USING ONLINE GAMIFIED APPLICATION AS A FORMATIVE ASSESSMENT TOOL IN ENGLISH CLASSROOM

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DEDICATION

To My Loving Family

ACKNOWLEDGEMENT

First, I would like to express my appreciation to God for granting me the strength along my research journey.

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ABSTRACT

State-of-the-art digital technology has brought about changes in education. Amidst the COVID-19 pandemic, we endure the revolution of a new era, which is online education or e-learning. In order to track students' learning progress while keeping them motivated and engaged during e-learning, online gamified platforms with their gamification elements are budding and gaining in popularity among teachers and students. Therefore, this research evaluates the use of the Quizizz application as a formative assessment tool in the Year 3 English teaching and learning process and its effect on students' academic achievement and motivation to learn English. This research is pre-experimental mixed-methods research, which was carried out for two learning modules in the Year 3 English syllabus. The research sample was 60 Year 3 students. The students' motivation was assessed using the IMMS questionnaire before the learning cycle, and they took paper-based quizzes as pretests and Quizizz quizzes as posttests. When the learning sequences ended, students retook the IMMS questionnaire to evaluate their motivation after the intervention. They also participated in semi-structured interviews to share their experience of using the Quizizz application. Based on the analysis, the paired-sample t-test results (t_{60} = -4.12; p = 0.000) suggested a statistically significant difference in the pretest (M = 49.47) and posttest scores (M = 51.25). In addition, the IMMS questionnaire analysis also suggested an increment in students' motivation in four subscales. The Wilcoxon Signed Ranks Test findings indicated a statistically positive change in students' motivation after the intervention (Md = 3.58, mean rank = 12.00) compared to before (Md = 3.20, mean rank = 0.00), z = -4.20, p = 0.000. Furthermore, the semi-structured interviews showed that most students preferred gamified quizzes more than paper-based quizzes. Timers, leaderboards, power-ups and the scoring system were the gamification elements that they preferred. The majority of students assumed that gamified quizzes enhanced their learning, and all of them agreed that gamified quizzes increase their motivation to learn English. They also wish to participate in other courses implementing gamified learning environments. Overall, implementing online gamified applications, such as Quizizz as one of the classroom formative assessment activities, is a great way to track students' learning progress during e-learning while enhancing their academic achievement and keep them motivated at the same time.

ABSTRAK

Teknologi digital yang canggih telah membawa perubahan dalam bidang pendidikan. Kita mengalami revolusi era baharu, iaitu e-pembelajaran akibat pandemik COVID-19. Untuk mengesan pembelajaran murid dan memastikan mereka tetap termotivasi dan terlibat secara aktif semasa e-pembelajaran, platform permainan dalam talian dengan elemen gamifikasinya menjadi semakin popular dalam kalangan guru dan murid. Oleh itu, kajian ini menilai penggunaan aplikasi Quizizz sebagai alat pentaksiran formatif dalam proses pengajaran dan pembelajaran Bahasa Inggeris Tahun 3 dan impaknya terhadap pencapaian akademik dan motivasi murid. Kajian ini merupakan kajian pra-eksperimen gabungan kaedah kuantitatif dan kualitatif. Ia dijalankan untuk dua modul pembelajaran dalam sukatan Bahasa Inggeris Tahun 3. Sampel kajian terdiri daripada 60 orang murid Tahun 3. Motivasi murid dinilai dengan menggunakan soal selidik IMMS sebelum kitaran pembelajaran bermula, dan mereka mengambil kuiz kertas ujian sebagai ujian pra dan kuiz Quizizz sebagai ujian pos. Apabila sesi pembelajaran berakhir, murid menjawab set soal selidik IMMS sekali lagi untuk menilai motivasi mereka. Murid juga mengambil bahagian dalam sesi temu bual separa berstruktur untuk berkongsi pengalaman mereka terhadap penggunaan aplikasi Quizizz. Berdasarkan analisis, ujian-t sampel berpasangan ($t60 = -4.12$; $p = 0.000$) mencadangkan terdapat perbezaan skor yang signifikan antara ujian pra ($M = 49.47$) dan ujian pos ($M = 51.25$). Selain itu, analisis soal selidik IMMS juga menunjukkan peningkatan motivasi murid dari segi empat sub-skala. Hasil ujian Wilcoxon Signed Ranks Test menunjukkan terdapat perbezaan rank antara motivasi murid selepas intervensi ($Md = 3.58$, min rank = 12.00) berbanding sebelumnya ($Md = 3.20$, min rank = 0.00), $z = -4.20$, $p = 0.000$. Tambahan pula, hasil temu bual separa berstruktur menunjukkan bahawa kebanyakan murid lebih suka kuiz gamifikasi atas talian berbanding dengan kuiz dalam bentuk kertas ujian. Elemen pemasa, papan peringkat, power-up dan sistem pemarkahan adalah elemen gamifikasi yang disukai oleh murid. Kebanyakan murid menganggap kuiz gamifikasi membantu meningkatkan pencapaian mereka, manakala semua murid bersetuju bahawa kuiz gamifikasi meningkatkan motivasi mereka untuk belajar Bahasa Inggeris. Mereka juga ingin mengikuti kursus lain yang menerapkan pendekatan gamifikasi dalam pembelajaran. Secara keseluruhan, penggunaan aplikasi Quizizz sebagai salah satu aktiviti pentaksiran formatif bilik darjah adalah kaedah yang baik dan praktikal untuk mengesan kemajuan pembelajaran murid semasa pembelajaran atas talian, di samping meningkatkan pencapaian akademik murid dan memotivasikan murid.

