



**ESL PRESERVICE TEACHERS' READINESS TOWARDS THE USE OF  
GAMIFICATION IN THE CLASSROOM**

**TEE YUN JIA**

**2001905**

**SUPERVISOR: EN. MOHD AMIR IZUDDIN BIN MOHAMAD GHAZALI**

**UALZ 3023 - FYP2 REPORT**

**SUBMITTED IN  
PARTIAL FULFILMENT OF THE REQUIREMENTS  
FOR BACHELOR OF ARTS (HONS) ENGLISH EDUCATION  
FACULTY OF ARTS AND SOCIAL SCIENCE**

**JANUARY TRIMESTER 2024**

## ACKNOWLEDGEMENT

The process of completing the final year project took a long time and required a lot of effort. Throughout this journey, I received a great deal of help, guidance, and support from many people.

Firstly, I am grateful to my supervisor, Mr. Mohd Amir Izuddin bin Mohamad Ghazali, who provided helpful information and solutions to assist me in overcoming challenges encountered during the project. He took time out of his busy schedule to answer my questions, help draft checking, and provide suggestions for corrections. Thank you for your hard work on this.

Besides, I want to thank other lecturers: Mr. Alfian Bin Asmi, Ms. Gheeta a/p Chandran, Ms. Nurullashkeen Binti Mohd Anis, and Dr. Siti Ummaizah binti Meor Musa. They supported me by helping to promote my Google Form questionnaire to collect data. They allowed me to promote my questionnaire to their students during their lecture time, and I have heard that they have received complaints from their students because the promotion occupied their learning time. Regarding this, I feel very sorry and thank you for your help.

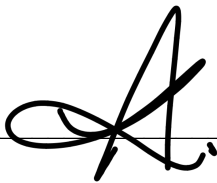
Moreover, I would like to express my gratitude to my family and my friends. They provide encouragement and comfort to me when I faced challenges, or I felt down. Their support enables me to continue to face problems and solve them until completion. I could not have done this project without them.

Lastly, thank you for the participants who are giving cooperation to fill in the questionnaire. Your help made it possible for me to complete this project. I really appreciate it.

I express my extreme gratitude to everyone who was involved in this project. I truly appreciate your efforts, kindness, and contributions. Thank you.

## APPROVAL SHEET

This research paper attached hereto, entitled “ESL Preservice Teachers’ Readiness Towards the Use of Gamification in the Classroom” prepared and submitted by Tee Yun Jia in partial fulfilment of the requirements for the Bachelor of Arts (Hons) English Education is hereby accepted.



Supervisor

Date 7.5.2024

Supervisor’s name: Mr. Mohd Amir Izuddin Bin Mohamad Ghazali

## **ABSTRACT**

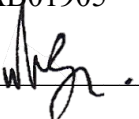
In Malaysia, student-centred active learning environment with the integration of technology is important for English as a Second Language (ESL) teachers to improve students' higher order thinking skills. The TPACK framework can be used for effective technology teaching and can help assess preservice teachers' (PSTs') readiness level to integrate technology. Gamification can enhance student motivation and social skills, aligning with constructivist theory by fostering interaction, collaboration, and knowledge building. It can help PSTs to perform well in teaching, thereby enhancing their confidence and motivation to utilize technology in education. Therefore, this study aims to investigate the readiness level of PSTs in implementing gamification techniques in ESL education and analyse the significance of differences in readiness among ESL PSTs to implement gamification between genders. A quantitative approach was employed using a Google Form questionnaire (adapted from Schmidt et al. (2009) and Ghazali (2020) research's survey questions) to collect data from fifty-two (52) participants enrolled in the Education (ED) course at UTAR Kampar Campus, Perak. Through descriptive analysis and t-test, it was found that PSTs' readiness level to implement gamification was high, and the role of genders did not affect readiness level significantly. This study provides deeper insight into PSTs' ability and belief to adapt gamification while integrating technology.

## DECLARATION

I declare that the material contained in this paper is the end result of my own work and that due acknowledgement has been given in the bibliography and references to ALL sources be they printed, electronic or personal.

Name : TEE YUN JIA

Student ID : 20AAB01905

Signed :  \_\_\_\_\_

Date : 3<sup>rd</sup> MAY 2024

## TABLE OF CONTENTS

	Page
ABSTRACT	i
DECLARATION	ii
TABLE OF CONTENTS	iii – v
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	viii
CHAPTERS	
I INTRODUCTION	1 – 6
1.1 Background	1 – 3
1.2 Problem Statement	3 – 4
1.3 Hypothesis	4
1.4 Research Objectives	4
1.5 Research Questions	4
1.6 Significance of Study	4 – 5
1.7 Key Terms	5 – 6
1.7.1 Constructivism	5
1.7.2 Preservice Teachers	5
1.7.3 Gamification	5
1.7.4 Technological Pedagogical Content Knowledge (TPACK)	6
1.8 Scope and Limitations of the Study	6
II LITERATURE REVIEW	7 – 18
2.1 Introduction	7
2.2 The Importance of Technology in ESL Classroom	7 – 8

2.2.1	Preservice Teachers' Attitude to Integrate Technology in Learning	8 – 9
2.3	The Use of Gamification in ESL Classroom	9 – 10
2.3.1	Integrating Technology into Gamification.	10 – 11
2.3.2	Preservice teachers' View to Adapt Gamification in ESL Classroom	11 – 12
2.4	Theoretical Framework Used	12
2.4.1	Teaching of Philosophy: Constructivist Theory	12 – 15
2.4.2	Technological Pedagogical Content Knowledge (TPACK) Framework	15 – 18
III	METHODOLOGY	20 – 25
3.1	Introduction	20
3.2	Research Design	20
3.3	Sampling Method	20
3.3.1	Participants' Demographic Information	20 – 24
3.4	Research Instrument	24 – 25
3.5	Data Collection	25
3.6	Data Analysis	25 – 26
IV	FINDINGS & ANALYSIS	27 – 36
4.1	Introduction	27
4.2	Analysis of the readiness level of preservice teachers in implementing gamification techniques in ESL education.	27
4.2.1	Technological Knowledge (TK)	27 – 29
4.2.2	Pedagogical Knowledge (PK)	29 – 30
4.2.3	Technological Pedagogical Knowledge (TPK)	30 – 33

4.2.4	Technological Pedagogical Content Knowledge (TPACK)	33 – 34
4.3	Analysis of Gender Comparison in Implementing Gamification among ESL PSTs	34 – 36
V	DISCUSSION & CONCLUSION	37 – 45
5.1	Introduction	37
5.2	Preservice Teachers' Readiness to Implement Gamification	37 – 40
5.2.1	Theoretical Implications	40 – 41
5.2.2	Practical Implications	41 – 42
5.3	Level of Readiness between Genders	42 – 43
5.4	Limitation	43 – 44
5.5	Recommendation	44 – 45
5.6	Conclusion	45
	REFERENCES	46 – 61
	APPENDIX A Questionnaire	62 – 74



## LIST OF TABLES

Table 2.1	Development of Constructivist Theory	13 – 14
Table 2.2	Main Types of Knowledge in TPACK Framework	16
Table 2.3	Relevant Knowledge in TPACK Framework	17
Table 3.1.1.1	Gender	21
Table 3.1.1.2	Age Range	21
Table 3.1.1.3	Race	22
Table 3.1.1.4	Methodology Courses Taken	22
Table 3.1.1.5	Practicum	22 – 23
Table 3.1.1.6	English Proficiency Level	23
Table 3.1.1.7	Understanding of Technology	23
Table 3.1.1.8	Like to Use Technology	23 – 24
Table 3.1.1.9	Like to Use Gamification	24
Table 4.2.1	Technological Knowledge (TK)	28 – 29
Table 4.2.2	Pedagogical Knowledge (PK)	30
Table 4.2.3	Technological Pedagogical Knowledge (TPK)	31 – 32
Table 4.2.4	Technological Pedagogical Content Knowledge (TPACK)	33 – 34
Table 4.3.1	Mean Score	35
Table 4.3.2	Independent Sample T-test	35 – 36

## LIST OF FIGURES

Figure 2.1	Constructivism Learning Model	12
Figure 2.2	TPACK Framework	15
Figure 2.3	Determine Preservice Teachers' Readiness Levels in Implementing Gamification Through Technological Knowledge and Pedagogical Knowledge (TPACK) Framework	18

## LIST OF ABBREVIATIONS

Abbreviations	Definitions
CK	Content Knowledge
EFL	English as foreign language
ESL	English as a second language
ICT	Information and communications technology
IPG	Institutes of Teacher Education
IPT	Institutes of Higher Education
IST	Inservice teacher
K-12	Kindergarten to 12th
M	Mean
MEB	Malaysian Education Blueprint
MOE	Ministry of Education
MKO	More Knowledgeable Others
N	Number
PK	Pedagogical Knowledge
PCK	Pedagogical Content Knowledge
PST	Preservice teacher
SD	Standard deviation

SPSS	Statistical Product and Service Solutions
TK	Technological Knowledge
TCK	Technological Content Knowledge
TPK	Technological Pedagogical Knowledge
TPCK	Technological Pedagogical Content Knowledge
TPACK	Technological Pedagogical Content Knowledge
UTAR	Universiti Tunku Abdul Rahman
ZPD	Zone off Proximal Development

---

## CHAPTER 1

### INTRODUCTION

#### 1.1 Background

In Malaysia, English as a second language (ESL) teachers are required to create a student-centred and active learning lesson (Kabilan et al., 2020, p. 118) by applying constructivist teaching to instil students' higher order thinking skills and indirectly improve their English proficiency (Arlina & Melor, 2014). Malaysian Education Blueprint (MEB) (2013-2025) mentioned that the Ministry of Education (MOE) had designed a new curriculum that emphasizes constructivism to develop higher order thinking skills such as analysis, critical thinking, hypotheses and decision-making. The use of constructivist-oriented teaching methods promotes students' active participation in understanding and transforming knowledge, promotes the development of key skills, and is consistent with Malaysia's education transformation goals by encouraging teacher creativity and student engagement (Jamaluddin, 2023). It means that students create knowledge as they make sense of their own experiences, presenting them as active agents in search of purpose rather than passive objects of knowledge (Shah, 2019). Based on this approach, teachers can grasp different perspectives if they understand the context of psychological and pedagogical ideas and create an active learning environment for communication (Shah, 2019).

Besides, MEB (2013-2025) emphasized that the use of ICT is important in developing a meaningful learning process and higher order thinking skills among students (Ministry of Education, 2013). Technology, pedagogy, and content knowledge are all important for effective technology teaching in PST education, and all three (3) can be taught individually or in combination (Davis, 2010). Datin Noor Azimah Abdul Rahim "Parent Action Group for Education chairman" also stated that the teacher training and use of technology are able to

enhance English language skills (Zainal & Gek San, 2023). It is because the use of technology can provide more flexible and dynamic lessons, customize teaching activity based on students' needs and expose students to the digital world for a better learning experience. It can enhance preservice teachers' (PSTs) and inservice teachers' (ISTs) education, empower teachers with greater flexibility and effectiveness, and help them connect with a global community of teachers (Husain, 2011). Therefore, PSTs are encouraged to develop their knowledge according to the TPACK (Technological Pedagogical Content) framework so that they can adapt technology in ESL teaching (Ministry of Education, 2013).

Wu et al. (2023) found that online courses with gaming elements can positively influence PSTs' confidence and motivation to integrate technology in education based on their existing ICT skills. It allows PSTs to explore and evaluate different emerging technologies and their applications in the classroom (Wu et al., 2023). Hence, many online applications such as Kahoot, Quizizz, and Quizlet, are used as gamification tool in the class to enhance students' motivation, adaptive and social skills, either physical or online course (Oksana et al., 2022; Zecri et al., 2021). Gamification as a learning technique which reflects Vygotsky's constructivist theory through Zone of Proximal Development (ZPD) which sets level limits in gamified learning, as well as scaffolding that promotes interaction for knowledge building, while More Knowledgeable Others (MKO) components allows collaboration with knowledgeable peers (Rohman & Fauziati, 2022), It is easy to implement and master if understand the working system (Zainuddin, 2023). The common gamification includes points, prizes, leaderboards, and challenges, can address this issue by integrating game elements into the learning environment, increasing engagement, improving skills, setting learning goals, enhancing the learning process, encouraging behaviour change, and promoting social interaction (Kim et al., 2016; Rohman & Fauziati, 2022). From the perspective of Vygotsky's constructivist theory, it helps students solve problems and build

knowledge by allowing them to interact and collaborate with more capable people as it indicates the presence of social interactions that students engage in as they build their knowledge (Rohman & Fauziati, 2022). It also allows students to see from different perspectives in the learning process based on the students' requirements and qualities (Bíró, 2014).

