the Learning Management System (LMS) through their university-related coursework. The first batch of students was recruited through convenience sampling. Convenience sampling is a type of non-probability sampling method in which people are sampled based on easy accessibility for researchers (Scholtz, 2021). The students were arbitrarily approached—either electronically (through instant messenger applications) or in-person at the university—and asked for voluntary participation based on their availability. The succeeding batch of students were recruited through snowball sampling. Snowball sampling is a sampling technique where existing study subjects recruit future subjects from among their acquaintances (Leighton et al., 2021). The overall sample consisted of 19 undergraduate students. Five students were male, wherein the remaining 14 students were female, The sample is a suitable representation of the overall student population at the Faculty of Hospitality and Tourism, Prince of Songkla University where the study took place.

Designing a Self-Learning Gamified Course

To simulate an online course, a self-paced gamified course was designed and developed using the open-source learning

management system, Moodle. The course contained 10 individual lessons about Introduction to Hotel Management. There are graded questions after each lesson. Students' attempts are graded automatically by the learning management system. Students can repeat and retry the questions and the system will compute the average grade based on the count of overall attempts. Conditional access was also implemented in this course, wherein the students cannot move on to the next lesson if they have not completed the current lesson as illustrated in **Figure 1**.

Additional plugins such as H5P and Level Up! were installed. The plugin H5P in Moodle can be used to build interactive content. In this course, an interactive presentation with auto-play audio, a navigation slide, pop-up questions, and a question summary was constructed using H5P. The second plugin, Level Up!, was added to give experience points, leaderboards and display the current level as the students progress through the course.

The game elements used in this course are points, badges, levels, restricted access, activity completion, and rewards. These game elements are said to be a motivator for Thai undergraduate hospitality management students (Aguilos et al., 2022). The game elements were strategically implemented in the design of this course. The points are presented using the Level Up! plugin and called "XP" or experience points. Students gain points whenever they view a lesson, answer questions at the end of the lesson, post in a discussion, and earn a badge. Students can view their XP on the course's home page and they can see a log of accumulated XP. The points for every lesson get bigger as they move on to the last lesson. For example, students can receive 110 XP in the first lesson, 220 XP for the subsequent second lesson, 330 XP in the third, et cetera. The levels are presented using the Level Up plugin as well and it is in the form of job positions. Starting from a caveman to students, and the last level is a General Manager. The levels show the job progression of an individual in the hotel industry. Each level corresponds to certain points which were automatically set by the plugin's algorithm (**Figure 2**).

The badges were given to students who got a score of 80% and above for the end-of-lesson activities, and a final score of 90% and above, and participate by posting a discussion at all four forums in the course. Earning a badge is something that is not easily earned to make it more meaningful to students. Earning a badge also adds XP and the latest three badges are seen on the course's home page.

Implementation of the Self-Learning Course

Upon recruiting students to voluntarily participate in the study, an online meeting was held by the lead researcher. The meeting served to introduce the research topic and explain the concept of gamification to students. In addition, the students were given access credentials to the gamified self-learning course. The lead researcher also briefly provided a tour of the learning management system and explained the necessary features. Moreover, an explanation was given on how the participating students can earn XP points and badges in the online course without disclosing specific course content.

There were six online meeting sessions, wherein two to five students were present per session. The total length of the session was 90 min, wherein 30 min were allotted for introductions and the remaining 60 min to complete the course. Students were not required to complete the course but encouraged to go through each lesson. While the students completed the course, the lead researcher monitored their real-time process through system logs and was available to answer any questions that might arise during the course. After 60 min, students were informed to stop what they were doing and asked to complete a short questionnaire regarding their perception and experience in completing the course. The questionnaire also asked for their willingness to participate in the interviews that were arranged upon completion of the online course.

Data Collection

A series of semi-structured interviews, as well as a focus group discussion, were conducted after the completion of the course to gather rich and meaningful data about the Students' experience with the self-paced course. Questions were about Students' thoughts regarding the game elements found throughout the course, the course design and content of the course, their perceptions of gamification applied in their course, and their attitudes toward online courses in general. All participants were invited to take part in the individual interviews and the students agreed to share their thoughts and experiences with the course. The interviews were recorded and conducted separately at a coffee shop in an informal setting. The individual interviews lasted around 20 min, whereas the guided focus group discussions lasted up to an hour. The question guide for the discussions can be found in **Appendix**.