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LIST OF ABBREVIATIONS

MCO	-	Movement Control Order
SK	-	National School (Sekolah Kebangsaan)
SJK	-	National Type School (Sekolah Jenis Kebangsaan)
SLA	-	Second Language Acquisition
IMMS	-	The Instructional Materials Motivation Survey
ARCS	-	Attention, Relevance, Confidence, Satisfaction
SDT	-	Self-Determination Theory
SBA	-	School-Based Assessment
RQ	-	Research Question
ICC	-	Intraclass Correlation Coefficient
SPSS	-	Statistical Package for Social Science
I-CVI	-	Item-Content Validation Index
SD	-	Strongly Disagree
D	-	Disagree
A	-	Agree
SA	-	Strongly Agree
S	-	Student

LIST OF SYMBOLS

N	-	sample size / observation number
SD	-	standard deviation
r	-	the sample correlation coefficient
p	-	probability value
t	-	test statistics (t-score)
Cohen’s d	-	effect size
M	-	mean
Md	-	median
Z	-	test statistics (z-score)
r	-	effect size

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The rapid evolution of digital technology has filtered into our daily lives in various sectors such as industries, businesses, and, recently, education. The advancement of Web 2.0 technology and the use of the Internet have shifted the teaching-learning paradigm rapidly. The education industry has capitalized on this trend by integrating virtual collaboration, mobile learning applications, and other technology-enhanced learning programs (Domingo & Garganté, 2016).

In December 2018, Malaysia Education Director-General Datuk Dr Amin Senin announced at the media briefing regarding implementing School-based Assessments for lower primary and abolishing mid-year and final exams for primary students in Year One to Three. Classroom assessment should not be restricted to traditional tests or exams. It should be conducted in various methods to judge learners' performance holistically based on specific weighted goals.

During the Movement Control Order (MCO) lockdown period due to the COVID-19 pandemic, the prime minister instructed the Ministry of Education to implement home-based learning initiatives as schools nationwide were closed during this period (Povera & Yunus, 2020). Therefore, teachers and students conduct e-learning or distance learning as a preventive measure by the federal government of Malaysia. Hence, teachers need to understand how to work with technology and renew their teaching methods by utilizing technological developments. Therefore, implementing online gamified formative assessment applications as one of the classroom activities is unquestionably a great way to track students' learning progress.