## **1.2 Problem Statement**

The trend towards the use of gamification in language learning is rising especially after pandemic (Abdeen & Albiladi, 2021; Park & Kim, 2021). Based on Su et al.'s (2021, as cited in Zhang & Hasim, 2023) review of 64 studies from 2000 to 2020, gamification has been widely used in learning, focusing on elements such as goals, feedback, and adaptive challenges to increase students' engagement and mainly improve their vocabulary acquisition and positive emotional experience. Many studies revealed that many PSTs are willing to and prefer to use gamification to improve students' motivation and engagement in the classroom (Oprış et al., 2021; Sajinčič et al., 2022). It is because gamification is easy for PSTs to adapt and allows them to provide active learning for students that prevent them from feeling pressure to learn the subject, especially in ESL/EFL, thus motivating them to perform better (Mee Mee et al., 2020). However, there is a lack of study that explores PSTs' readiness to adapt gamification in ESL classrooms as most studies explore PSTs' attitudes toward using gamification or the impact of gamification on PSTs (TURAN et al., 2022; Sajinčič et al., 2022; Wu et al., 2023). Although PSTs in Malaysia are moderately ready to adapt technology in online teaching due to COVID-19, there are still concerns about whether they can also adapt technology for gamification in offline teaching (Asghar, 2021; Morgan, 2022). Implementing gamification through integrated technology can be seen as an effective combination of teaching methods and technologies to promote active learning and develop 21<sup>st</sup> century skills (Samala et al., 2023). Without integrating technology, there will be some

challenges in implementing gamification such as lack of immediate feedback and challenges, and adaptability issues due to external factors like class size (Annamalai et al., 2022). In a way, this is also against the proposition put forth by the MOE in the MEB (2013-2025) where they outlined technology integration in the classroom. Therefore, this study intends to examine the ESL PSTs' readiness in implementing gamification techniques in their classroom and subsequently, providing deeper understanding on this issue.

### **1.3 Hypothesis**

Preservice teachers in UTAR Kampar have high readiness to integrate gamification into ESL education.

### **1.4 Research Objectives**

1. To investigate the readiness level of preservice teachers in implementing gamification techniques in ESL education.
2. To analyse the significance of difference in readiness among ESL preservice teachers to implement gamification between genders.

### **1.5 Research Questions**

1. What is the readiness level of preservice teachers in implementing gamification in ESL education?
2. Is there any significant difference between genders in readiness among ESL preservice teachers to implement gamification?

### **1.6 Significance of Study**

The significance of this study is to determine the readiness of PSTs in UTAR Kampar to integrate gamification into ESL education. Preparing to use gamification in the ESL classroom is critical for PSTs because this technology allows teachers to provide a positive



learning environment that encourages students to participate in class activities and interact with teachers and students. According to Malaysian Education Blueprint (2013-2025), the use of technology in the classroom is important to conduct a creative lesson rich in knowledge and materials, which can improve students' critical thinking and higher order thinking skills (Ministry of Education, 2013). PSTs should develop their technology and pedagogical knowledge which enable them to understand, master and integrate technology and gamification in ESL lessons. This is due to the fact that gamification is a useful educational tool that can be used for various teaching activities and topics based on students' needs and teachers' requirements. Not limited to that, it improves students' motivation and engagement, while for the PSTs, gamification is easy to be incorporated into their instructional activity. The MOE (2013) also encourages PSTs to implement gamification through technology in learning and provides multiple methods to enrich their relevant knowledge.

## 1.7 Key Terms

1.7.1 **Constructivism** is a philosophy approach that holds that knowledge is not just how one person sees the world but how everyone works together to construct knowledge and ideas (Mustafa & Roesdiyanto, 2021, as cited in Rohman & Fauziati, 2022).

1.7.2 **Preservice teachers** (also known as teacher candidates) are students in teacher education programs who gain practical teaching experience under the guidance of college faculty and K-12 cooperating teachers, preparing to become professional educators with limited classroom experience (Keengwe, 2022). In Malaysia, teacher education is provided by Institutes of Teacher Education (IPG) and Institutes of Higher Education (IPT) (Ministry of Education, 2013).

1.7.3 **Gamification** is a learning technique that aims to increase engagement and motivation by applying game elements to education (Deterding et al., 2011).

1.7.4 **Technological Pedagogical Content Knowledge (TPACK)** is a framework designed by Punya Mishra and Matthew J. Koehler in 2006 that focuses on the importance and intersection of technology, pedagogy, and content knowledge in improving teacher effectiveness (Koehler & Mishra, 2009).

### **1.8 Scope and Limitations of the Study**

The scope of this study was focus on ESL PSTs from Universiti Tunku Abdul Rahman (UTAR) Kampar. This study focuses on investigating the readiness of ESL PSTs towards the use of gamification in physical ESL classrooms by collecting and analysing data through questionnaire, TPACK framework, SPSS, descriptive analysis and T-test. Purposive sampling method was used to differ the respondents according to their age and gender.

The limitations of this study were the small sample size and geographic restrictions. The researcher only looks at the readiness of PSTs in UTAR Kampar because it is difficult to collect other PSTs' responses from different subjects and schools due to the time limitation. A broader and more diverse respondent pool is essential to increase the accuracy of the data collected and minimize errors.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter discusses the importance of using technology and gamification in ESL classrooms and PSTs' beliefs as well as the theoretical framework of this study which includes constructivism and TPACK framework used in this research.

#### 2.2 The Importance of Technology in ESL Classroom

The Ministry of Education (2013) emphasised the importance of using technology which acts as a new learning resource that enables students to explore their view or perspectives of the world. Amin (2019) stated that technology plays an important role in learning ESL by improving ESL learners' learning skills. To support his statement, he examined the ways in which technology supports language learning by using evidence from multiple studies on the use of technology in linguistics through qualitative approach and interpretivist research philosophy (Amin, 2019). He found that using technology can enhance the learning of second or foreign languages and develop students' creativity and intelligence, but there were also some challenges, such as connection issues, assessment issues, difficulties in updating technology, and conflicts in decision-making regarding technology use (Amin, 2019). Technology provides a dynamic learning environment that enables learners to develop students' critical thinking, problem solving and social skills by exposing them to various learning resources and interactive learning tools. From students' view, technology is more able to stimulate their interests and senses than traditional educational resources like blackboards or cards.

Rintaningrum (2023) made the same point in her qualitative study, which examined the benefits and challenges of technology integration in ESL learning through interviews and transcripts. She suggested that even there were some challenges in integrating technology into classroom activities, but educators should overcome the challenges through strategic interventions like training due to the benefits of technology that enhance motivation, provide active learning, and improve language proficiency (Rintaningrum, 2023). The use of technology allows PSTs to obtain various teaching tools and resources and try more new teaching methods to make teaching more flexible and innovative in the ESL learning. It can bring more freshness to students in the classroom and make them interested in learning English and engaged in classroom activities. Therefore, teachers' technology proficiency should be developed and enhanced so as to promote students' learning, improve their performance and productivity, and develop their critical thinking skills (Saad & Sankaran, 2020).

Both studies showed the effectiveness and benefits of using technology in ESL teaching. Students' performances were improved, and they were actively motivated by technology when learning English. Technology-based lessons were attractive and flexible, providing students with personalised learning and easier access to learning materials that match their level of learning and understanding. It can also provide students with a social interaction platform to practise English with foreigners through speaking, writing, reading and listening (Kieu et al., 2021). The use of vocabulary, grammar and pronunciation can be corrected and improved through exposure and acquisition in communication.

### **2.2.1 Preservice Teachers' Attitude to Integrate Technology in Learning**

In Malaysia, PSTs had positive attitudes in integrating technology and were willing to accept technical training in their teacher training due to its effectiveness (Abdul Rauf &

Suwanto, 2020; Lai Wah & Hashim, 2021). According to the case study of qualitative research conducted by Gozukucuk and Gunbas (2020), PSTs found that there are positive impacts of integrating technology into learning as it can help motivate students' interest and grasp their attention. They invited eight (8) PSTs who are in the second (2nd) semester of third (3rd) year from a Turkey university, to use their own designed reading teaching material to teach after receiving Scratch programming and design reading activities training (Gozukucuk & Gunbas, 2020). Through semi-structured and an open-ended interview questionnaire, they found that all PSTs were positively motivated in adapting technology in teaching, as students demonstrated good behaviours and attitudes toward technological educational tools (Gozukucuk & Gunbas, 2020; Hoque et al., 2020). They were less anxious and were interested in involving new activities compared to the traditional approach. Positive student performance can stimulate PSTs' intrinsic motivation to teach and deliver well-prepared lessons. It can be concluded that the adaptation of technology can help ESL PSTs to motivate students who lack interest and motivation in learning a second language. Since ICT is highly efficient and interesting, can encourage independent and collaborative learning environments, and improve students' motivation, creativity, and critical thinking, many ESL educators and students have shown positive reactions to it (Bai et al., 2019; Yumnam, 2021). Since it is easy to use, helps PSTs prepare effective materials and provides rich content (Tatli et al., 2019), so it can be adapted to various teaching methods, including gamification.

### **2.3 The Use of Gamification in ESL Classroom**

Due to the development of technology in the 21<sup>st</sup> century, the combination of technology and gamification such as Kahoot! and Quizlet are widely spread in classroom activities, especially after COVID-19 pandemic. It can be considered an adaptive and creative learning technique because of its flexibility and fun. It can help ESL students enhance learning motivation, participation and competition to help them engage in meaningful

learning (Yaccob et al., 2022). Saad et al. (2022) believed that gamification can bring a new dimension and would also prepare more dynamic language educators. In their study, they conducted a project to gamify Semai folktales to assess students' perceptions of language learning through Semai tribe ghost stories and examine their perceptions of incorporating gamification into language activities, their goal was to preserve Semai cultural heritage and values, while developing ESL students' language skills by encouraging them to read short stories from different genres and cultures (Saad et al., 2022). Using Likert questionnaires with open-ended questions, they found that the majority of students were attracted by the use of story and gamification applications such as Kahoot and Quiziz used in learning language (Saad et al., 2022). It is because gamification allows them to have better interaction and enjoyment in learning, so students enjoy learning English through games thus increasing students' interest in class (Rajendran et al., 2019). Since English learning is boring for the majority of the students, the application of gamification has additional beneficial effects on students' English learning, especially given that their lives are increasingly influenced by digital technologies, and they prefer to learn in enjoyable, participatory and engaging environments (Yunus & Hua, 2021).

### **2.3.1 Integrating Technology into Gamification**

Technology integration in gamification not only helps to enhance learners' language learning experience and increase their environmental awareness but also provides a wider range of selection (Mei & Yang, 2019). It improves system reliability, encourages human behaviour, and integrates business logic while keeping users engaged to enhance the effectiveness of gamification (Paris et al., 2019). According to research by Almufareh (2021), student performance was positively correlated with motivation to learn ESL and positive attitudes toward video games. Based on the Technology-Enhanced Training Effectiveness Model (TETEM), they compared the pre- and post-learning and performance of students

using Duolingo and a control group that did not use Duolingo, and conducted confirmatory factor analysis of experience, attitude, and motivation to evaluate how attitudes and experiences of students with video games affect their motivation and performance (Almufareh, 2021). Duolingo group's students had higher scores on the assessment and were motivated to learn ESL (Almufareh, 2021). It is because they had positive attitudes toward video games, which can provide students with personalised learning experiences and practical opportunities to use and practise English in a meaningful environment. Without technology integration in gamification, there will be challenges such as lack of self-regulation by learners and lack of choice of teaching methods, as non-technology-based gamification is not suitable for certain learning styles due to low adaptability, limited immediate feedback and reflection (Annamalai et al., 2022). Therefore, technology integration can enhance gamification effectiveness in motivating students in learning ESL and promote their learning motivation to increase academic achievement.

### **2.3.2 Preservice teachers' View to Adapt Gamification in ESL Classroom**

PSTs were positive about the adaptation of gamification in ESL classrooms as it improves students' motivation in learning language, academic achievement and engagement while providing an effective learning process (Mee Mee et al., 2020; Zakaria et al., 2021). In 2020, Mee Mee et al. believed that gamification could help students learn subconsciously so they used a questionnaire to collect the perceptions of thirty-three (33) PSTs on the use of gamification in language teaching during a sixteen (16) weeks internship in local primary schools in Selangor, Malaysia and used quantitative survey research methods to analyse their perceptions. On the other hand, Zakaria et al. (2021) carried out a similar study to explore the implementation of gamified learning in writing classes by collecting and analysing thirty-two (32) PSTs' views through quantitative survey and SPSS. Both studies indicated that PSTs were interested in using gamification in teaching ESL as it can effectively enhance learners'

interest and motivation in language learning while improving social interactions (Mee Mee et al., 2020; Zakaria et al., 2021). It is because gamification incorporates elements of collaboration, interaction, and competition, making the learning process more enjoyable and rewarding, students' stress will be reduced, and learning will become more interesting. It can be seen that PSTs have a high willingness and motivation to adapt gamification in learning activities due to its benefits. Gamification can help them to perform well in teaching and have better control in class management. However, these studies did not address PSTs' ability and readiness to adapt to gamification, but only showed their feedback after using gamification.

## 2.4 Theoretical Framework Used

In this study, there are two (2) theoretical frameworks which are constructivism (Lev Vygotsky, 1978) and TPACK (Koehler & Mishra, 2006).

