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Integrating a Game-Based App to Enhance Translation Learners' Engagement, Motivation, and Performance

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This study investigated whether learning translation skills with a game-based learning app called CHEN-slate improves university learners' motivation, course engagement, and overall course performance. In all, 75 undergraduate Taiwanese EFL students participated in this study. A survey and individual semistructured interviews were employed to collect data. Regression analysis and content analysis semistrutctured interview were used to analyze the data. According to the Regression results, student attitude towards using the app was a strong predictor of course engagement and translation learning motivation. Moreover, the overall course grade of the learners was enhanced through higher course engagement, which was increased by their learning motivation, especially extrinsic motivation based on the regression results. The findings have provided pedagogical implications for English–Chinese translation instructors seeking to enhance learner motivation, engagement, and performance by adopting digital game–based learning. Suggestions for future studies to promote the adoption of using game-based app in translation courses for university EFL students are provided.

Keywords: engagement, game-based learning, motivation, performance, learner

INTRODUCTION

Digital learning (e-learning) has been widely promoted in education. It integrates technologies such as the Internet, information technology, and mobile devices to integrate information and knowledge. It has changed learning methods and tools to promote learning. It can both activate teaching activities and promote the ideals of learning by doing and doing while learning (Clark & Mayer, 2007). Digital learning allows learners to take advantage of the infinite characteristics of the Internet through simple operating tools and thus fulfil their learning needs through online and ubiquitous learning (Clark & Mayer, 2007; Gao et al., 2020; Huffaker & Calvert, 2003). Translator education needs new approaches by using new technology to do translation training in the classroom. Students could use the latest translation technology through hands-on translation exercises (Bilic,2020). The main goals of the present study were to integrate game-based learning into translation education and to use the research framework of digital learning to explore the influence of gamified learning on student learning motivation and participation. Applying elements of gamification was expected to

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improve student engagement with the curriculum, translation learning motivation, and participation in the course, thereby increasing their final performance (Pratama, 2020).

With globalization, translation is becoming increasingly necessary. Translation promotes the exchange of ideas between cultures and countries. The process of translation involves converting the source language into a target language (Ghazala, 1995). According to Gile (2009), the translation process has three main phases: comprehension of the source text, expression in the target text, and revision. The final stage involves editing and proofreading. The first stage requires understanding the source language, and the second phase requires conveying the sense of the source-language text in or through the target language. Text analysis is employed in these two stages. The translator must analyse the source language to discover the actual meaning of the text, detect and classify translation problems, and then use translation techniques to convey the meaning. Because these processes are crucial, a digital game app that provides opportunities to both practice learned translation skills in class and apply these skills in actual text translation would be helpful for learners.

The translation is necessary for learning a foreign language and investigating the relationship between source and target languages (Grutman, 2019). Translation combines vocabulary with grammar rules (Anderson & Larsen-Freeman, 2011) and is part of the language learning process for undergraduate students majoring in a foreign or second language (Gao et al., 2020). The learning process can enable language learners to comprehend literature written in the target language. Furthermore, translation plays a vital role in various areas, such as science, medicine, technology, business, and law; thus, offering translation courses at the university level has become a necessity (Melnichuk & Osipova, 2017). Due to the importance of translation, "translation studies" have advanced to a level to form a specific discipline (Pourfarhad et al., 2018). Foreign language courses in various universities and colleges offer translation-related courses, and researchers have conducted many translation-related studies to improve the quality of these courses. However, studies have focused mostly on the translation process and product; the investigation of translational pedagogical implications has been neglected (Melnichuk & Osipova, 2017). Kelly and Martin (2009) argued that in the translation training field, researchers are highly interested in translation learning expectations and motivations, and translation research has become a prominent topic in language learning. Therefore, the present study investigated the use of a game-based learning app to develop translation skills learned in the classroom and explored learner participation and attitudes in English–Chinese translation courses when using the app. In the learning process, students should memorize and reproduce pieces of knowledge, but they should also be offered a chance to practice and reengage in the learning process. In the process, learners should actively learn through interaction with the external learning environment and other learners (Alawamaleh et al., 2022). Therefore, to make newly learned knowledge meaningful, learners must be able to examine and reflect on newly acquired information and interact with the external environment (including textbooks, tools, teachers, and other learners) and thus learn culture, knowledge, and skills (Wells, 2000).

Literature Review

Translation learning motivation

Motivation is considered a key factor in sustaining learning and boosting learning achievement. "It is one of the crucial keys to language learning since motivation explains why people decide to do something, how hard they want to pursue the goal, and how long they are going to sustain the activity" (Dörnyei, 2001, p. 7).