In recent years, gamification in the field of education is budding and gaining in popularity. Gamification is where educators integrate game-design elements such as scores, badges, rankings, and rewards in a non-game context via technology in their instruction (Deterding, Dixon, Khaled, & Nacke, 2011; Zarzycka-Piskorz, 2016). A gamified learning environment engages students in the learning and enables teachers to provide feedback on the formative assessment to students (Hassan, Habiba, Majeed, & Shoaib, 2019; Zainuddin, Shujahat, Haruna, & Chu, 2020). Gamification also evolved as an approach to achieve positive outcomes, facilitate learning, encourage learners' engagement, and promote active participation and lesson interactivity (Göksün & Gürsoy, 2019; Lopez & Tucker, 2019). Many gamified learning applications or websites have been used extensively during the class, namely Quizizz, Kahoot!, Quizlet, Socrative, Wordwall, Classmaker, and more. These applications enable teachers to create or administer quizzes while students get the chance to participate in interactive class activities using their mobile devices to improve learning experiences (Zhao, 2019).

The previous study found that gamified quiz applications such as Kahoot and Quizizz can increase students' motivation, engagement, and improved learning experience (Licorish, Owen, Daniel, & George, 2018; Correia & Santos, 2017; Plump & LaRosa, 2017). However, most previous studies only focus on examining the use of gamified applications in higher education. Furthermore, only a few studies are exploring the use of Quizizz as a formative assessment application in primary education. Hence, the present research investigates the use of Quizizz as a formative assessment application to enhance Year 3 students' academic achievement and motivation in English.

The gamified online assessment application is Quizizz, which has game elements like themes, music, leaderboard, avatars, timer, and memes. It promotes interactivity and fun in the learning processes. Teachers can create and administrate quizzes, then assign them to students. Students can take the quiz as a live poll or as a student-paced assignment, where students become a controller of their pace in learning. Furthermore, the quiz can be played individually or in team mode. Students are required to use their electronic devices to take the quiz. Besides, Quizizz provides

the answer to appear on each screen, so students can review their answers and get instant feedback. They can also see their live ranking on the leaderboard as they compete with one another while taking the quiz. Healthy competition and raking make the students more engaged in learning (Huang & Hew, 2015). When the quiz is finished, teachers can monitor the process and download the report to evaluate students' performance.

1.2 Problem Background

The traditional 'chalk and talk' teaching style is resented by students and induce boredom (Graham, 2015; Roehl, Reddy, & Shannon, 2013). According to the studies of Bouwmeester et al. (2019) and Hew and Lo (2018), traditional learning approaches are not the solution to the absence of student motivation. Likewise, they cannot bring about engagement in learning (Ortiz-Rojas, Chiluiza, & Valcke, 2019). Indeed, maintaining students' attention and motivation can be difficult as the classes can be teacher-centred, with limited student participation. Consequently, students become increasingly bored, lack motivation in learning, and tend to engage in off-task behaviour, such as doodling on their notes and dozing off while the teacher teaches in the classroom. Lack of motivation and engagement in learning can result in a gloomy learning atmosphere, poor classroom dynamic, and reduced learning outcomes (Liu, Bridgeman, & Adler, 2012; Adukaite, van Zyl, Er, & Cantoni, 2017).

In Malaysia, English is taught formally as a second language by the educational curriculum in both primary and secondary schools. English is not the mother tongue of most children, especially in National School (SK) and National Type School (SJK). It is the secondary or even the tertiary language used in their communication in daily life. There is also a lack of support to use English in the home environment and the community. Thus, students are less engaged in learning English as they do not see the immediate need to use the language (Rani, 2013).

Furthermore, there has been a concern with regards to the deteriorating standard of English recently. According to the Primary School Achievement Test (UPSR) result analysis by the Ministry of Education (2019), the passing rate of English comprehension paper is the least (85.13% in SK; 87.06% in SJK) as compared to the students' mother tongue language, namely Bahasa Melayu (96.6% in SK; 89.69% in SJK), Bahasa Cina (90.5%) and Bahasa Tamil (89.9%). On the other hand, the number of students who passed English writing papers in 2019 is even lesser, 76.66% in SK and 82.24% in SJK. Hence, it is obvious that many students are still unable to master the language upon completing primary school.

Adwani and Shrivastava (2019) analysed the factors affecting Second Language Acquisition (SLA) to identify the factors behind this issue. They stated that motivation is one of the overlooked concerns of language teaching. Hiew (2012) also believed that learners' learning methods, motivation, teachers' teaching methods, and approach are among the reasons that could have led to this failure. Furthermore, Gardner's motivation theory and his socio-educational model proposed that two significant variables, motivation and ability, are the most influential factors in learning a new language (Gardner, 2010).