Data Analysis

The interviews were audio-recorded with the explicit consent of the participants, and thereafter, transcribed verbatim. The thematic analysis was developed based on good practice (Vaismoradi et al., 2013) following the steps described by Braun and Clarke (2014). First, relevant and important keywords were highlighted in the transcripts. Thereafter, the keywords were converted to codes and bundled into groups based on the underlying themes that they represent (see **Figures 3**, **4**). Next, the bundled codes formed the basis for generating subthemes, which ultimately led to the emergence of four themes (see **Table 1**) consistent with the steps described by Braun and Clarke (2014).

Ethics

For ethical considerations, written consent was a prerequisite for participation in the study. Before completing the online course as well as before commencing the interview, the students were informed that their responses do not affect their academic performance. Moreover, confidentially was extended to all participants of the study, and their names are only known to the researchers involved and their identities will not be associated with any reporting of the findings. Lastly,

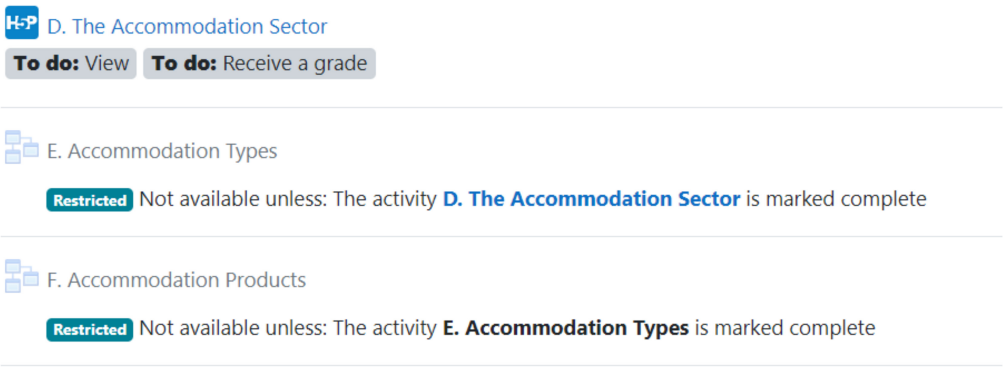

FIGURE 1 | Restricted access to the next lesson until the current lesson has been completed successfully.

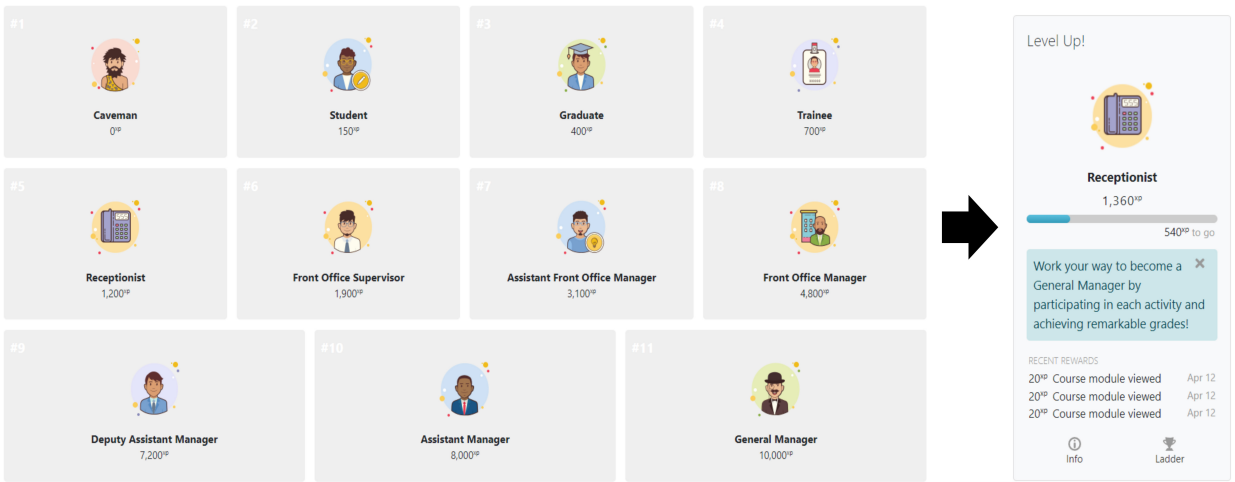

FIGURE 2 | Level up information containing the different stages that the participating students can reach in the course.