### 2.4.1 Teaching of Philosophy: Constructivist Theory

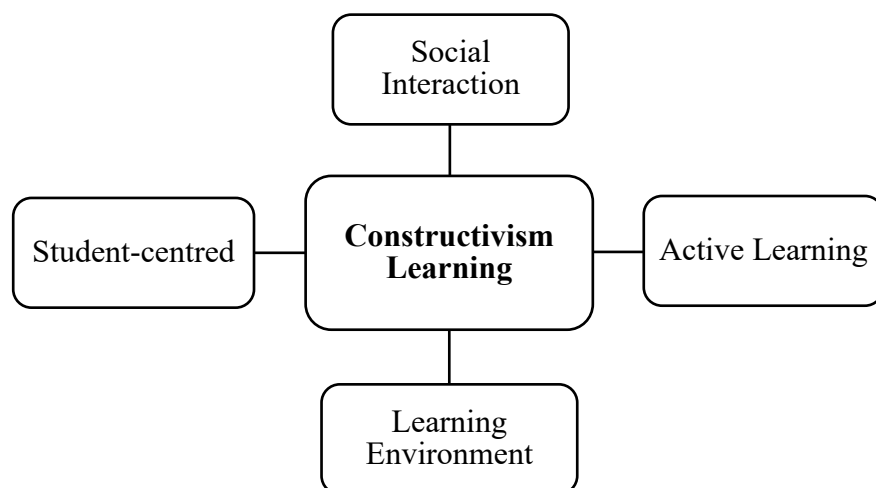


Figure I. Constructivism Learning Model

Constructivist theory is a learning philosophy that believes that learners are active subjects in the process of acquiring knowledge (Bada & Olusegun, 2015). It emphasises



classroom learning by shifting the focus from the teacher to the student, encouraging active learning and promoting understanding through a constructivist approach (Sumarna & Gunawan, 2022). Students need to construct and build their own meaning and knowledge using a range of data sets based on their own experience, perceptions, and interaction (Sumarna & Gunawan, 2022). It is student-centred which believes that students should not only be the recipients of knowledge but should engage in learning processes such as identification and analysis in classroom learning. It can be used to develop students' independent problem-solving and critical thinking skills (Mohammed et al., 2020). It has two key concepts: accommodation, the need to adjust mental frameworks to absorb new experiences and reframe them when the world is inconsistent with original concept; and assimilation, the combining of new experiences with previous ones to develop new perspectives (Bada & Olusegun, 2015). It was explored and developed by Jean Piaget, Jerome Bruner and Lev Vygotsky (Chand, 2023). Table 2.1 provides a summary development of constructivist theory.

Table 2.1

*Development of Constructivist Theory*

<b>Study</b>	<b>Constructivist Theory</b>
Jean Piaget (1952)	Piaget's constructivism focused on the development of knowledge in early childhood and believed that knowledge was constructed through adaptive processes, including assimilation and accommodation (Sjøberg, 2010).
Jerome Bruner (1960)	Bruner emphasized on the role of social interactions and cultural practices in the learning process (Suzanne & Vella, 2003).
Lev Vygotsky (1978)	Vygotsky believed that cognitive processes were the result of social

interaction and emphasized collaborative learning through the construction of knowledge through social negotiation (Negi, 2019).

---

The opposite of constructivism is objectivism, which believes that knowledge can be conceptualised as knowledge that exists outside the realm of human thought, and different interpretations of knowledge can be classified as accurate or inaccurate (Bada & Olusegun, 2015). An objectivism learning is teacher-centred that provides direct, structured, and clear guidance for transmitting knowledge to the students in a systematic manner (Moss et al., 2022). It is not conducive to students' independent learning, especially language learning. In ESL classrooms, independent learning and critical thinking are essential for students to develop their language proficiency by enhancing their comprehension, memory, metacognition, educational intentions, and socioeconomic factors (Elfatihi, 2017). Since this research is determining PSTs' readiness level to use gamification in ESL classrooms, their beliefs will affect their adaptability, interaction with students and teaching approaches.

Constructivism is openness to adapt new teaching methods and materials to conduct a dynamic and collaborative learning while objectivism is more structured and traditionalism. Gamification and technology integration are more accessible to PSTs with constructivist beliefs, and both can aid in more effective and student-centred constructivist lessons. They are consistent with constructivist ideas, enhance students' classroom participation, and promote their social interactions. Through constructivism, PSTs can also have a clearer understanding of using gamification and technology to conduct an interactive and active learning.

During methodology courses in UTAR, PSTs need to learn different principles, concepts, and teaching methods including constructivism that can be used in ESL classrooms. They are encouraged to perform a student-centred lesson that is active learning, using

creative teaching methods and materials (including technology integration and gamification) during micro-teaching presentations. PSTs need to design, manage, and adjust based on the pedagogical knowledge they learn from the course to develop effective meaningful courses that meet student requirements.

This theory provides an understanding of PSTs with constructivist belief to teach effectively using gamification with technology. It aims to understand how constructivism influences PSTs' readiness to adapt and effectively use gamification with technology in ESL classrooms. By analysing the respondents' beliefs with their readiness, it can help understand how constructivist belief can enhance or impact teachers' readiness to adapt to new teaching methods and technology integration.

#### 2.4.2 Technological Pedagogical Content Knowledge (TPACK) Framework

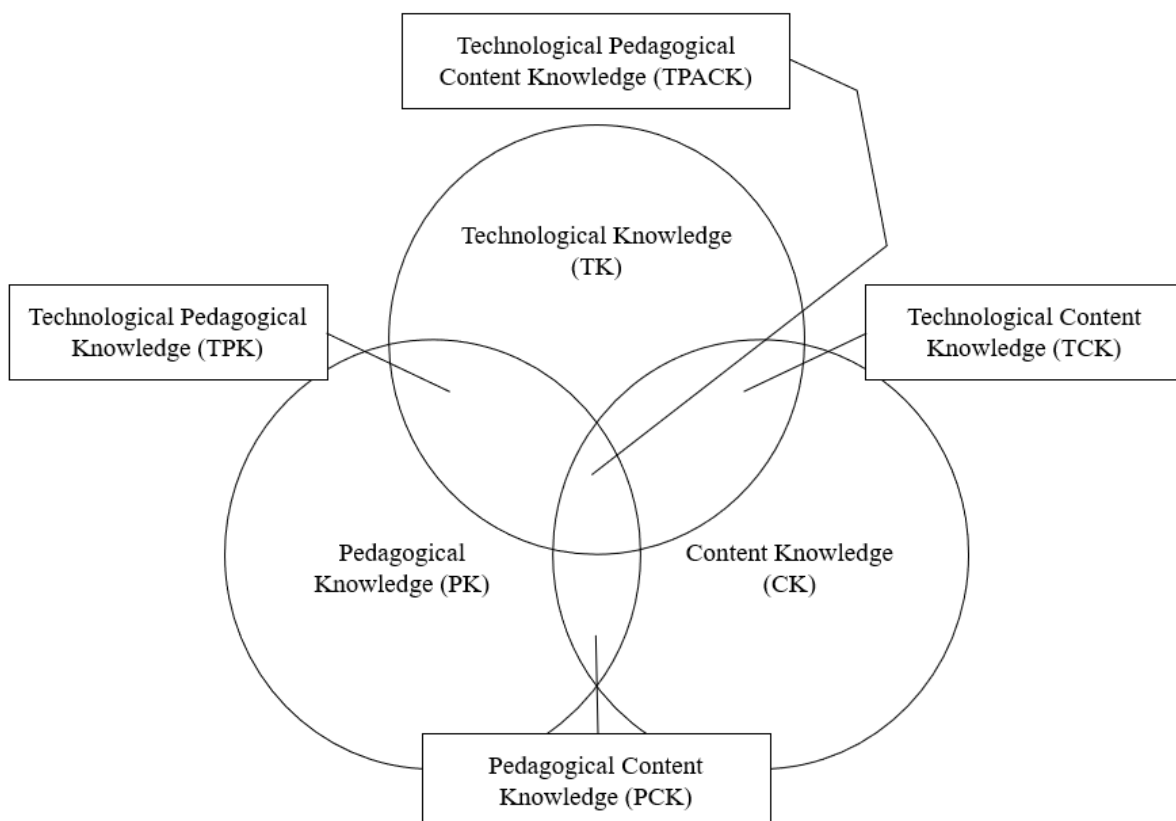


Figure II. TPACK Framework

TPACK is a theoretical framework of teacher knowledge for technology integration, developed from TPCK (Koehler et al., 2013a). TPCK was an early idea of Koehler and Mishra (2006), which they later explored and built upon more deeply and renamed: TPACK, to provide a comprehensive understanding of effective teaching with technology (Koehler et al., 2013a). It explores more on the complexity of relationship between different knowledge compared to TPCK, which only emphasises the integrating of technology in specific content and context (Lavrysh, 2019; Sajan & Sunitha, 2018). The foundation of this framework originated from Shulman's idea in 1986 that emphasised the relationship between teachers' understanding of content, pedagogy, and various ways of defining subject matter (Sajan & Sunitha, 2018). This framework involves three (3) main areas of knowledge: technology, pedagogy, and content. They are important for teachers to design an effective lesson by implementing technology-integrated lessons that are appropriate for specific content and context.

Table 2.2

*Main Types of Knowledge in TPACK Framework*

<b>Knowledge</b>	<b>Meaning</b>
TK	The knowledge or understanding of technology and ability to adapt new technology in education (Koehler et al., 2013b).
PK	The knowledge or understanding of the role of classroom management activities, student motivation, lesson planning, and assessment of learning (Koehler et al., 2013b).
CK	The knowledge or understanding of a specific subject matter or discipline (Koehler et al., 2013b).

The interaction between these three (3) main types of knowledge lead to an extension of knowledge: TPK, TCK, PCK and TPACK.

Table 2.3

*Relevant Knowledge in TPACK Framework*

<b>Knowledge</b>	<b>Meaning</b>
TPK	The combination of understanding of TK and PK that emphasize to adapt technology to achieve learning goal and enhance academic achievement in teaching and learning (Koehler et al., 2013b)
TCK	The combination of understanding of TK and CK that involves technology integration in learning of content and subject (Koehler et al., 2013b).
PCK	The combination of understanding of PK and CK that aligns with Shulman's concept of pedagogical knowledge applies to teaching specific content by explaining, adapting material, and using flexible strategies to vary instructional topics to meet student needs and misunderstandings (Koehler et al., 2009, 2013b).
TPACK	The combination of understanding of all knowledge that focuses on how technology can be specifically designed to meet the instructional requirements of teaching specific content in a specific context (Koehler et al., 2013b).

This framework can be used to assess PSTs' and ISTs' readiness to implement technology in the classroom (Koehler et al., 2013a). It offers a useful tool for measuring learning environments and illustrating the complex relationships between pedagogy, technology, and content that are unique to these environments (Goradia, 2018). Through evaluating PSTs' knowledge from different perspectives and fields, the researcher can know PSTs' preparedness, ability and capacity towards their understanding and knowledge of gamification and technology. The knowledge and understanding of PSTs towards gamification and technology reflects their self-confidence and adaptability to adapt and

integrate new and modern technologies in gamification techniques to teach language in ESL classrooms. This research focuses on TK and PK to analyse PSTs' ability factors to adapt gamification through technology in a specific context. TK allows the researcher to know PSTs' proficiency in using technology and gamification through technology, especially gamification applications like Kahoot; while PK enables the researcher to determine PSTs' capacity and adaption of gamification to build lessons, design activities, and manage classrooms. TPK represents both of their intersections that emphasises PSTs' ability to use technology for gamification to enhance learning and TPACK can be used to determine PSTs' overall ability to conduct a gamified lesson through technology that is appropriate for the lesson content and context.