Deci and Ryan (2004) demonstrated that people are motivated when individuals experience supports for competence, autonomy, and relatedness. They suggested that these factors trigger motivation (i.e., inspire a person to perform an activity). Self-Determination Theory (SDT) is a broad framework for understanding factors that facilitate or undermine intrinsic motivation, autonomous extrinsic motivation, and psychological wellness in educational settings (Ryan & Deci, 2020). Ryan and Deci (2020) further explained that SDT assumes that people are inherently prone to psychological growth and integration and thus to learning, mastery, and connection with others. These concepts are based on Deci and Ryan's (2000) notions of intrinsic and extrinsic motivation. Intrinsic motivation is the natural motivational tendency involving cognitive, social, and physical development; motivation arises when individuals act on their inherent interests, and this enables them to grow their knowledge and skills. An activity that is naturally enjoyable generates intrinsic motivation. Conversely, if the results of an activity are separable, then external motivation can be generated. Intrinsic motivation exists in the relationship between individuals and activities. Thus, it plays a crucial role in explaining the relationship of an individual's autonomy with their learning motivation. Extrinsic motivation underlies individual behaviours performed to obtain separable rewards or avoid negative outcomes (Levesque et al., 2010). It is the tendency to engage in activities to gain a known, external reward (such as a higher grade). These types of rewards can be either tangible or psychological in nature. The SDT framework is depicted in Figure 1.

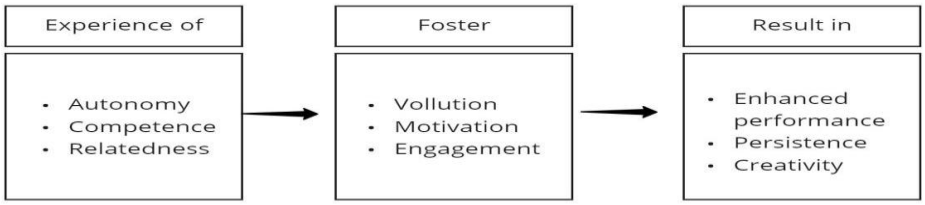

Figure 1
Self-determination theory (Ryan & Deci, 2000)

In the present study, the concepts of intrinsic motivation and extrinsic motivation were adapted with the aim of identifying the motivation of undergraduate students to learn translation skills. Adjusted examples of intrinsic translation in a learning context include statements such as "I am interested in learning translation"; those of extrinsic motivation include sentiments such as "I enjoy the translation learning activities provided in class" (Table 1).

Table 1
Intrinsic and extrinsic motivation

Elements	Rational	Examples
Intrinsic motivation	Hopes, aspirations, advances, growth, accomplishment	I wish I could apply translation in my future career. I like to learn translation skills. It is very useful to learn the translation.
Extrinsic motivation	Learning experience such as teachers, curriculum, peer group, the experience of success	I like to use the app to practice my translation skills. It is very interesting to learn with the app. I enjoy the translation learning activities provided in the class.

Engagement

Hands-on activities

Astin's student involvement theory is generally referred to as student engagement theory. The theory encourages educators to focus on means of motivating students and on the time and energy students devote to the learning process (Astin, 1984). It involves the psychological and behavioural energy expended by learners on an educational endeavour (Roberts & McNeese, 2010). Engagement refers to *persistence*, which is valid for face-to-face, practical, online, or blended contexts (Bowden 2021; Milman, 2016). The association of engagement with desired outcomes, particularly with regard to student performance and persistence, has been empirically established (Bond, 2020; McGrath & Burd, 2012; Oporto Alonso et al., 2022; Sharkness & DeAngelo, 2011). It plays a role in continued enrolment in a course and the continued intention and willingness to complete it (Shin, 2003). Bruner (1961) argued that learning does not occur without successfully involving learners in the learning process. He suggested that students must be active, which means, among other things, that they must identify key principles by themselves rather than simply accept teacher explanations. In this approach, learners discover facts and relationships by themselves. Students must know what they are learning to apply knowledge to real-life situations. Thus, during the learning process, students must participate in interactive and hands-on activities.