FIGURE 3 | Excerpt of coded keywords related to negative perceptions of game elements found in the gamified online course.

students received a small monetary reward for participation in the study. Aside from the monetary compensation, students who have completed the course, completing the full 10 lessons and receiving a grade for all lessons, received a gift card as a form of additional reward. In addition to that, a surprise reward was given to those students who reached the highest level (Level 11, General Manager). These rewards were not mentioned at the beginning of the session so the rewards won't affect the Students' motivation to complete the course.

EMPIRICAL FINDINGS

The following subsections report on the four themes that emerged during the thematic analysis and summarize the

FIGURE 4 | Excerpt of coded keywords related to perceived motivators in the gamified online course.

empirical data. The themes are the result of clustering subthemes in the analysis process (see **Figures 3**, **4**). Namely, these four themes are (1) perceptions of the self-learning course, (2) perceptions of the game elements found in the course, (3) motivations in accomplishing the course, and (4) perceptions of online courses. The study aims to explore how undergraduate students in Thailand perceive gamified learning as part of their tertiary education.

Perceptions of the Self-Learning Course

There were both positive and negative perceptions regarding the self-learning course. Students were very much interested in the topic, Hotel Management. They found it interesting and the content itself was not overwhelming with information. However, some students find the content too easy and not challenging enough. The students also expressed a very positive attitude toward the delivery of each lesson. They mentioned that the lessons were presented well and used a mixture of audio and visual presentation, compared to traditional text-based content. The majority of the respondents also liked the embedded questions used in an H5P lesson where their knowledge was immediately tested.

The chance to unlimitedly repeat the lessons and activities was also viewed positively by the students and they mentioned that it helped them remember the content since they learn through repetition. Despite the positive feedback on the design and delivery, students mentioned that since they were unfamiliar with the H5P presentation, they did not notice the embedded questions immediately and that they received a 0 mark on their first attempt. Another negative feedback was that the information and notification of leveling up were unnoticeable unless they went back to the home page. Some students also expressed that they like the self-learning course since they can learn at their own pace. The majority of the students conveyed that they learned from other students by reading others' forum posts which gave them a different perspective on the topic.

Perceptions of the Game Elements Found in the Course

The leaderboard received the most remarks concerning the Students' drive to compete and motivation to be in the top three. Some students even expressed their frustrations for not being at the top despite their best efforts or for having someone else better than them. They mentioned that the frustration they felt increased their desire to do better in the following lessons. The XPs and levels received a mixed response, some students enjoyed the level positions and found it interesting to see how

TABLE 1 | Excerpt of the summarized coding based on the empirical data analysis (the list is not exhaustive, but representative of the data analysis process).

Themes	Subthemes	Codes
Perceptions of the self-learning course	Content	Relevant, interesting, sufficient information, easy to understand, some are too wordy, some questions are too easy
	Design and lesson delivery	Able to repeat lessons and activities, immediate testing and evaluation, variation in audio and visual presentation of lessons, variations of testing methods, unfamiliarity with new lesson format (H5P), unnoticeable level indicator and notification
	Learning benefits	Learning at own pace, learning from others, learning by repetition
Perceptions of the game elements found in the self-learning course	Leaderboard	Motivator, challenging, aims to be in the top 3, frustrations for not being top and someone always in the top 1
	Badges	Rewarding, fun collecting, unaware of its XP value and how to get it, not automatically acquired
	XPs and levels	Motivator, fun, encouraged with progress, unaware how to gain XP, unnoticeable
	Activity completion and restricted access	Unable to skip lessons, complicates the navigation
Students' motivations in completing the course	Competition with self and others	Achieving full score on activities, comparing scores with other students, comparing forum posts, seeing other complete the course on time, to be on the top
	Instant gratification	Immediate feedback and evaluation, getting good scores
	Rewards	Compensation and bonus
	Content	Fun lessons, interesting topic
Perceptions of online courses	Boring	Reduce passion to learn, lose interest in studies, unable to focus and learn new things, lots of distractions
	Less interaction	Less interaction with their teachers, less interaction with classmates, impossible to do fruitful group discussion
	Negative attitudes	Uninterested to go back to onsite class, unmotivated to study
	Convenience	Staying at home, self-study, can contact teacher anytime, too relaxed

a receptionist progresses in the industry. Some were motivated to achieve the highest level at the given time, however, only two out of 19 reached the highest level.