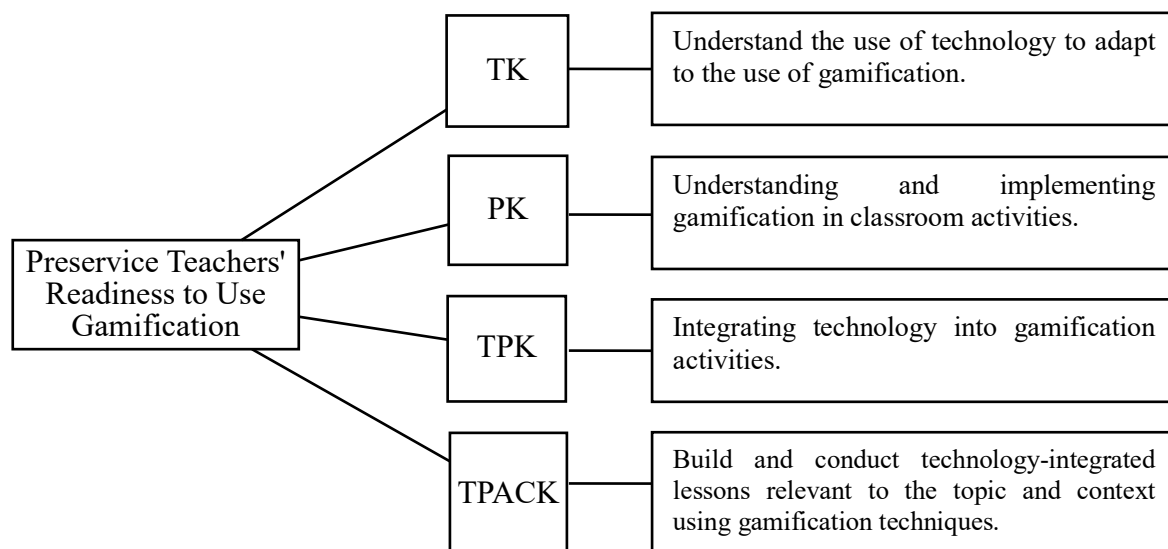


Figure III. Determine Preservice Teachers' Readiness Levels in Implementing Gamification Through Technological Knowledge and Pedagogical Knowledge (TPACK) Framework

The figure above shows the concept of this study. PSTs' readiness to use gamification with technology integration is affected by TK, PK, TPK and TPACK. By analysing these four (4) categories of knowledge and two (2) research questions to measure various teacher

readiness and understand teachers' readiness and abilities for gamification, the data results can provide insights into improving teachers' readiness to teach effectively and improve and refine teacher training plans in the future.

## CHAPTER 3

### METHODOLOGY

#### 3.1 Introduction

This chapter will discuss methodology which includes research design, sampling method, research instrument, data collection and plans for data analysis.

#### 3.2 Research Design

This is quantitative research that determines ESL PSTs' readiness in using gamification in the classroom. Through quantitative methods, data can be more accurate, objective, and efficient (Wu et al., 2022). It can ensure the reliability and validity of data collection (Kulkarni & Joshi, 2016) and it is suitable for collecting participants' attitudes and perceptions (Emerson, 2017).

#### 3.3 Sampling Method

A purposive sampling method was used in recruiting respondents. Through this sampling method, it provides the ability for the researcher to choose the respondents that fit the characteristics required for the study. Due to that, two (2) characteristics are outlined, and they are as follows:

1. Students that are enrolled in Bachelor of Arts (Honours) English Education in the Faculty of Arts and Science, Universiti Tunku Abdul Rahman (UTAR) Kampar.
2. Participants who are currently undergoing or have completed and passed courses related to methodology and pedagogy of teaching ESL.

##### 3.3.1 Participants' Demographic Information



According to Table 3.3.1.1, the participants were mainly female, accounting for 76.9%, and male participants accounted for 23.1%, totalling fifty-two (52) participants.

Table 3.3.1.1

*Gender*

<b>Gender</b>		
	<b>N</b>	<b>%</b>
Male	12	23.1%
Female	40	76.9%

Table 3.3.1.2 shows that participants aged 19 to 21 and 22 to 24 were the majority groups. The highest proportion was among participants aged 19 to 21, accounting for 50%, while participants aged 22 to 24 accounted for approximately 40.4%. The smallest number of participants were those aged 28 and over, which was no participants. The second smallest group was participants aged 16 to 18, with only one (1) person, accounting for 1.9%. On the other hand, the proportion of participants between the ages of 25 and 27 was 7.7%, with four (4) participants.

Table 3.3.1.2

*Age Range*

<b>Age Range</b>		
	<b>N</b>	<b>%</b>
16-18	1	1.9%
19-21	26	50.0%
22-24	21	40.4%
25-27	4	7.7%
28 above	0	0.0%

Table 3.3.1.3 shows that the participants were mainly Chinese, with thirty-seven (37) out of fifty-two (52) people, accounting for 71.2%. The second group was Indian, with eleven (11) people which made up 21.2% of the total. The least number was one (1) person, only 1.9%, who was Malay. The other racial groups occupied 5.8% of the total participants, with three (3) people.

Table 3.3.1.3

*Race*

<b>Race</b>		
	N	%
Malay	1	1.9%
Chinese	37	71.2%
Indian	11	21.2%
Others	3	5.8%

According to Table 3.3.1.4 above, 59.6%, or thirty-one (31) participants, have completed four (4) methodology courses provided by ED courses in UTAR. The number of participants who have completed or are still undergoing were gradually decreased according to the number of methodology courses. There were 15.4%, or eight (8) participants who have completed or are still undergoing only one (1) methodology course; 13.5%, or seven (7) participants who have completed or are still undergoing two (2) methodology courses; and six (6) participants who have completed or are still undergoing three (3) methodology courses.

Table 3.3.1.4

*Methodology Courses Taken*

<b>Methodology Courses Taken</b>		
	N	%
1.00	8	15.4%
2.00	7	13.5%
3.00	6	11.5%
4.00	31	59.6%

Table 3.3.1.5 shows that more than half of the participants have not completed their internship yet, with 39 people, accounting for 75% while 25% or thirteen (13) participants have completed their internship.

Table 3.3.1.5

*Practicum*


---

**Practicum**

	N	%
Yes	13	25.0%
No	39	75.0%

Based on Table 3.3.1.6, majority participants (67.3%) have intermediate English proficiency level, fourteen (14) participants (26.9%) have advanced English proficiency level while only three (3) participants (5.8%) have beginner English proficiency level.

Table 3.3.1.6

*English Proficiency Level*

<b>English Proficiency Level</b>		
	N	%
Beginner	3	5.8%
Intermediate	35	67.3%
Advanced	14	26.9%

According to Table 3.3.1.7, there were thirty-eight (38) participants, accounting for 73.1%, who had an intermediate level of understanding of technology, while there were seven (7) participants (13.5%) each with beginner and advanced levels of understanding of technology.

Table 3.3.1.7

*Understanding of Technology*

<b>Understanding of Technology</b>		
	N	%
Beginner	7	13.5%
Intermediate	38	73.1%
Advanced	7	13.5%

Table 3.3.1.8 shows that there was a total of forty-seven (47) participants, approximately 90.4% of whom would like to use technology in their teaching, while the remaining five (5) participants do not prefer to use technology in their teaching.

Table 3.3.1.8

*Like to Use Technology*

<b>Like to Use Technology</b>		
	N	%
Yes	47	90.4%
No	5	9.6%

Table 3.3.1.9 shows that most participants, accounting for 84.6%, have a high willingness to use gamification in their teaching. Only 15.4%, or eight (8) participants, do not like to adopt gamification in their teaching.

Table 3.3.1.9

*Like to Use Gamification*

<b>Like to Use Gamification</b>		
	N	%
Yes	44	84.6%
No	8	15.4%

### 3.4 Research Instrument

Questionnaire (see Appendix A) was used as a research instrument to collect data, as it saves cost efficiently (Taherdoost, 2021), and it would adapt Schmidt et al. (2009) and Ghazali (2020) research's survey questions, which includes technology, content and pedagogical knowledge. It consisted of five (5) sections and forty-five (45) items. The first section (Section A) was about the respondents' personal background such as gender, age range, race, English proficiency and others. The remaining sections (Sections B to E) deal with technical knowledge (TK), pedagogical knowledge (PK), technical pedagogical knowledge (TPK), and technical pedagogical content knowledge (TPACK), respectively. The questionnaire was used to save time in the process of gathering information and ensure a higher level of completeness than is typically achieved within a limited time frame (Freedman, 1940). The items in Sections A to C (Section B – TK; Section C – PK) were adapted from Schmidt et al. (2009)'s research survey while the questions of TPK and TPACK were referred to Ghazali (2020) research's questionnaire. Sections B to E used a

Likert scale with four (4) points: one (1) is Strongly Disagree, two is (2) Disagree, three is (3) Agree, and four is (4) Strongly Agree. Google Forms would be used to create the questionnaire because it is simple to use, free and easily available (Adelia et al., 2021).

### **3.5 Data Collection**

An email was sent to UTAR lecturers for requesting permission and help to share the Google form questionnaire link to ED students' UTAR email. An email was sent to ED students with the help of the professionals or lecturers, the characteristic requirements that need to be fulfilled are mentioned in the email so that students can determine if they meet the requirements before filling out the questionnaire. The researcher also introduced the study and share the link during the break of the lecture. Next, the link was shared through social media such as WhatsApp and Telegram to ED students. All respondents was requested to help share the link to their UTAR ED friends. The Google form link was only valid for three (3) weeks to allow the researcher sufficient time to conduct data analysis.

### **3.6 Data Analysis**

The researcher analysed the data collection using descriptive analysis and T-test.

For the research question one (1), the result of PSTs' readiness level would be calculated using descriptive analysis to obtain the score of mean and standard deviation to find out the average score of readiness level using the data collected from the Google form. It can classify, display, and summarize data (Overholser & Sowinski, 2007), and describe the conditions for each study variable (Partono et al., 2020). For research question two (2), T-test would be used to ensure discriminant validity (Nielsen et al., 2014), comparing means and standard deviations between genders to find differences in readiness between males and females. All calculations for research questions one (1) and two (2) would be performed in

SPSS, which can be used to divide data, create tables and calculations, and analyse data collection.

## **CHAPTER 4**

### **FINDINGS AND ANALYSIS**

#### **4.1 Introduction**

This chapter will discuss the findings of the study. With aim to investigate the readiness level of PSTs in implementing gamification techniques in ESL education, two (2) research questions were outlined.

Therefore, the findings are provided according with the research questions.

#### **4.2 Analysis of the readiness level of preservice teachers in implementing gamification techniques in ESL education.**

For this part, it is to understand the PSTs' readiness level in using gamification techniques during classroom instruction. This finding was obtained by analysing four (4) sections (TK, PK, TPK, and TPACK) in the questionnaire.

#### **Research Question 1: What is the readiness level of preservice teachers in implementing gamification in ESL education?**

##### **4.2.1 Technological Knowledge**

According to Table 4.2.1, more than half of the participants agreed and had positive attitudes for items 1 to 14. For Item 1, 92.3% (N=48) participants strongly agreed and agreed that they like to use technology. 88.5% (N=46) admitted that they are familiar with technology, with 17.3% (N=9) strongly agreeing with their familiarity. Besides, 78.8% (N=41), 86.6% (N=45) and 76.9% (N=42) participants stated that they frequently play around with technology and can use and learn technology easily. Items 6 to 14 show that the percentage falls between 50% (N=26) and 75% (N=39) of participants who agreed with the statements. However, more than half participants (51.9%/ N=27) stated that they do not have much knowledge about different technology-based gamification techniques for Item 15.

Table 4.2.1

*Technological Knowledge (TK)*

<b>Item</b>	<b>Statement</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
1	I like to use technology.	0%	7.7%	53.8%	38.5%
2	I am familiar with technology.	0%	11.5%	71.2%	17.3%
3	I frequently play around with technology.	0%	21.2%	53.8%	25%
4	I can use technology easily.	0%	13.5%	63.5%	23.1%
5	I can learn technology easily.	1.9%	21.2%	61.5%	15.4%
6	I keep up with important new technologies.	0%	26.9%	53.8%	19.2%
7	I have the technical skills I need to use technology.	3.8%	30.8%	51.9%	13.5%
8	I know about a lot of different technologies.	11.5%	26.9%	44.2%	17.3%
9	I know how to solve my own technical problems.	7.7%	19.2%	55.8%	17.3%
10	I know how to use technology for gamification.	11.5%	26.9%	44.2%	17.3%
11	I can learn technology-based gamification easily.	7.7%	19.2%	55.8%	17.3%
12	I keep up with new gamification applications.	11.5%	32.7%	46.2%	9.6%
13	I have the technical skills I need to	9.6%	28.8%	53.8%	7.7%



---

	use gamification.				
14	I know how to adapt gamification through technology.	5.8%	25%	53.8%	15.4%
15	I know a lot about different technology-based gamification techniques.	3.8%	48.1%	38.5%	9.6%

---

#### 4.2.2 Pedagogical Knowledge (PK)

According to Table 4.2.2, 77% (N=40) of participants admitted that they have the capability to control class management. The highest percentage of data in the table was 88.5% (N=46) for the Item 2 where participants strongly agreed or agreed that they can adapt their teaching based on students' current understanding in the classroom. There were about 73.1% (N=38) of participants who stated that they know how to adapt different gamifications based on students' level of understanding in the ESL classroom, while 80.8% (N=42) of participants know how to adapt different gamifications based on the classroom setting. Additionally, 59.6% (N=31) of participants agreed, and 19.2% (N=10) of participants strongly agreed that they know how to evaluate student performance in ESL classes. For familiarity with common student understandings and misconceptions, about 71.2% (N=37) of participants believed that they could handle it. Item 7 had the highest disagreement percentage in the table, which was 34.6%, (N=18) but more than half, 58.4% (N=34) of participants still believed that they could personalize learning styles for different learners through gamification.