Technology has always been a vital chunk of teaching and learning English as a second language. It facilitates learners' learning and offers limitless, rapid, and appropriate resources to language learners (Bull & Ma, 2001; İlter, 2015). Integrating and embedding technology into the educational curriculum to support the learning process significantly affects teachers' teaching methods and promotes student-centred learning (Gilakjani & Sabouri, 2014). It has been suggested that gamification should be introduced to the technology-aided educational system as an effective means of improving learner motivation.

According to Barrio, Muñoz-Organero, and Soriano (2016), Wang and Lieberoth (2016), and Jurgelaitis, Čeponienė, Čeponis, and Drungilas (2019), gamification can be a powerful tool for teachers at all levels. Gamification utilizes the motivational and emotional power of games to increase intrinsic motivation and engagement, boost student activity, and promote positive change in attitudes towards

learning. According to Zainuddin et al. (2020), gamified e-quizzes are promising tools for educators to engage their students in creative learning skills and attractive competition.

Furthermore, Tapper (2014) found that students are reticent to demonstrate their knowledge, ask and answer questions posed by the teacher publicly for fear of being perceived as attention-seeking and boastful by others, grounded on the socio-cultural phenomenon known as Tall Poppy Syndrome. This statement is in accordance with the study by Exeter et al. (2010). They found that students rarely ask questions openly and prefer to remain anonymous, especially in large lectures, thus negatively impacting deep learning.

The gamified online assessment application, Quizizz, integrates gamification features in the teaching and learning process to bring about fun and motivation in learning. It allows students to remain anonymous while acquiring knowledge and interacting with others. According to Wang (2015) and Licorish et al. (2018), anonymity in the learning platform encouraged broader participation as it inculcates a sense of safety and privacy. Maintaining anonymity is critical for facilitating motivation and engagement among students who might not actively participate in classroom discussions. Moreover, the Quizizz learning platform also generates active involvement, increases students' learning experience (Asfar & Asfar, 2020), and positively impacts students' achievement (Abubakar & As'ad, 2020). However, is the Quizizz platform going to bring about consistent impacts in the Year 3 English classroom?

1.3 Problem Statement

To meet the demands for education in the 21st century, educators are enthusiastically searching for ways to prepare students for the future. The educational system has been evolving faster than ever before. Education is no longer about listening to the teacher talk and absorbing the information. The primary source of knowledge should be students, and student-centred learning must be applied. Students

should be given the authority to demonstrate learning in many different ways at their own pace. They should also be given a freer hand in disseminating their knowledge. With the aid of technology, students have the whole world of knowledge at their fingertips. Students can benefit when technology is used correctly and intelligently to provide meaningful content.

To achieve educational excellence, the Ministry of Education in Malaysia has implemented various changes in the educational system. One of the initiatives is the School-Based Assessment. Assessment is a fundamental part of instruction, as it determines whether the learning objectives are being met. Therefore, teachers should assess students through various approaches to make a holistic judgement about a student's learning performance.

However, in reality, some school administrators, teachers, parents, and even students can still not break away from the exam-oriented mentality. As a result, some students merely study to score well in the examination without truly experience the joyfulness of learning. The lack of readiness towards innovation in education, the lack of confidence to use technology, the lack of technical support, and continuously unstable internet connection are the hard-bitten challenges faced by teachers to implement technology in their teaching (Bingimalas, 2009; Wong, Hamzah, Goh, & Yeop, 2016). The traditional teaching approaches cause boredom, and students do not experience effective learning when they are unengaged in learning.

Assessment is always an essential element to check the students' knowledge or skills and identify the effectiveness of the teaching and learning process. An assessment gives an idea to the teachers that what areas needed to be focused on. However, Puad and Ashton (2020) found that teachers tended to interpret assessment from summative perspectives rather than formative views. Some teachers still draw an equals sign between grades and test scores as the whole for a student. Hence, the formative assessments carried out at the end of the learning process are often limited to written quizzes or short tests without further looking into a student's performance holistically.