On the other hand, some students were unaware of how to gain XPs and unnoticed the leveling up since it can only be seen on the home page. The majority of the respondents mentioned that the sessions lack an adequate explanation of the mechanics of the XPs and levels. The participants expressed that activity completion and restricted access features hindered their desire to skip some lessons and move on to the next. It also made the system navigation a little bit complicated since they cannot just click the next button. Instead, they have to go back to the home page, and then scroll down to the next lesson. The majority of the students claimed that they experienced difficulty in navigating the system.

Students' Motivations in Course

As mentioned previously, students were highly motivated to achieve a full score to be at the top of the leaderboard. This game element was the most recurring motivating factor that was pointed out. Some were motivated to compete with other students, and some used it as a guide to know what score to aim for in the given activity. Seeing other students reach a certain mark, made them want to reach the same or higher mark. Also mentioned previously, the positive response from the relevance and interesting content and design stimulated the Students' curiosity to move on to the next lesson.

Students also mentioned that immediate feedback and evaluation are also motivating factors to continue the course since they brought instant gratification. The monetary compensation of each participant also contributed to the motivation of students to go through the course. Some believed that if they did not complete the course, they might not get compensated, which was not the case. All students who participated in this study were compensated regardless if they did not complete the course.

Perception of Online Classes

The word boring was a recurring keyword from all respondents. Students expressed extreme dissatisfaction with online classes, saying that they don't have the passion for learning, they lost interest in their studies, and they were unable to focus and learn new things. It was also mentioned that the lack of social interaction with their teachers and peers made it more challenging to learn in online classes. Group works and class discussions were not as fruitful as the classes held in a classroom. Students also developed negative attitudes toward coming back to school. They have developed negative behavior like just turning on the computer and logging in to the online classes then doing other things and ignoring the class. Online classes made them too relaxed in their studies, which they mentioned was bad behavior.

DISCUSSION

It is the aim of the study to explore how undergraduate students perceive gamification as part of their learning experience during their tertiary education. The empirical data analysis revealed a variety of noteworthy findings that require a further interpretation based on the body of literature. Most notably, the design process of a gamified online course is a crucial aspect

to consider and it has to be well thought out. In particular, the gamified elements need to align with the course content and contribute toward achieving the course learning outcomes (Bai et al., 2020). At the same time, the course design needs to incorporate gamified elements that foster the development of knowledge and skills, while keeping the student engaged (Villarroel et al., 2018). Similarly, Landers (2014) stated that instructional design quality in gamified learning is strongly correlated to the learning outcomes of a particular course. Moreover, "for gamification to be successful, it must successfully alter an intermediary learner behavior or learner attitude" (Landers, 2014, p. 14).

Instant gratification refers to the experience of satisfaction or receipt of a reward as soon as a response is made (Nakayama and Wan, 2021). The empirical findings of this study show that gamified learning fulfills the need for instant gratification, which aligns with similar studies (White and Shellenbarger, 2018; Jain and Dutta, 2019). The results of this study revealed that students perceived instant gratification as highly motivating as a result of immediate feedback and evaluation in the gamified course design. Therefore, a well-planned and executed gamified online course has the potential to improve Students' learning outcomes, as well as, enhance their motivation significantly through instant gratification. Although, it should be noted that many of the participants reported that their competitive behavior had a significant effect on completing the activities. Therefore, it could be hypothesized that the effect for competitive students is more significant than for non-competitive students. Furthermore, first-year students had a better perception of the usefulness of gamified learning, since the course content was new to them and hence perceived as more stimulating.