Table 4.2.2

#### *Pedagogical Knowledge (PK)*

---

Item	Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
------	-----------	-------------------	----------	-------	----------------

---

		Disagree		Agree	
1	I can control class management.	1.9%	21.2%	63.5%	13.5%
2	I can adapt my teaching based upon what students currently understand or do not understand in ESL classroom.	0%	11.5%	73.1%	15.4%
3	I can adapt different gamifications based on students' level of understanding in ESL classroom.	0%	26.9%	63.5%	9.6%
4	I can adapt different gamifications based on classroom setting.	0%	19.2%	73.1%	7.7%
5	I know how to evaluate student performance in the ESL classroom.	0%	21.2%	59.6%	19.2%
6	I am familiar with common student understandings and misconceptions.	0%	28.8%	57.7%	13.5%
7	I can personalize learning styles for different learners through gamification.	1.9%	32.7%	57.7%	7.7%

### 4.2.3 Technological Pedagogical Knowledge (TPK)

Table 4.2.3 shows that most participants had a high level of knowledge in TPK. 82.7% (N=43) of participants believed that they are not only able to choose suitable technologies for use in gamification but also able to select gamification and technologies that

enhance students' learning in the English classroom. For Items 2, 3, 6, and 8, approximately 75% (N=39) of participants admitted that they know how to choose and use gamification and technologies (used for gamification) in different teaching activities to enhance teaching approaches and content. When it comes to choosing appropriate technology to use for gamification to motivate students to engage in learning, 78.8% (N=41) of participants admitted that they can do so. For Item 7, 80.8% (N=42) showed their positive attitudes. Regarding Item 8, most participants agreed that they can select gamification technologies to enhance teaching and learning in their classrooms, with only 25% (N=13) expressing disagreement.

Table 4.2.3

*Technological Pedagogical Knowledge (TPK)*

<b>Item</b>	<b>Statement</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
1	I know I am able to choose technologies that appropriate for gamification used in an English language classroom.	0%	17.3%	69.2%	13.5%
2	I know I am able to choose gamification and technologies that enhance the teaching approaches for a lesson in an English language classroom.	0%	25%	57.7%	17.3%
3	I know I am able to choose gamification and technologies that enhance the content for a lesson in	0%	25%	55.8%	19.2%

	an English language classroom.				
4	I know I am able to choose gamification and technologies that enhance the students' learning for a lesson in an English language classroom.	0%	17.3%	55.8%	26.9%
5	I know I am able to choose appropriate technology that use for gamification to motivate students to engage in learning.	1.9%	19.2%	50%	28.8%
6	I know I can adapt the use of technologies and gamification that I am learning about to different teaching activities.	0%	25%	51.9%	23.1%
7	I am able to use gamification strategies that combine content, technologies, and teaching approaches that I learned about in my coursework in my classroom.	1.9%	17.3%	55.8%	25%
8	I am able to select technologies that use for gamification in my classroom that enhance what I teach, how I teach and what students learn.	0%	25%	42.3%	32.7%

#### 4.2.4 Technological Pedagogical Content Knowledge (TPACK)

Table 4.2.4 shows that 75% (N=39) of participants believed that they have the ability to integrate gamification, technologies, teaching approaches, and listening skills in the English language, while 73% (N=38) indicated the same confidence in integrating speaking skills but with about 26.9% (N=14) disagreement. For reading skills, 53.8% (N=28) of participants agreed, and 25% (N=13) strongly agreed that they could do so. 84.6% (N=44) of participants were convinced that they have the ability to combine writing skills in the English language, gamification, technologies, and teaching approaches. Additionally, 78.9% (N=41) of participants showed their confidence in integrating grammar rules, while 75% (N=39) of participants expressed the same confidence in integrating literary devices.

Table 4.2.4

*Technological Pedagogical Content Knowledge (TPACK)*

<b>Item</b>	<b>Statement</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
1	I am able to teach lesson that appropriately combine listening skills in English language, gamification, technologies and teaching approaches.	1.9%	23.1%	55.8%	19.2%
2	I am able to teach lesson that appropriately combine speaking skills in English language, gamification, technologies and teaching approaches.	3.8%	23.1%	53.8%	19.2%
3	I am able to teach lesson that appropriately combine reading	0%	21.2%	53.8%	25%

	skills in English language, gamification, technologies and teaching approaches.				
4	I am able to teach lesson that appropriately combine writing skills in English language, gamification, technologies and teaching approaches.	1.9%	13.5%	69.2%	15.4%
5	I am able to teach lesson that appropriately combine grammar rules in English language, gamification, technologies and teaching approaches.	0%	21.2%	55.8%	23.1%
6	I am able to teach lesson that appropriately combine literary devices in English language, gamification, technologies and teaching approaches.	3.8%	21.2%	53.8%	21.2%

---

### 4.3 Analysis of Gender Comparison in Implementing Gamification among ESL PSTs

For this part, it is to understand the significance of difference in readiness among ESL preservice teachers to implement gamification between genders. This finding was obtained by comparing the mean and standard deviation of male and female using an independent sample T-test.



Equal variances assumed	.033	.857	1.416	50	.082	.163	.20000	.14129	-.08378	.48378
Equal variances not assumed			1.370	17.301	.094	.188	.20000	.14593	-.10748	.50748



## CHAPTER 5

### DISCUSSION AND CONCLUSION

#### 5.0 Introduction

This chapter will discuss three (3) aspects of this study, i.e. discussion of findings, implications of the study, and recommendations.

#### 5.1 Preservice Teachers' Readiness to Implement Gamification

Based on the findings in Chapter 4, it can be observed that ESL PSTs have a high readiness level and positive attitude in implementing gamification in the ESL classroom. They believed that they could combine gamification with their teaching method, language skills, lesson content, classroom setting, and technology to enhance their teaching proficiency and quality and improve students' learning experience. This is same as what Mee Mee et al. (2020) and Zakaria et al (2021) said, PSTs have positive attitudes towards the use of gamification in ESL classrooms.

Technology is important in helping PSTs to implement gamification as it can enhance the effectiveness of gamification (Paris et al., 2019) by providing a wider range of selection (Mei & Yang, 2019). Technology-based gamification can help to increase choice of teaching methods, adaptability, immediate feedback, and reflection (Annamalai et al., 2022). This provides PSTs more confidence in adapting teaching methods and materials to create an interactive classroom. However, some studies, such as Alelaimat et al. (2020) and Lai Wah and Hashim (2021), suggested that PSTs have not been well-prepared yet in integrating technology, although they have a positive attitude. Based on their explanations, PSTs do not receive enough technology training, lack experience to use technology in teaching or a lack of pedagogy knowledge or experience. Fortunately, these issues were not prevalent among the participants in this study. It was found that there is a high proficiency level among participants in agreeing with their technology knowledge and ability. It is aligned with Fathi

and Moummou's (2021), Ghazali's (2020), and Gozukucuk and Gunbas's (2020) studies that also support that PSTs have high readiness to use technology in teaching. Amin (2019) and Rintaningrum (2023) found that integrating technology can effectively assist and ease teachers' teaching by improving students' motivation and engagement, developing their skills and language proficiency, and providing active learning. Therefore, implementing gamification can be simplified and made easier to accept and adapt to, due to PSTs' high level of technological knowledge.

Besides, according to Taimalu and Luik (2019), educators' beliefs indirectly influence technology integration while the level of technological knowledge will affect its integration. In this study, most participants, accounting for an average of 76.4%, believed in their pedagogy ability to understand the role of classroom management activities, student motivation, lesson planning, and assessment of learning (Koehler et al., 2013b). Furthermore, they were also convinced in their ability to integrate technology with their teaching method, lesson topic and content, and gamification as evidenced by the high value of the TPK section. Since the results of the TPK section show a high percentage in agreement, along with the previously high values in the TK and PK sections, this indicates a good alignment with the study by Taimalu and Luik in 2019. The high value of these sections (TK, PK and TPK) was also aligned with Azhar's and Hashim's (2022) study result and they suggested that ESL teachers' positive attitudes toward technology may contribute to the successful integration of technology into learning activities. Hence, PSTs' confidence in their own ability as teachers to fulfil their roles and responsibilities, especially in adapting teaching methods and implementing gamification, demonstrates their readiness to implement gamification.

Although participants' confidence and readiness for the teaching component decreased significantly in terms of coping with students' own understanding, this may be due to the PSTs' lack of practical teaching experience and difficulties in motivating students and

recognizing differences in real-life situations among students (Karunagaran & Saimin, 2019; Özdemir & Güneşli, 2008). However, since integrating ICT and gamification into teaching practice is directly related to teachers' confidence and ability, it can be assumed that this problem can be solved quickly as long as they are adequately prepared with technological, pedagogical and technological pedagogical knowledge (Mee Mee et al., 2020). Gamification can also help PSTs solve these issues, as the majority of technology-based gamification includes leaderboards, immediate feedback, reflection, etc., making it easier for PSTs to assess students' understanding with real-time insight (Harrington & Mellors, 2021). In this case, PSTs can better manage, master and control students' learning process and understanding in learning English. On the other hand, it was evident that many participants believed that personalizing learning for different learners through gamification can be challenging due to the inexperience of PSTs. Since personalized learning requires students to manage their own time and work independently, teachers are required to provide them with more assistance and this means PSTs need real practice to enhance their ability to implement personalized learning pedagogy effectively in diverse environments (Arnesen et al., 2019).

Despite the overall strong performance of technology-related and pedagogical-related items, there is still room for growth in the gamification-related items. It means that while PSTs are not as ready for gamification as they are for technology, it is still possible to see how supportive they are. For example, half of the participants expressed confidence in their understanding of various technology-based gamification techniques. This shows that there are still many PSTs who are ready to integrate gamification strategies with technology, indicating that they are willing to adopt innovative teaching methods. Anamalai and Yatim (2022) and Salini Raja and Mohd Norazmi Nordin (2024) also have similar finding as they found that the teachers' willingness to use mobile gamification in teaching and learning was positive while their readiness was at a moderate level or were unprepared for a more systematic and

consistent use of mobile gamification to learn and facilitate classroom teaching. The lack of relevant training, technology equipment, beliefs, and real-world situations has affected PSTs' readiness and confidence to adapt gamification in teaching.

Puerta (2024) suggested that gamification is a pedagogical approach that requires specific training, including research on its effectiveness, the best application methods to motivate students, and the cultivation of equitable relationships among students. Therefore, more relevant training should be included in teacher training programs in order to enhance PSTs' understanding and awareness in utilizing technology and gamification. For instance, Manzano-León et al. (2022) recommended that teacher training programs consider integrating gamification elements to enhance the teaching and learning process, create engaging and motivating experiences for students by incorporating gamification strategies such as points, badges, leaderboards, avatars and narratives.

### **5.1.1 Theoretical Implications**

The participants' readiness level in this study may be related to their constructivist beliefs and influenced by their learning experiences during the methodology course at UTAR. They received relevant technology and teaching training, which instilled confidence in them to integrate technology in the English classroom. This confidence stemmed from their deeper understanding and familiarity with technology, allowing them to adapt a variety of teaching methods and techniques, including gamification, and integrate them with technology into their classroom. Training involving multiple methodological courses and 21<sup>st</sup> century skills also helps develop constructivist beliefs. Their learning experiences in teacher training programs prepared them to adopt new teaching methods and materials for dynamic and collaborative learning, consistent with constructivism. In this case, PSTs will be more accepting of new pedagogical approaches such as gamification and more willing to use gamification and integrate technology in the classroom. Taimalu and Luik's (2019) study

proves this point of view as they said that integration of technology is affected by teachers' beliefs. Moreover, constructivism and gamification enhance learning by connecting students' prior knowledge to real-world scenarios to facilitate cognitive and social construction of knowledge, promote engagement, and promote experience-based learning (Pascu & Soitu, 2023). From a constructivist perspective, these benefits also serve as reasons for encouraging PSTs to develop their proficiency and readiness in implementing gamification.

On the other hand, the TPACK framework provides a structural way to enable the assessment of PSTs' readiness level in implementing gamification by considering their TK, PK, and TPK, the intersection between them. Just like Paris et al. (2019) said, TK is important for PSTs to implement gamification effectively. By measuring PSTs' reserve of TK and their confidence in their TK, researchers can get a rough idea of their ability to implement the technology and gamification. For PK, it explores PSTs' ability and confidence to adapt gamification in the classroom based on their understanding of classroom setting, management, students' understanding and proficiency and lesson planning. This can consider the beliefs of PSTs and their teaching styles and thus influence how they integrate technology and implement gamification. Through TPK, it can show PST's understanding of how to effectively integrate technology and pedagogy in the context of gamification. It reflects PSTs' belief that they can integrate technology while implementing gamification when they are teaching in the actual classroom. It also reflects PSTs' motivation in implementing gamification in their teaching as Gerhard et al. (2023) found that TPK test results can be analysed in conjunction with affective-motivational variables. Hence, the higher the TPK test score, the greater the interest and motivation to integrate technology into teaching practice (Gerhard et al., 2023).

### **5.1.2 Practical Implications**

Based on the findings, PSTs with a high readiness level to implement gamification need to fulfil 4 domains, which are TK, PK, TPK, and TPACK, indicating they will also have a high readiness level in integrating technology. This readiness demonstrates that they have the necessary skills and knowledge to effectively integrate technology into their teaching practices, as outlined in the TPACK framework. Therefore, this study can help government and educators to understand how educators can master gamification skills by enhancing their proficiency in specific domains of knowledge within the TPACK framework. This means that targeted professional development and training programs designed to increase PSTs' readiness in these areas can effectively assist in their ability to integrate technology and gamification into teaching practice.