Grades and scores were merely for reporting purposes and holding students accountable to their teachers and parents for their learning. As a result, students undergo passive learning and gradually lose their thirst for knowledge. Therefore, teachers should not be rigid with the old mindset but be free to evaluate students through more creative approaches such as group projects or even integrate online learning while utilizing online assessment tools.

In this study, the Quizizz application was implemented in learning as an assessment tool. It applies gamification techniques, which facilitates effective learning and motivates students through a reward-based learning method. It is hoped that students get the opportunity to carry out a relatively fun assessment approach other than answering worksheets and test papers. According to Kuo and Chuang (2016), student's motivation and engagement in a gamified learning activity can result in a better learning outcome. Therefore, the use of Quizizz as an online gamified formative assessment tool in enhancing Year 3 students' academic achievement and motivation in learning English was investigated in this study.

1.4 Research Objectives

This research paper aims to evaluate the use of Quizizz application in the Year 3 English teaching and learning process. The specific objectives of this study are as follow.

(a) To identify the regularity of using Quizizz application among Year 3 students.

(b) To investigate the use of Quizizz application in enhancing Year 3 students' academic achievement in English.

(c) To investigate the use of Quizizz application in enhancing Year 3 students' motivation in learning English.

(d) To explore students' learning experience when the Quizizz application was implemented in the English teaching and learning process.

1.5 Research Questions

The exploratory study of the use of Quizizz application and its relation to students' academic achievement and motivation in English has led to four research questions.

(a) What is the regularity of using the Quizizz application among Year 3 students?

(b) Does the use of the Quizizz application enhance Year 3 students' academic achievement in English?

(c) Does the use of Quizizz enhance students' motivation in learning English?

(d) What is Year 3 students' learning experience when the Quizizz application was implemented in the English teaching and learning process?

1.6 Research Hypothesis

The research hypotheses for Research Question 2 are stated as below.

H_{0a} No changes occur in Year 3 students' academic achievement in English after Quizizz is implemented in the teaching and learning process as a formative assessment tool. Hence, the use of Quizizz in the teaching and learning process does not affect students' academic achievement in English.

H_{1a} Based on the literature's insights and suggestions, students scored better in assessments integrating gamified online assessment tools. Hence, there is a significant difference in Year 3 students' academic achievement after implementing the Quizizz application in the English teaching and learning process.

The research hypotheses for Research Question 3 are stated as below.

H_{0b} Students carry out the assessments with the same motivation. There is no significant difference in Year 3 students' motivation after implementing Quizizz application in the English teaching and learning process.

H_{1b} Quizizz is perceived as having a positive impact on students' motivation in learning. Hence, there is a significant difference in Year 3 students' motivation in learning after implementing the Quizizz application in the English teaching and learning process.

1.7 Theoretical Framework

The theoretical framework of the study was grounded in theoretical foundations as reflected in human psychology, specifically self-determination theory (SDT) as proposed by Ryan and Deci (2000). This theoretical foundation is also supported by Thom, Millen, and DiMicco (2012), Su and Cheng (2015), Zarzycka-Piskorz (2016), Sailer, Hense, Mayr, and Mandl (2017), and Alsawaier (2018) in their studies.

Research grounded by self-determination theory emphasizes individuals' intrinsic growth tendencies and their inborn psychological needs (Ryan and Deci, 2000). It discusses someone's ability to define a task and achieve goals addressing the extrinsic and intrinsic needs. It also stresses that the social environments in which an individual grows can immensely influence individuals' attitudes, actions, values, and motivation. Upon upholding students' intrinsic motivation, it is vital to satisfy three psychological and social needs. There are three main principles of SDT, namely autonomy, competence, and relatedness (Deci & Ryan, 2008; Seaborn & Fels, 2015).

According to Deci and Ryan (2008), autonomy is defined as making independent choices and freedom for self-expression. In terms of SDT, when students show personal interest and the sense of will to perform an activity in a guided and

consistent gamified course, they experience autonomy, and intrinsic motivation is enhanced. Game elements like profiles, avatars, configurable interface, activities, privacy, and notification control are the autonomy aspects in gamification by self-determination theory concept in Aparicio, Vela, Sánchez, and Montes (2012). In a gamified situation, autonomy could be that the learners control their self-paced learning experience and enjoy the meaningfulness of the task, allowing them to develop their avatar, nickname, or even their materials to share back to others.