Activity engagement is vital because it can involve learners in the learning process. If students participate in hands-on learning activities, this can involve them in the process. Anderson et al. (2004) also suggested that once students are engaged in the learning process, their likelihood of success in academic learning improves (Kim et al., 2019). Moreover, hands-on activities can invoke critical thinking and provide opportunities for deeper investigations of a subject when sufficient classroom resources are available (Wang et al., 2010). Holmes (2015) indicated that student involvement is a central issue in higher education and related to previous learning experiences. Facilitators (teachers) in the classroom can promote student involvement through interactive, online software. Furthermore, a course curriculum should be designed to increase student interaction with materials(Soffer & Cohen, 2019). Thus, to enhance teaching and learning in a higher education programme, increasing learning involvement is essential.

Scaffolding

Kiraly (2000) proposed the application of scaffolding techniques (from social constructivist theory) to translation training. *Scaffolding* refers to an approach in which

learners learn new knowledge or skills by obtaining sufficient support. Teachers play the role of supporters, resembling scaffolding during building (Akbariet al., 2018). As the learner's ability improves, the support is reduced, and the responsibility of learning is gradually transferred to the learner, just as scaffolding is gradually removed as a house is built. With translation skills, the teacher assists learners in constructing knowledge and waits until the learners can apply the skills in actual translation tasks. Thus, translation teachers must apply effective learning methods while helping learners solve translation problems. Especially in the early stages of translation courses, the teacher's guidance and support are essential to helping learners familiarize themselves with translation skills. In the later stages of a course, when learners are more familiar with the learning process and the development of skills, the teacher can gradually involve learners in more complex learning activities and social interaction, as well as encourage them to apply what they have learned to translation. In the process, learners can improve their mastery of learning skills and self-adjust without external guidance (Kiraly, 2000). Although Kiraly adopted a social constructivist orientation in translation courses and this approach has begun to receive attention from translation educators, few studies have explored the effectiveness of incorporating scaffolding elements in translation courses. Thus, this study included such elements to explore the effectiveness of the learning process and explain learner engagement.

A game-based learning translation app can play a large role in helping students learn and practice translation techniques and in applying these techniques. Moreover, a game-based app can provide increased and more equal participation than worksheet classroom-based activities can. It can also help reduce student anxiety and thus help them learn more effectively. In addition, it can shift a classroom from teacher centred to student centred.

Gamification in translation teaching and learning

Translation techniques

The translation process for written languages involves the translator converting the original written text (source text or ST) of the original spoken language (source language or SL) to another written (target text or TT) language (target language or TL; Fransiska & Arifin, 2021; Togayamurodov, 2021; Nasution, 2020). Again, the translation process includes comprehension, expression, and revision phases (Gile, 2009). In the comprehension phase, a translator must consider the meanings of the text within the context of the SL. In the expression phase, the SL is transferred into the TL by using different translation techniques. The last phase is revision, in which the renderings are revised and corrected to produce the final translation.

Based on models of the translation process and differences between English and Chinese, various techniques have been proposed to facilitate the process of English–Chinese translation. To successfully adopt translation techniques, a translator requires knowledge and various competencies. Huang (2008, p. 33) concluded that a translator should possess three main qualities, namely "bilingual skills in the source languages and target languages, a practical knowledge of translation theories and techniques, and the

ability to obtain extensive general and/or professional knowledge." The purpose of designing the game-based translation learning app in the present study was to help learners practise the translation techniques taught in class through the digital game–based learning.

Gamification (digital game–based learning) and translation learning motivation and engagement

Gamification refers to the utilization of video game components in a nongame context (Kapp, 2012; Luo, 2022). It is used to describe the characteristics of a digital interactive system that aims to motivate and engage users by using game elements and mechanics (Jayalath & Esichaikul, 2022; Seaborn & Fels, 2015). It consists of two elements: It is used for none-entertainment purposes, and it draws inspiration from games. Gamification has been applied in numerous fields including marketing, business, science, and education. Kocadere and Çağlar (2018, p. 12) described gamification as "an educational approach using game design principles in the learning environment to engender interest and motivation in learners." The purpose of using gamification in learning is to add game elements to the classroom environment to increase learner motivation and engagement; and finally to promote desired learning behaviour and overall performance (Kingsley & Grabner-Hagen, 2015; Leaning, 2015; Seaborn & Fels, 2015; Zainuddin et al., 2020). Game-based learning is based on constructivist learning predicating the need for experiential learning through social interaction with peers and the learning environment (York & deHaan, 2018). The concept may provide an efficient technique to intensify learning, including eliciting friendly competition (Zainuddin et al., 2020).

Dichev and Dicheva (2017) referred to gamification in education as a strategy for increasing engagement by including game elements in scholastic development in formal and informal settings. The term game-based learning can describe the use of gamified content as an e-learning technique to meet instructional goals (De-Marcos et al., 2016). It can also encourage active participation in learning process and strengthen desired outcomes such as interest, motivation, and willingness to participate (Yukselturk et al., 2018).