Other than that, it also allows educators to know whether PSTs meet the standards of 21<sup>st</sup> century skills. Gamification can help develop 21<sup>st</sup> century skills such as problem solving, teamwork, communication and critical thinking (Samala et al., 2023). By identifying the readiness level of PSTs in implementing gamification, educators can gain insight into the extent to which PSTs have the skills and competencies needed to develop students' 21<sup>st</sup> century skills. This understanding can inform MOE in designing teacher training programs that provide a structured approach to building PSTs' capacity to teach 21<sup>st</sup> century skills, ultimately benefiting the entire education system.

## **5.2 Level of Readiness between Genders**

There is no significant difference in readiness levels between male and female, consistent with the results of Azhar and Hashim's (2022), and Ghazali's (2020) studies. Although the mean of the male ( $M=3.06$ ,  $SD=0.45$ ) is higher than the mean of female ( $M=2.86$ ,  $SD=0.42$ ), indicating that there may be some differences between genders such as performance, attitude, or belief. However, the assumption of equal variance, as indicated by the Sig. value for Levene's test, suggests that there was the same population variance

between genders. Furthermore, the Sig. (2-tailed) value indicates that there is no significant difference. According to Scherer et al. 's (2023) study, while gender differences in readiness are characterized as small and vary across different constructs, these differences may be affected by various factors, such as measurement bias, teacher experience. Although Pozas et al. (2022) showed that male master technology is better than female, there are also individual, environment or experience differences that affect their abilities (Scherer et al., 2023). Therefore, the readiness level for PST does not cause different results due to the influence and differences of gender. Sánchez-Cabrero et al. (2023) speculated that gender differences may become less pronounced over time. It is because with the development of society, prejudice and discrimination caused by gender differences will be reduced, and the environment will also affect people's personalities.

Furthermore, self-efficacy is also key to technology integration. Ibrahim and Aydoğmuş (2023) found that gender and age are not factors affecting readiness levels, but higher levels of self-efficacy can enhance beliefs associated with increased motivation, effort, and perseverance, thereby enhancing the ability to use technology effectively. Their study showed that PSTs with higher technical skills would have self-efficacy and are more likely to adopt online self-regulated learning strategies, thereby increasing their technology competency levels (Ibrahim & Aydoğmuş, 2023). Hence, it can be seen that one's own experience and knowledge influence PSTs' readiness level more than their genders do.

### **5.3 Limitation**

The sample size of this study was too small, resulting in low generalizability, reliability, diversity, and validity of the data results. Due to time limitations, the researcher was unable to collect data from other educational institutions with ED courses other than UTAR. The inclusion of multiple educational institutions ensures greater diversity in terms of student demographics and geographic locations, which can enrich the findings and enhance

their applicability to diverse backgrounds. Moreover, it is challenging to collect and analyse data on different ED students' characteristics such as age, study semester, and courses taken due to lack of participants.

Furthermore, since this study conducted quantitative methods, the data is presented numerically, so there was a lack of PSTs' opinions towards their belief in implementing gamification. It causes this study to explore more of PSTs' opinions deeply and results in a lack of depth and credibility. Besides, the number of male participants was lesser than female, this may affect the result of comparing readiness level between genders because the quantity is uneven. The smaller number of male participants is because there are fewer male PSTs in UTAR Kampar and most of them are female PSTs.

#### **5.4 Direction for Future**

A further study can be undertaken through qualitative methods or mixed methods. For example, by observing PSTs' ability to implement gamification in the actual classroom. It can provide a better understanding of how PSTs integrate technology and implement gamification in the ESL classroom, so as to know PSTs' actual readiness level through evaluating their actual behaviour and practices, as self-report may cause self-bias to occur. Therefore, observation can provide a more objective measure of their readiness to implement gamification, and a more accurate data result can be obtained. Besides, factors such as PSTs' age, study semester, courses taken, beliefs, and area of expertise should be considered in analysing their readiness level, so as to gain a detailed result in a wide range of areas. It provides a more nuanced understanding and comprehensive insights into PST readiness levels. These variables can also be used in future research to create targeted interventions to change or enhance PSTs' behaviours. Besides, if the number of participants is not enough, a mixed method should be applied to help to compensate for the limited sample size by allowing the researcher to collect quantitative data from a larger group and qualitative data



from a smaller, more in-depth subset of participants (Faber & Fonseca, 2014), while providing a more comprehensive understanding of the research topic.

### **5.5 Conclusion**

In conclusion, PSTs were able to implement gamification based on their high ability in mastering technology and strong pedagogy skills, which can be attributed to their learning experiences and the teacher training programs they received. PSTs with a constructivist belief are likely to be more willing to develop and implement gamification, as it can enhance students' learning experiences and provide a digitized learning environment. There are no significant differences between male PSTs and female PSTs, as these differences are minimal and influenced by various factors. Compared to gender, factors such as training and belief have a larger and more obvious influence. Therefore, it is easier to measure the abilities and readiness levels of PSTs if gender is ignored. Overall, PSTs' readiness levels to implement gamification depend on the teacher training programs received, relevant knowledge, and other external factors such as the lack of equipment. Enhancing teacher training programs should be emphasized to address challenges faced by PSTs and help them achieve a higher level of readiness to become effective 21<sup>st</sup> century teachers.

## References

### 1. Journal article

- Abdeen, F. H., & Albiladi, W. (2021). Gamification and technology-based learning: Uncovering the potential of using games in language teaching and learning. *Journal of Studies in Education, 11*(2), 62. <https://doi.org/10.5296/jse.v11i2.18339>
- Abdul Rauf, A., & Suwanto, S. (2020). Attitudes and technology integration among ESL secondary school teachers in Sabah. *Malaysian Journal of Social Sciences and Humanities (MJSSH), 5*(12), 280-287. <https://doi.org/10.47405/mjssh.v5i12.566>
- Adelia, Miftahurrahmah, Nurpathonah, Zaindanu, Y., & Ihsan, M. T. (2021). The role of Google Form as an assessment tool in ELT: Critical review of the literature. *Indonesian Journal of Research and Educational Review, 1*(1), 58-66. <https://doi.org/10.51574/ijrer.v1i1.49>
- Adipat, S., Laksana, K., Busayanon, K., Mahamarn, Y., Pakapol, P., Ausawasowan, A., & Adipat, B. (2021). An overview of educational technology for Preservice teachers in the digital age. *Shanlax International Journal of Education, 9*(4), 136-145. <https://doi.org/10.34293/education.v9i4.4088>
- Aguilos, V., & Fuchs, K. (2022). The perceived usefulness of Gamified E-learning: A study of undergraduate students with implications for higher education. *Frontiers in Education, 7*. <https://doi.org/10.3389/educ.2022.945536>
- Alelaimat, A. M., Ihmeideh, F. M., & Alkhawaldeh, M. F. (2020). Preparing Preservice teachers for technology and digital media integration: Implications for early childhood

- teacher education programs. *International Journal of Early Childhood*, 52(3), 299-317. <https://doi.org/10.1007/s13158-020-00276-2>
- Almufareh, M. (2021). The impact of Gamification and individual differences on second language learning among first-year female University students in Saudi Arabia. *Simulation & Gaming*, 52(6), 715-734. <https://doi.org/10.1177/10468781211056511>
- Amin, M. R. (2019). The role of educational technology in the ESL classroom. *SSRN Electronic Journal*, 11(1). <https://doi.org/10.2139/ssrn.3488369>
- Anamalai, T. R., & Yatim, M. H. (2022). Teachers' readiness to use mobile gamification in teaching and learning in primary schools in south Kinta district. *Journal of Education for Sustainability and Diversity*, 1(1), 86-100. <https://doi.org/10.57142/jesd.v1i1.8>
- Annamalai, N., Zakarneh, B., Eltahir, M. E., Salhi, N. R., & Zyoud, S. H. (2022). An exploratory study of non-technological Gamified lessons in a Lithuanian ESL classroom. *International Journal of English Language and Literature Studies*, 11(4), 167-180. <https://doi.org/10.55493/5019.v11i4.4664>
- Arlina, A. Z., & Melor, Y. (2014). Strategies used by local ESL teachers in Malaysia to create a constructivist classroom. *European Proceedings of Educational Sciences*. <https://www.semanticscholar.org/paper/Strategies-used-by-local-ESL-teachers-in-Malaysia-a-Arlina-Melor/2f6f7f8bc87c919459d2c1ea8c25c713bab69740#cited-papers>
- Arnesen, K. T., Graham, C. R., Short, C. R., & Archibald, D. (2019). Experiences with personalized learning in a blended teaching course for preservice teachers. *Journal of Online Learning Research*, 5(3), 251-274. <https://files.eric.ed.gov/fulltext/EJ1241730.pdf>

- Asghar, M. (2021). Mobile learning technology readiness and acceptance among pre-service teachers in Pakistan during the COVID-19 pandemic. *Knowledge Management & E-Learning: An International Journal*, 83-101. <https://doi.org/10.34105/j.kmel.2021.13.005>
- Azhar, I. N., & Hashim, H. (2022). Level of ESL teachers' technological pedagogical content knowledge (TPACK) skill and attitude towards technology. *Creative Education*, 13(04), 1193-1210. <https://doi.org/10.4236/ce.2022.134074>
- Bada, & Olusegun, S. (2015). Constructivism learning theory: A paradigm for teaching and learning. *IOSR Journal of Research & Method in Education (IOSR-JRME)*, 5(6), 66-70. <https://doi.org/10.9790/7388-05616670>
- Bai, B., Wang, J., & Chai, C. (2019). Understanding Hong Kong primary school English teachers' continuance intention to teach with ICT. *Computer Assisted Language Learning*, 34(4), 528-551. <https://doi.org/10.1080/09588221.2019.1627459>
- Bíró, G. I. (2014). Didactics 2.0: A pedagogical analysis of Gamification theory from a comparative perspective with a special view to the components of learning. *Procedia - Social and Behavioral Sciences*, 141, 148-151. <https://doi.org/10.1016/j.sbspro.2014.05.027>
- Chand, S. P. (2023). Constructivism in education: Exploring the contributions of Piaget, Vygotsky, and Bruner. *International Journal of Science and Research (IJSR)*, 12(7), 274-278. <https://doi.org/10.21275/sr23630021800>
- Davis, N. (2010). Technology in Preservice teacher education. *International Encyclopedia of Education*, 217-221. <https://doi.org/10.1016/b978-0-08-044894-7.00748-x>

- Deterding, S., Sicart, M., Nacke, L., O'Hara, K., & Dixon, D. (2011). Gamification. using game-design elements in non-gaming contexts. *CHI '11 Extended Abstracts on Human Factors in Computing Systems*. <https://doi.org/10.1145/1979742.1979575>
- Elfatih, M. (2017). A rationale for the integration of critical thinking skills in EFL/ESL instruction. *Higher Education of Social Science*, 12(2), 26-31. <https://doi.org/10.3968/9702>
- Emerson, R. W. (2017). Likert scales. *Journal of Visual Impairment & Blindness*, 111(5), 488-488. <https://doi.org/10.1177/0145482X17111005>
- Faber, J., & Fonseca, L. M. (2014). How sample size influences research outcomes. *Dental Press Journal of Orthodontics*, 19(4), 27-29. <https://doi.org/10.1590/2176-9451.19.4.027-029.ebo>
- Fathi, S., & Moummou, A. (2021). ESL teachers' readiness during Covid 19: Guglielmino readiness scale. *Journal of Humanities and Social Sciences Studies*, 3(4), 01-05. <https://doi.org/10.32996/jhsss.2021.3.4.1>
- Freedman, B. (1940). A truancy questionnaire. *The Psychiatric Quarterly*, 14(S1), 168-173. <https://doi.org/10.1007/bf01574656>
- Gerhard, K., Jäger-Biela, D. J., & König, J. (2023). Opportunities to learn, technological pedagogical knowledge, and personal factors of pre-service teachers: understanding the link between teacher education program characteristics and student teacher learning outcomes in times of digitalization. *Zeitschrift für Erziehungswissenschaft*, 26(3), 653-676. <https://doi.org/10.1007/s11618-023-01162-y>