Gamification elements do not automatically motivate or engage students. Students who are very competitive in nature are highly motivated by the game elements. On the other hand, students who are not very competitive tend to overlook the game elements found in the course. However, these students were driven by different motivations, for example, the usefulness and relevance of the content or the immediate evaluation of the activities. A perceived limitation of gamified learning is the inability to engage with students that were unmotivated to complete the online course in the first place. These participants were not actively listening in the introduction of the course, and therefore, were unaware of many game elements in the course. In particular, they had difficulties navigating their way through the learning management system. Serin (2018) concludes that "the implementation of external rewards has no detrimental influence on students. Intrinsic motivation, on the other hand, enables students to work independently and enthusiastically" (p. 191). Therefore, the gamified reward system is likely not to improve the engagement of unmotivated students.

For participants that were recruited in the second stage through snowball sampling, the general understanding of gamified learning was higher than with the first batch. This is likely the result of their interaction with peers who already completed the course in the first phase. Most of these students received the highest number of badges and earned more points, compared to their peers from the first stage of the study. The effectiveness of game elements also depends on the players' understanding of the mechanics of the games. Therefore, it is suggested to create a persuasive introduction and very informative mechanics of the game elements in a course. Once students understand the mechanics of the game elements, it can trigger their interest and possible engagement with the game elements. There is an agreement amongst scholars that the integration of game elements in class requires more careful consideration of their strengths and weaknesses rather than thinking of gamification as the educational remedy to classroom engagement (Park and Kim, 2021).

Another noteworthy result was based on observed behavior. A few students completed the questions in the course (which would earn them badges and XPs) by specifically looking for clues in the lesson. Other students would report this type of behavior as cheating. It is unavoidable to look for answers when conducting online quizzes, since in real life, whenever we have a question, we would quickly search for the answer online (Harper et al., 2021). The question that derives is if students use gamified learning as a means for instant gratification as a means to an end, but neglect the aspect of developing their knowledge and skills? Similarly, students reported that they do not like monotony. They are more interested in different forms of presentation of lessons, they want something different. Therefore, it ties back into effective course design, otherwise, the students will lose their motivation to participate and simply complete the course as a means to an end. Overall, the study revealed that the effects are greatly dependent on the users using it.

CONCLUSION AND FUTURE WORKS

The study affirms that the gamification of learning has the potential to improve Students' engagement and motivation in an e-learning environment. Structural course design and well-planned implementation are important factors that require a more in-depth analysis of their perceived effect on classroom engagement. In the correct context, gamified learning improves the learning experience for high-performing or competitive students. The study did also reveal that gamified learning did little to no for unmotivated or inattentive students. Therefore, it should not be seen as a holy grail to revolutionize every online classroom. Furthermore, the results of the study are not generalizable to another population and should be considered in the respective geographical context. However, the findings further contribute to the growing body of knowledge on this emerging topic. Certainly, more research is needed about specific game elements that have a higher impact on perceived usefulness than others. Likewise, how to integrate them effectively into an online course, as well as, finding potential avenues to engage unmotivated students through the means of gamified learning.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Research Committee of the Faculty of Hospitality and Tourism, Prince of Songkla University on 23. December 2021 (approval no. FHT64000013). The participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

VA and KF contributed to the conception and design of the study, mutually analyzed the data, and wrote the manuscript. VA implemented the empirical data collection. Both authors contributed to the manuscript revision, read, and approved the submitted version.

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APPENDIX

TABLE A1 | Semi-structured interview questions.

Sequence	Question
No. 1	Did you go through each lesson and read its content or did you skip the lessons and move to the questions?
No. 2	(Students who did not complete the course) what do you think was the reason why you were not able to complete the course?
No. 3	Was the course challenging? Why/why not?
No. 4	Were there any features you liked in the course? If so, what did you like about it?
No. 5	Were there any features you did not like in the course? If so, what did you not like about it?
No. 6	Do you think the game elements made the course enjoyable/fun? What made it enjoyable/not enjoyable?
No. 7	Do you think the game elements made you engaged with the course? What made you engaged/not engaged?
No. 8	Do you think the game elements made the course motivating? What made it motivating/not motivating?
No. 9	Did you repeat some lessons and/or activities? If yes, why?
No. 10	Did you read other Students' comments on the discussion boards? If yes, why?
No. 11	Are you a competitive person?
No. 12	Are you a high-achiever?
No. 13	Do you prefer to self-study or group-study?
No. 14	What are your overall feelings about online learning?
No. 15	Would you like to add anything else about your experience in this course?