Hadfield (1990) confirmed that "games provide as much concentrated practice as a traditional drill and more importantly, they provide an opportunity for real communication, albeit within artificially defined limits, and thus constitute a bridge between the classroom and the real world." Kim (1995) specified the advantages of using games in the classroom:

(1) Games are a welcome break from the usual routine of a language class.
(2) They are motivating and challenging.
(3) Learning a language requires a great deal of effort, and games help students make and sustain the effort of learning.
(4) Games provide language practice in various skills.
(5) They encourage students to interact and communicate.
(6) They create a meaningful context for language use.

The main goals of gamification are to enhance particular abilities, introduce objectives that give learning a purpose, engage students, optimize learning, support behavioural change, and promote learning achievement (Dichev & Dicheva, 2017; Iacovides et al., 2011; Krause et al. 2015; Wichadee & Pattanapichet, 2018; Woo, 2014). Furthermore, studies have found that games play a prominent role in the development of cognition and social processes (Blumberg et al., 2019; Starks, 2014). However, extremely few studies have examined using digital game–based learning in learning English–Chinese translation and the relationship among variables such as engagement and translation learning motivation. Integrating games into translation learning might enhance learner motivation and engagement because they can promote communication (in language learning) and focus on sociolinguistics, discourse analysis, and pragmatics. In this study, a game-based learning app was designed for learners to practice translation skills and apply translation techniques in authentic translation practices.

The present study

The literature review introduced the background of the study and concepts for integrating a game-based app called "CHEN-slate" ("CH" stands for Chinese, "EN" stands for English, and "slate" is an abbreviation of "translate"; "CHEN-slate" also sounds like "translate") as a tool. Learner motivation and activity engagement aspects of the learning process) were also discussed. Although many studies have investigated the motivations of EFL learners (Vonkova et al., 2021), few have evaluated learning motivation (based on the rationale of intrinsic and extrinsic motivation) in university-level EFL translation courses. In addition, the link between factors such as engagement and performance, which have been widely discussed, and translation learning motivation among Taiwanese students has rarely been explored. This study included motivation (intrinsic and extrinsic motivation); Activity engagement (Part A. Hands-on Activity; Part B. Scaffold learning; and Part C. Involvement in authentic and experiential learning) and Intention to use Interactive APP (CHEN-slate) (Table 3 and Figure 8). These variables were included to answer the following three research questions:

(1) Is the perception of learning through the app a strong predictor of translation learning motivation and course engagement?
(2) Is the intrinsic or extrinsic motivation of EFL learners a strong predictor of engagement?
(3) Is the engagement of learners a strong predictor of their final grades?

METHOD

Setting

The study was conducted in the Department of Applied Foreign Languages at a university in Taiwan. The department offers two English–Chinese translation courses to undergraduate students. The classrooms for both courses are equipped with computers with Internet access, and classes have fewer than 40 students. The first translation course is for second-year students majoring in English or Japanese. This required course provides students with the foundational knowledge of translation techniques and allows them to practice English–Chinese translation. The second translation course is required

for third-year students majoring in English but is also provided to students majoring in Japanese. This course enhances knowledge of translation techniques and enables students to practice translation in more authentic and complex situations. Students in these courses are required to complete translation activities and assignments with individual practice through hands-on activities and apps during class. These activities with authentic translation tasks facilitate student construction of knowledge and the development of translation techniques as well as other skills necessary for future employment.

Kiraly (2000) suggested that the real complexity and difficulty of a translation task can be exposed to learners through authentic translation tasks. This enables learners to accumulate practical experience in translation and to prepare themselves for future translation work (rather than relying on textbook materials). The instructor in the translation courses provides students with practical English–Chinese translation tasks such as translating news, film scripts, business communications, advertisements, and tourist information. Throughout, the instructor plays the role of facilitator to support and guide learners by providing scaffolding whenever necessary. Early in the courses, especially in the first course, scaffolding is vital because learners are unfamiliar with the learning process. The instructor must provide students with more support by explaining the learning process, using CHEN-slate, and offering advice. However, after students become familiar with the learning process and are able to develop their own learning strategies, the instructor gradually removes the support and only provides scaffolding when learners ask for it. This helps students become responsible for both their own work and their learning.

Participants

Seventy-five undergraduate students in the 4-year-programme of the Department of Applied Foreign Languages at a university in Taiwan participated. The participants were students who have taken both translation courses offered by the department.