- Goradia, T. (2018). Role of educational technologies utilizing the TPACK framework and 21st century pedagogies: Academics' perspectives. *IAFOR Journal of Education*, 6(3), 43-61. <https://doi.org/10.22492/ije.6.3.03>
- Gozukucuk, M., & Gunbas, N. (2020). Preservice teachers' design of technology-based reading texts to improve their TPACK. *Journal of Education*, 202(1), 92-102. <https://doi.org/10.1177/0022057420966763>
- Harrington, I., & Mellors, M. J. (2021). Utilising online Gamification to promote student success and retention in tertiary settings. *International Journal of Higher Education*, 10(7), 45. <https://doi.org/10.5430/ijhe.v10n7p45>
- Hoque, M., Mohamed, Y., Salaeh, A., & Kadir, K. A. (2020). Students' attitudes towards educational technology. *International Journal of Advanced Research in Engineering and Technology (IJARET)*, 11(10). <https://doi.org/10.34218/IJARET.11.10.2020.028>
- Husain, N. (2011). Integrating ICT in pre-service teacher education: The challenges of change. *Journal of Education and Development*, 1. [https://www.researchgate.net/publication/272787929\\_Integrating\\_ICT\\_in\\_Pre-Service\\_Teacher\\_Education\\_The\\_Challenges\\_of\\_Change](https://www.researchgate.net/publication/272787929_Integrating_ICT_in_Pre-Service_Teacher_Education_The_Challenges_of_Change)
- Ibrahim, M., & Aydoğmuş, M. (2023). Examining ESL Preservice teachers' personal factors that best predict their confidence to integrate technology in future classrooms. *Journal of Education and Recreation Patterns*, 4(1), 134-152. <https://doi.org/10.53016/jerp.v4i1.127>
- Jamaluddin, N. S. (2023). Applicability of constructivist-oriented teaching in the process of educational transformation in Malaysia. *International Business Education Journal*, 16(78), 22-32. <https://doi.org/10.37134/ibej/Vol.16.1.3.2023>

- Kabilan, M. K., Ramdani, J. M., Mydin, A., & Junaedi, R. (2020). International teaching practicum: Challenges faced by pre-service EFL teachers in ESL settings. *LEARN Journal: Language Education and Acquisition Research Network Journal*, 13(1), 114-126. <https://files.eric.ed.gov/fulltext/EJ1242970.pdf>
- Karunagaran, V., & Saimin, R. (2019). Challenges of pre-service teachers during teaching practice: a case study. *Infrastructure University Kuala Lumpur Research Journal*, 7(2), 64-72. [https://iukl.edu.my/rmc/wp-content/uploads/sites/4/2020/12/7.-SS\\_Vishalapriya.pdf](https://iukl.edu.my/rmc/wp-content/uploads/sites/4/2020/12/7.-SS_Vishalapriya.pdf)
- Kieu, V. L., Anh, D. T., Tran, P. D. B., Nga, V. T. T., & Ho, P. V. P. (2021). The effectiveness of using technology in learning English. *AsiaCALL Online Journal*, 12(2), 24-40. <https://asiacall.info/acoj/index.php/journal/article/download/26/19>
- Koehler, M. J., & Mishra, P. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017-1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge? *Contemporary Issues in Technology and Teacher Education*, 9(1), 60-70. <https://citejournal.org/volume-9/issue-1-09/general/what-is-technological-pedagogicalcontent-knowledge/>
- Koehler, M. J., Mishra, P., Akcaoglu, M., & Rosenberg, J. M. (2013a). The technological pedagogical content knowledge framework for teachers and teacher educators. In *ICT Integrated Teacher Education Models*. [https://www.researchgate.net/publication/267028784\\_The\\_Technological\\_Pedagogical\\_Content\\_Knowledge\\_Framework\\_for\\_Teachers\\_and\\_Teacher\\_Educators](https://www.researchgate.net/publication/267028784_The_Technological_Pedagogical_Content_Knowledge_Framework_for_Teachers_and_Teacher_Educators)

- Koehler, M. J., Mishra, P., & Cain, W. (2013b). What is technological pedagogical content knowledge (TPACK)? *Journal of Education*, 193(3), 13-19. <https://doi.org/10.1177/002205741319300303>
- Kulkarni, M. M., & Joshi, N. (2016). Assessment of reliability and statistical significance by P-value of pre and post surveys on industrial buying behavior on a 5 point likert scale. *ELK Asia Pacific Journal of Marketing and Retail Management*. <https://doi.org/10.16962/eapjmmr/issn.2349-2317/2016/v7i2-01>
- Lai Wah, L., & Hashim, H. (2021). Determining pre-service teachers' intention of using technology for teaching English as a second language (ESL). *Sustainability*, 13(14), 7568. <https://doi.org/10.3390/su13147568>
- Lavrysh, Y. (2019). Effective integration of educational technologies in terms of TPCK framework at technical university. *International Journal of Pedagogy, Innovation and New Technologies*, 6(2), 33-39. <https://doi.org/10.5604/01.3001.0013.6824>
- Manzano-León, A., Aguilar-Parra, J. M., Rodríguez-Moreno, J., & Ortiz-Colón, A. M. (2022). Gamification in initial teacher training to promote inclusive practices: A qualitative study. *International Journal of Environmental Research and Public Health*, 19(13), 8000. <https://doi.org/10.3390/ijerph19138000>
- Mee Mee, R. W., Tengku Shahdan, T. S., Ismail, M. R., Abd Ghani, K., Pek, L. S., Von, W. Y., Woo, A., & Rao, Y. S. (2020). Role of gamification in classroom teaching: Pre-service teachers' view. *International Journal of Evaluation and Research in Education (IJERE)*, 9(3), 684. <https://doi.org/10.11591/ijere.v9i3.20622>



- Mei, B., & Yang, S. (2019). Nurturing environmental education at the tertiary education level in China: Can mobile augmented reality and Gamification help? *Sustainability*, *11*(16), 4292. <https://doi.org/10.3390/su11164292>
- Miles, M. B., & Huberman, A. M. (1994). Qualitative data analysis: An expanded sourcebook. *Journal of Environmental Psychology*, *14*(4), 336-337. [https://doi.org/10.1016/s0272-4944\(05\)80231-2](https://doi.org/10.1016/s0272-4944(05)80231-2)
- Mohammed, Husam, S., & Kinyó, L. (2020). The role of constructivism in the enhancement of social studies education. *Journal of critical reviews*, *7*(07). <https://doi.org/10.31838/jcr.07.07.41>
- Morgan, P. (2022). Preparing Preservice teachers by building content and pedagogical knowledge of integrating technologies. *Journal of Education and Training*, *10*(1), 88. <https://doi.org/10.5296/jet.v10i1.20145>
- Moss, D. L., Bertolone-Smith, C. M., Boyce, S., MacDonald, B. L., Grabhorn, J. A., & Roman, C. (2022). Tension between objectivism and constructivism in organizing and enacting student learning in online STEM education. *The Educational Forum*, *87*(2), 81-97. <https://doi.org/10.1080/00131725.2022.2149913>
- Negi, S. (2019). Constructivist approach of Vygotsky for innovative trends in learning and teaching. *International Journal of Advanced Academic Studies*, *2*(1), 349-353. <https://doi.org/10.33545/27068919.2020.v2.i1f.662>
- Nielsen, T. R., Thi Phung, T. K., Chaaya, M., Atweh, S., Prince, M., & Waldemar, G. (2014). P3-261: Improving detection of dementia in an Arabic speaking population with low education: Combining the Rowland universal dementia assessment scale and the

informant questionnaire on cognitive decline in the elderly. *Alzheimer's & Dementia*, 10(4S\_Part\_20). <https://doi.org/10.1016/j.jalz.2014.05.1353>

Oksana, H., Kateryna, K., Iryna, D., Olena, B., & Neonila, K. (2022). Problems and prospects of formation of digital competence of future scientific and pedagogical workers of higher education institutions through Gamification: Opportunities Kahoot, Quizlet in the European Union. *Journal of Curriculum and Teaching*, 11(4), 108. <https://doi.org/10.5430/jct.v11n4p108>

Opriş, E., Bálint-svella, É., & Zsoldos-marchiş, I. (2021). Prospective preschool and primary school teachers' knowledge and opinion about gamification. *Acta Didactica Napocensia*, 14(1), 104-114. <https://doi.org/10.24193/adn.14.1.8>

Overholser, B. R., & Sowinski, K. M. (2007). Biostatistics primer: Part I. *Nutrition in Clinical Practice*, 22(6), 629-635. <https://doi.org/10.1177/0115426507022006629>

Park, S., & Kim, S. (2021). Is sustainable online learning possible with Gamification?—The effect of Gamified online learning on student learning. *Sustainability*, 13(8), 4267. <https://doi.org/10.3390/su13084267>

Pascu, M., & Soitu, L. (2023). Constructivism, gamification, learning. *Studia Universitatis Moldaviae. Seria Ştiinţe ale Educaţiei*, (5(165)), 10-17. [https://doi.org/10.59295/sum5\(165\)2023\\_02](https://doi.org/10.59295/sum5(165)2023_02)

Partono, Aji, Y., & Irdianto, W. (2020). The influence of internship and self-efficacy on work readiness among higher education students. *Jurnal Teknologi, Kejuruan, dan Pengajarannya*, 43(1), 67-74. <http://dx.doi.org/10.17977/um031v43i12020p67-74>

- Pozas, M., Letzel-Alt, V., & Schneider, C. (2022). “The whole is greater than the sum of its parts” – Exploring teachers’ technology readiness profiles and its relation to their emotional state during COVID-19 emergency remote teaching. *Frontiers in Education*, 7. <https://doi.org/10.3389/educ.2022.1045067>
- Puerta, L. G. (2024). Exploring if Gamification experiences make an impact on pre-service teachers’ perceptions of future Gamification use: A case report. *Societies*, 14(1), 11. <https://doi.org/10.3390/soc14010011>
- Rajendran, T., Bin Naaim, N. A., & Yunus, M. M. (2019). Pupils motivation and perceptions towards learning English using Quizvaganza. *International Journal of Scientific and Research Publications (IJSRP)*, 9(1), 220-227. <https://doi.org/10.29322/ijsrp.9.01.2019.p8529>
- Rintaningrum, R. (2023). Technology integration in English language teaching and learning: Benefits and challenges. *Cogent Education*, 10(1). <https://doi.org/10.1080/2331186x.2022.2164690>
- Rohman, D., & Fauziati, E. (2022). Gamification of learning in the perspective of constructivism philosophy Lev Vygotsky. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 5(1), 4467-4474. <https://doi.org/10.33258/birci.v5i1.4156>
- Saad, N., & Sankaran, S. (2020). Technology proficiency in teaching and facilitating. *Oxford Research Encyclopedia of Education*. <https://doi.org/10.1093/acrefore/9780190264093.013.591>
- Saad, S., Amat, R., Abu Hassan, N. A., Mansor, N. S., & Ibrahim, S. (2022). Preserving Indigenous Semai folktales as a process of educating 21st century learners through

- Gamification. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 7(9), e001751. <https://doi.org/10.47405/mjssh.v7i9.1751>
- Sajan, K. S., & Sunitha, S. M. (2018). Development of a model for the TPACK for children with learning disability. *International Journal of Trend in Scientific Research and Development, Volume-2(Issue-2)*, 254-256. <https://doi.org/10.31142/ijtsrd8389>
- Sajinčič, N., Sandak, A., & Istenič, A. (2022). Pre-service and in-service teachers' views on Gamification. *International Journal of Emerging Technologies in Learning (iJET)*, 17(03), 83-103. <https://doi.org/10.3991/ijet.v17i03.26761>
- Salini Raja, & Mohd Norazmi Nordin. (2024). Exploring the readiness of teachers in the use of mobile gamification to handle the disruptive behavior of students with learning disabilities. *Special Education [SE]*, 2(1), e0019. <https://doi.org/10.59055/se.v2i1.19>
- Samala, A. D., Bojic, L., Vergara-Rodríguez, D., Klimova, B., & Ranuharja, F. (2023). Exploring the impact of Gamification on 21st-Century skills: Insights from DOTA 2. *International Journal of Interactive Mobile Technologies (iJIM)*, 17(18), 33-54. <https://doi.org/10.3991/ijim.v17i18.42161>
- Scherer, R., Siddiq, F., Howard, S. K., & Tondeur, J. (2023). Gender divides in teachers' readiness for online teaching and learning in higher education: Do women and men consider themselves equally prepared? *Computers & Education*, 199, 104774. <https://doi.org/10.1016/j.compedu.2023.104774>
- Schmidt, D. A., Baran, E., Thompson, A. D., Mishra, P., Koehler, M. J., & Shin, T. S. (2009). Technological pedagogical content knowledge (TPACK): The development and validation of an assessment instrument for preservice teachers. *Journal of Research*

*on Technology in Education*, 42(2), 123-149.  
<https://doi.org/10.1080/15391523.2009.10782544>

Shah, R. K. (2019). Effective constructivist teaching learning in the classroom. *Shanlax International Journal of Education*, 7(4), 1-13.  
<https://doi.org/10.34293/education.v7i4.600>

Sjøberg, S. (2010). Constructivism and learning. *International Encyclopedia of Education*, 5, 485-490. <https://doi.org/10.1016/B978-0-08-044894-7.00467-X>

Sumarna, C., & Gunawan, H. (2022). Foundations of constructivism philosophy in classroom learning. *International Journal of Science and Society*, 4(3), 53-65.  
<https://doi.org/10.54783/ijssoc.v4i3.499>

Sánchez-Cabrero, R., Mañoso-Pacheco, L., & León-Mejía, A. C. (2023). Gender-differentiated perceptions of teaching among Preservice teachers of secondary education. *Social Sciences*, 12(8), 431. <https://doi.org/10.3390/socsci12080431>