Competence is the motivation to conquer challenges and achieve success. As students progress in learning, they learn new knowledge and skills besides taking challenges to prove they have achieved specific learning objectives. When students are optimally challenged, receive positive feedback and progressive information, they experience the need for competence by addressing gamification elements such as points that provide instant feedback and leaderboards that assess a series of actions along with the learning progress (Hense & Mandl, 2014).

On the other hand, relatedness is a sense of belonging based on mutual respect and interdependence. It is experienced when people feel they are socially connected. Regarding the need for relatedness, reinforcement of motivation through gamification can be done by creating a promoting and collaborative environment, shared goals, group activities, and connection to social networks.

The theoretical framework of this study is shown in Figure 1.1.

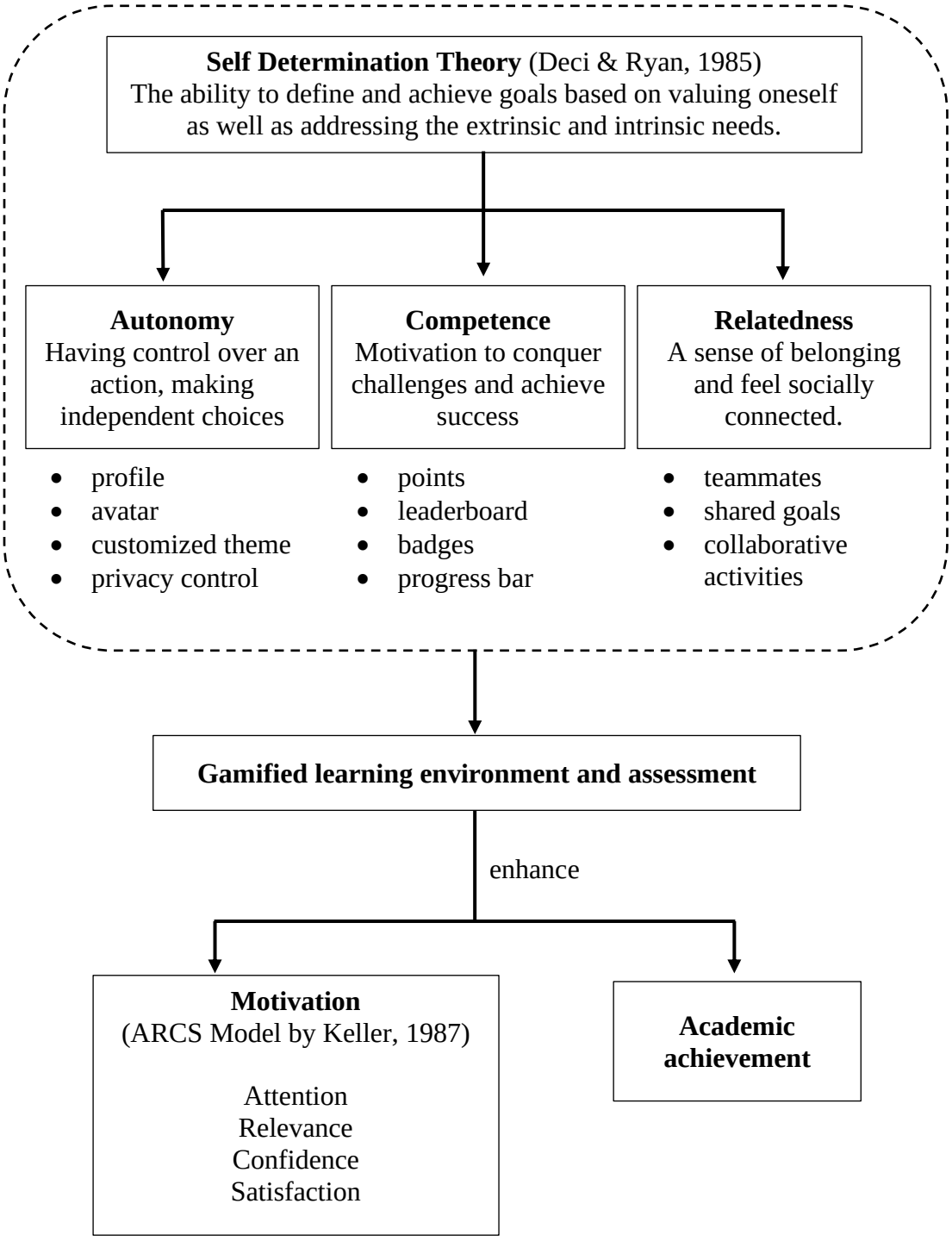

Figure 1.1.1 The theoretical framework in the present study

According to Deci and Ryan (2008), all these three main principles of SDT can be afforded in the gamified learning environment. As the gamified learning environment has game elements such as points, badges, timers, leaderboards, and other gamification features, formative assessment can also be embedded with the game elements (Delacruz, Chung, & Baker, 2010). In a gameful instructional design such as

the Quizizz application, motivational affordances such as points, leaderboards, achievements or badges, theme, goals, feedback, rewards, progress, and challenges are the properties added to improve their psychological satisfaction needs advocated by self-determination theory.

These gamification features can positively affect motivation as they facilitate satisfaction of basic psychological needs. In Keller's (1987) point of view, four instructional design principles should be met to motivate students. The four principles are attention, relevance, confidence, and satisfaction (ARCS). According to Keller (1987), the learner's attention or interest must be obtained. Various tactics could be used to facilitate the learner's attention to engage curiosity in learning. Gaining learners' attention can be done in two ways: perceptual arousal and inquiry arousal. Perceptual arousal uses surprise to gain interest, while inquiry arousal stimulates curiosity and attention by posing challenging problems.

A learner's motivation can also promote by establishing relevance in the learning. Learners' goals and needs must be clear and relevant to their learning backgrounds, interests, or learning styles. It must also present worth and future usefulness. Besides, the instructional environment should allow learners to succeed in learning and make them feel confident. To sustain motivation, learners should also attain a sense of accomplishment and satisfaction in some way. Provide feedback and reinforcement.