Taherdoost, H. (2021). Data collection methods and tools for research; A step-by-step guide to choose data collection technique for academic and business research projects. *International Journal of Academic Research in Management (IJARM)*, 10(1), 10-38.  
<https://hal.science/hal-03741847/document>

Taimalu, M., & Luik, P. (2019). The impact of beliefs and knowledge on the integration of technology among teacher educators: A path analysis. *Teaching and Teacher Education*, 79, 101-110. <https://doi.org/10.1016/j.tate.2018.12.012>

- Tatlı, Z., İpek Akbulut, H., & Altınışik, D. (2019). Changing attitudes towards educational technology usage in classroom: Web 2.0 tools. *Malaysian Online Journal of Educational Technology*, 7(2), 1-19. <https://doi.org/10.17220/mojet.2019.02.001>
- Turan, Z., Küçük, S., & Karabey, S. (2022). Investigating pre-service teachers' behavioral intentions to use Web 2.0 Gamification tools. *Participatory Educational Research*, 9(4), 172-189. <https://doi.org/10.17275/per.22.85.9.4>
- Wu, M. L., Zhou, Y., & Li, L. (2023). The effects of a gamified online course on pre-service teachers' confidence, intention, and motivation in integrating technology into teaching. *Education and Information Technologies*, 28(10), 12903-12918. <https://doi.org/10.1007/s10639-023-11727-3>
- Yaccob, N. S., Abd, S. F., Mohamad, S. N., Rahim, A. A., Rashid, K. K., Aldaba, A. M., Yunus, M. M., & Hashim, H. (2022). Gamifying ESL classrooms through Gamified teaching and learning. <https://doi.org/10.31235/osf.io/vrm5d>
- Yumnam, R. (2021). The use of ict in esl classrooms in Manipur. *Social Sciences, Humanities and Education Journal (SHE Journal)*, 2(2), 147. <https://doi.org/10.25273/she.v2i2.8898>
- Yunus, C. C. A., & Hua, T. K. (2021). Exploring a gamified learning tool in the ESL classroom: The case of Quizizz. *Journal of Education and e-Learning Research*, 8(1), 103-108. <https://doi.org/10.20448/journal.509.2021.81.103.108>
- Zainuddin, Z. (2023). Integrating ease of use and affordable gamification-based instruction into a remote learning environment. *Asia Pacific Education Review*. <https://doi.org/10.1007/s12564-023-09832-6>

Zakaria, N. Y., Md Yunus, M., Hashim, H., Mohd Nordin, N., Norman, H., & Adnan, N. H. (2021). Pre-service teachers' views on the implementation of game-based learning for academic writing skills. *Sains Insani*, 6(1), 11-16. <https://doi.org/10.33102/sainsinsani.vol6no1.226>

Zhang, S., & Hasim, Z. (2023). Gamification in EFL/ESL instruction: A systematic review of empirical research. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1030790>

## 2. Article or chapter in an edited book

Keengwe, J. (2022). Preparation of pre-service teachers: assessment of generation z students. In *Handbook of research on digital-based assessment and innovative practices in education*. IGI Global. <https://doi.org/10.4018/978-1-6684-2468-1.ch006>

Suzanne, G., & Vella, Y. (2003). Constructivism: An effective theory of learning. In *Constructivist teaching in primary school: Examples in social studies, science, mathematics, design and technology and ICT* (p. 244). Agenda Publishers.

## 3. Official documents

Ministry of Education. (2013). *Malaysia education blueprint, 2013-2025: Preschool to post-secondary education*. Kementerian Pendidikan Malaysia. <https://www.moe.gov.my/menumedia/media-cetak/penerbitan/dasar/1207-malaysia-education-blueprint-2013-2025/file>

Zainal, F., & Gek San, K. (2023, March 2). Ramp up English language programmes to stay on target. *TheStar*. <https://www.thestar.com.my/news/nation/2023/03/02/ramp-up-english-language-programmes-to-stay-on-target>

#### 4. Conferences Proceeding

- Ghazali, M. A. M. (2020). Student teachers' readiness towards the digitalization of the 21st century English language classroom in education 4.0. *ICTE'20: International Conference Teacher Education*, 10, 63-75. [https://www.researchgate.net/publication/348929941\\_STUDENT\\_TEACHERS'\\_READINESS\\_TOWARDS\\_THE\\_DIGITALIZATION\\_OF\\_THE\\_21\\_ST\\_CENTURY\\_ENGLISH\\_LANGUAGE\\_CLASSROOM\\_IN\\_EDUCATION\\_40](https://www.researchgate.net/publication/348929941_STUDENT_TEACHERS'_READINESS_TOWARDS_THE_DIGITALIZATION_OF_THE_21_ST_CENTURY_ENGLISH_LANGUAGE_CLASSROOM_IN_EDUCATION_40)
- Kim, E., Rothrock, L., & Freivalds, A. (2016). The effects of Gamification on engineering lab activities. *2016 IEEE Frontiers in Education Conference (FIE)*. <https://doi.org/10.1109/fie.2016.7757442>
- Paris, J., Cambeiro, J., Amaral, V., & Rodrigues, A. (2019). Using Gamification to motivate occupants to energy efficiency in a social setting of a building automation system. *2019 IEEE 43rd Annual Computer Software and Applications Conference (COMPSAC)*, 638-643. <https://doi.org/10.1109/compsac.2019.00097>
- Wu, L. T., Huang, J. H., Kan, Q. G., Fan, Z. Q., Li, J. J., Xu, R., Wang, B., & Meng, T. (2022). A cognitive computing based system for human factors readiness level assessment in manned space product design. *2022 8th International Conference on Systems and Informatics (ICSAI)*. <https://doi.org/10.1109/icsai57119.2022.10005381>
- Zecri, E., Ouzzif, M., & El El Haddioui, I. (2021). Study of the use of gamification elements in E-Iearning applications. *Proceedings of the 4th International Conference on Networking, Information Systems & Security*. <https://doi.org/10.1145/3454127.3456591>



Özdemir, S., & Güneyli, A. (2008, May). *Problems that pre-service teachers experience and challenges in teacher education* [Conference session]. 10th International Conference on Education, Athens, GREECE.  
[https://www.researchgate.net/publication/290449518\\_Problems\\_that\\_Pre-service\\_Teachers\\_Experience\\_and\\_Challenges\\_in\\_Teacher\\_Education](https://www.researchgate.net/publication/290449518_Problems_that_Pre-service_Teachers_Experience_and_Challenges_in_Teacher_Education)

## Appendix

# ESL Preservice teachers' readiness towards the use of gamification in the classroom

Good day to everyone. I'm Tee Yun Jia from Bachelor of Arts (Hounours) English Education students. I would like to ask for all your help and cooperation in filling in this form for my FYP. I really appreciate all of you.

\* Indicates required question

---

### 1. Gender \*

*Mark only one oval.*

- Male
- Female

### 2. Age range \*

*Mark only one oval.*

- 13 - 15
- 16 - 18
- 19 - 21
- 22 - 24
- 25 - 27
- 28 and above

3. What is your race? \*

*Mark only one oval.*

- Malay  
 Chinese  
 Indian  
 Other: \_\_\_\_\_

4. How many methodology courses have you completed (*must pass*) and/or are currently taking? (*For example: Teaching of Reading*) \*

*Mark only one oval.*

0   1   2   3   4

---

---

5. Have you completed your internship? \*

*Mark only one oval.*

- Yes  
 No

6. What is your English proficiency level? \*

*Mark only one oval.*

- Beginner  
 Intermediate  
 Advanced

7. How well do you understand technology? \*

*Mark only one oval.*

- Beginner  
 Intermediate  
 Advanced

8. Would you like to use technology in your teaching? \*

*Mark only one oval.*

- Yes  
 No

9. Would you like to use gamification in your teaching? \*

*Mark only one oval.*

- Yes  
 No

#### Technology Knowledge (TK)

1 - Strongly Disagree, 2 - Disagree, 3 - Agree, 4 - Strongly Agree

10. 1. I like to use technology. \*

*Mark only one oval.*

- 1   2   3   4  
Stro     Strongly Agree

11. 2. I am familiar with technology. \*

*Mark only one oval.*

1 2 3 4

---

Stro     Strongly Agree

12. 3. I frequently play around with technology. \*

*Mark only one oval.*

1 2 3 4

---

Stro     Strongly Agree

13. 4. I can use technology easily. \*

*Mark only one oval.*

1 2 3 4

---

Stro     Strongly Agree

14. 5. I can learn technology easily. \*

*Mark only one oval.*

1 2 3 4

---

Stro     Strongly Agree

15. **6.** I keep up with important new technologies. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

16. **7.** I have the technical skills I need to use technology. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

17. **8.** I know about a lot of different technologies. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

18. **9.** I know how to solve my own technical problems. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

19. **10.** I know how to use technology for gamification. \*

*Mark only one oval.*

1 2 3 4

Strongly     Agree

20. **11.** I can learn technology-based gamification easily. \*

*Mark only one oval.*

1 2 3 4

Strongly     Agree

21. **12.** I keep up with new gamification applications. \*

*Mark only one oval.*

1 2 3 4

Strongly     Agree

22. **13.** I have the technical skills I need to use gamification. \*

*Mark only one oval.*

1 2 3 4

Strongly     Agree

23. **14.** I know how to adapt gamification through technology. \*

*Mark only one oval.*

1   2   3   4

---

Stro     Strongly Agree

24. **15.** I know a lot about different technology-based gamification techniques. \*

*Mark only one oval.*

1   2   3   4

---

Stro     Strongly Agree

#### **Pedagogical Knowledge (PK)**

1 - Strongly Disagree, 2 - Disagree, 3 - Agree, 4 - Strongly Agree

25. **1.** I can control class management. \*

*Mark only one oval.*

1   2   3   4

---

Stro     Strongly Agree

26. **2.** I can adapt my teaching based upon what students currently understand or do not understand in ESL classroom. \*

*Mark only one oval.*

1   2   3   4

---

Stro     Strongly Agree



27. **3.** I can adapt different gamifications based on students' level of understanding in ESL classroom. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

28. **4.** I can adapt different gamifications based on classroom setting. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

29. **5.** I know how to evaluate student performance in the ESL classroom. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

30. **6.** I am familiar with common student understandings and misconceptions. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

31. **7.** I can personalize learning styles for different learners through gamification. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

#### Technical Pedagogical Knowledge (TPK)

1 - Strongly Disagree, 2 - Disagree, 3 - Agree, 4 - Strongly Agree

32. **1.** I know I am able to choose technologies that appropriate for gamification used in an English language classroom. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

33. **2.** I know I am able to choose gamification and technologies that enhance the teaching approaches for a lesson in an English language classroom. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

34. **3.** I know I am able to choose gamification and technologies that enhance the content for a lesson in an English language classroom. \*

Mark only one oval.

1 2 3 4

Stro     Strongly Agree

35. **4.** I know I am able to choose gamification and technologies that enhance the students' learning for a lesson in an English language classroom. \*

Mark only one oval.

1 2 3 4

Stro     Strongly Agree

36. **5.** I know I am able to choose appropriate technology that use for gamification to motivate students to engage in learning. \*

Mark only one oval.

1 2 3 4

Stro     Strongly Agree

37. **6.** I know I can adapt the use of technologies and gamification that I am learning about to different teaching activities. \*

Mark only one oval.

1 2 3 4

Stro     Strongly Agree

38. **7.** I am able to use gamification strategies that combine content, technologies, and teaching approaches that I learned about in my coursework in my classroom. \*

*Mark only one oval.*

1 2 3 4

Strongly Disagree     Strongly Agree

39. **8.** I am able to select technologies that use for gamification in my classroom that enhance what I teach, how I teach and what students learn. \*

*Mark only one oval.*

1 2 3 4

Strongly Disagree     Strongly Agree

#### Technical Pedagogical Content Knowledge (TPACK)

1 - Strongly Disagree, 2 - Disagree, 3 - Agree, 4 - Strongly Agree

40. **1.** I am able to teach lesson that appropriately combine listening skills in English language, gamification, technologies and teaching approaches. \*

*Mark only one oval.*

1 2 3 4

Strongly Disagree     Strongly Agree

41. 2. I am able to teach lesson that appropriately combine speaking skills in English language, gamification, technologies and teaching approaches. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

42. 3. I am able to teach lesson that appropriately combine reading skills in English language, gamification, technologies and teaching approaches. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

43. 4. I am able to teach lesson that appropriately combine writing skills in English language, gamification, technologies and teaching approaches. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

44. 5. I am able to teach lesson that appropriately combine grammar rules in English language, gamification, technologies and teaching approaches. \*

*Mark only one oval.*

1 2 3 4

Stro     Strongly Agree

45. 6. I am able to teach lesson that appropriately combine literary devices in English language, gamification, technologies and teaching approaches. \*

Mark only one oval.

1 2 3 4

Strongly Disagree     Strongly Agree

---

This content is neither created nor endorsed by Google.

Google Forms