The study by Zarzycka-Piskorz (2016) suggested that motivation is the key to gamified education, encouraging an individual's engagement in learning. When students are engaged in the gamified learning environment, they carry out the task in pleasure and immerse themselves in the challenge as they find it interesting. Besides, the study by Dotterer and Lowe (2011) showed that motivation was significantly and positively related to academic achievement. This statement is also supported by Jeno, Danielsen, and Raaheim (2018), where they firmly believed that autonomous motivation and perceived competence could positively predict academic achievement. When a task is designed at a challenging skill level, students will develop academic ability and confidence.

1.8 Significance of the Study

This study could be highly significant and beneficial. It contributes to the vast knowledge concerning students' achievement and learning motivation through implementing the Quizizz application in English teaching and learning processes. The findings provide direction with regards to the following sectors.

1.8.1 Ministry of Education

This study would help the educational policy planners, especially the Ministry of Education in Malaysia, appraise the existing assessment methods in primary education regarding students' needs and modify them as required by adapting gamification elements and online assessment tools.

1.8.2 Teachers

This research would encourage teachers to implement gamification elements through online gamified assessment tools and adapt them as an effective teaching strategy to promote positive classroom dynamics.

1.8.3 Students

This study would help students develop their interests and enhance their learning motivation to learn a second language. Any improvement in students' learning motivation can pave the way for producing better academic achievement in English.

1.8.4 Researchers

Additionally, the result of this study can serve as a basis for further research on gamification and gamified online assessment tool. The survey with all constructs tested for reliability is also a contribution to scholars who further study in the field of game-based learning research.

1.9 Limitations of the Study

There are some limitations to this study. First, the sample size of 60 was small. Besides, this study was conducted in the context of Year 3 English and only two learning units (i.e., Module 2 and 3). The generalization of the results of this study is limited to Quizizz and not to other online gamified assessment tools in general. Hence, subsequent studies could involve bigger sample sizes, more learning units, and multiple online gamified assessment tools.

This study is also limited to Quizizz application but not the other online gamified assessment tools such as Kahoot!, Wordwall, Socrative, and more. Thus, future research can investigate different online gamified assessment platforms on students' academic achievement and motivation.

Besides, this study emphasizes students' perspectives towards the use of Quizizz in the teaching and learning processes but does not measure the impact on teachers. Therefore, future research can investigate teachers' readiness to implement online gamified assessment tools in the classroom, teachers' points of view towards Quizizz application, and the obstacles teachers might encounter after utilizing Quizizz application in the teaching and learning process.

1.10 Operational Definitions

1.10.1 Gamification

Gamification is taking game-like design mechanics and applying them to other non-game applications to increase engagement and motivate participation (Deterding et al., 2011; Simões, Díaz, & Fernández, 2013). Gamification has been recognized as a practical and valuable educational approach to promote student-centred learning, as it helps students shape skills, gain knowledge, and develop a positive attitude (Eugenio Jr & Ocampo, 2019). In this study, gamification refers to the game-like design mechanics such as the leaderboards, points, timer, theme, feedback, challenges, and rewards integrated into the Quizizz application, which was being implemented in the educational processes of Year 3 English.

1.10.2 Assessment

According to Black and Wiliam (2009), assessments include all classroom events experienced by teachers and students that can diagnostically reflect teaching and learning processes. Assessment can be differentiated into two, which are summative assessment and formative assessment. A summative assessment summarizes a student's achievement status for reporting purposes at the end of a course. In contrast, formative assessment means a judgment or evaluation of a student's work or performance to improve learning (Sadler, 1989; Shepard, Hammerness, Darling-Hammond, & Rust, 2005). In this study, formative assessment is defined as the interactive assessment carried out during the instructional process to track Year 3 students' academic progress in vocabulary and grammar for Year 3 English in Module 2 and Module 3. There were four formative assessments carried out using the Quizizz application. The items used for formative assessments were set by the researcher and validated by experts.

1.10.3 Quizizz

Quizizz (https://quizizz.com/) is an online gamified tool that offers gamified quizzes, polls, and lessons. This application allows students to choose between presenter-led and self-paced live learning experiences. It endorses asynchronous and independent learning. Quizizz application integrates friendly competition, replays, power-ups, and more to keep students engaged and master the learning contents.

In this study, the Quizizz application is used as the platform to conduct formative assessments. It consists of gamification features such as points, badges, memes, avatars, themes, music, and leaderboards that make learning more exciting and engaging. Students use the electronic devices provided in school to carry out the assessments. Students can get feedback along the process, and they can review the answers instantly to identify the problems faced during the learning process. At the same time, teachers can access students' reports to monitor students' progress.

1.10.4 Academic Achievement

In this study, students' academic achievement refers to students' understanding of the learning content of Module 2 and 3 in Year 3 English and the extent to which students had attained their short-term educational goals. To eliminate this study's biases, the researcher made sure some settings were applied for every formative assessment carried out using the Quizizz application. For instance, the timer and power-ups features are deselected. Hence, a student's academic achievement is reflected in the actual scores gained, and it is not influenced by the time factor, second-chance opportunities, or boosted by power-ups.

1.10.5 Motivation

Motivation is an immense field of study, and its perspective and definition might be differed according to different researchers and research purposes. According to Lindner (1998), motivation refers to the inner urge that drives individuals to accomplish their goals. In this research, students' motivation in learning is evaluated from four perspectives: attention, relevance, confidence, and satisfaction, aligned with the ARCS model proposed by Keller (1987). Students' motivation level is measured and determined by the instructional materials motivation survey (IMMS) at the end of the intervention.

1.11 Summary

There is a budding of research regarding gamified online assessment tools. The key focus of this study is to identify the use of the Quizizz application as a formative assessment tool in enhancing Year 3 students' academic achievement and motivation to learn English. This chapter also reviewed the problem background, problem statement, research questions, research hypothesis, theoretical framework, the significance of the study, limitations of the study, and the operational definitions used in the study. Chapter Two will discuss the findings of previous studies that relate to this research.

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