A convenience sampling method was used in the present study to select the participants. Table 2 presents the background information such as class standing, gender and English proficiency level of the participants. The students took a placement test which was from the "Four Corners to Passages Placement Test Program" published by the Cambridge University Press (Richards et al., 2012).

Table 2
Summary of participants' background information

Background information		Number of students
Class standing	Junior	45
	Senior	30
Gender	Female	62
	Male	13
English proficiency (based on their placement test)	Beginner	0
	Pre-intermediate	6
	Intermediate	46
	Upper-Intermediate	17
	Advanced	6

App structure

The e-learning tool facilitates the translation teaching and learning process. It was developed to help learners build their knowledge of translation techniques and develop their translation skills. The app has three major areas: Individual Learning, Individual Practice, and Competition Mode.

Individual learning area: This area provides translation techniques and examples.

Individual practice area: This area is for skill exercise. Users answer multiple-choice questions. Scores are assigned according to the accuracy of the answer. Additional points are provided if users do not use hints. Users also receive bonus points if they select correct answers consecutively. Points are deducted if users answer incorrectly repeatedly. Points are converted into "gold coins." The number of gold coins users collected would reflect to the overall rankings among users.

Competition zone: At least five gold coins are required to participate in the "battle zone." Users must wait for more than two people to start a battle. The "homeowner" starts the battle after pressing the start button. Users can choose single or mixed translation techniques for the competition. Scores are calculated based on the speed of answers and the number of correct answers. Learners can also use the hint function to increase the accuracy of an answer, but they receive only half points if they ask for a hint (and only two hints are available in a single battle). The ranking areas include single battle ranking, overall battle ranking, and overall CHEN-slate ranking.

The design of the app is depicted in Figure 2.

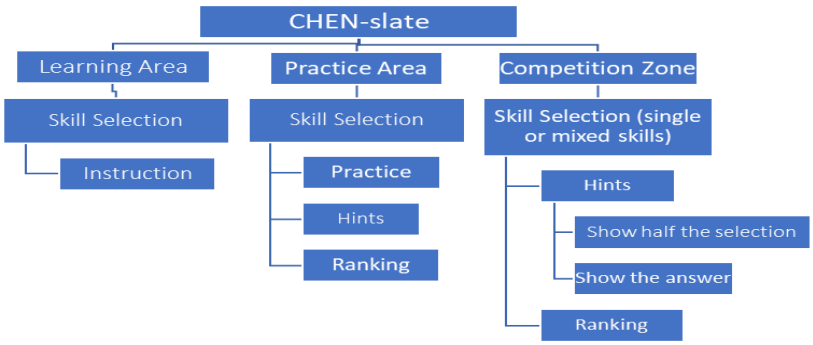

Figure 2
CHEN-slate design

The following figures present the app interfaces. The training interface, skill selection, skill introduction and examples, skill practice with scores, and competition mode are presented in Figures 3–7, respectively. The app enhances the convenience and ease of access to translation learning and allows learners to manage their own learning.

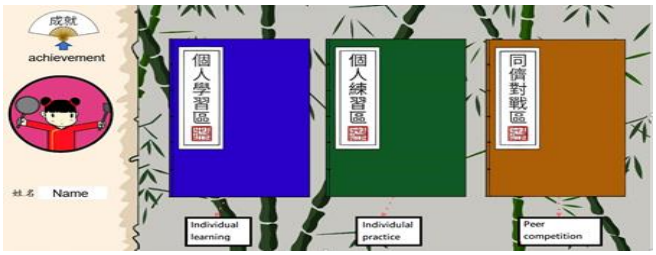

Figure 3
Training interface

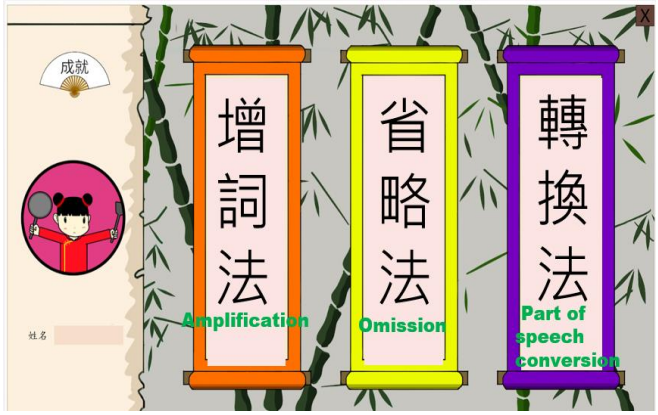

Figure 4
Skill selection

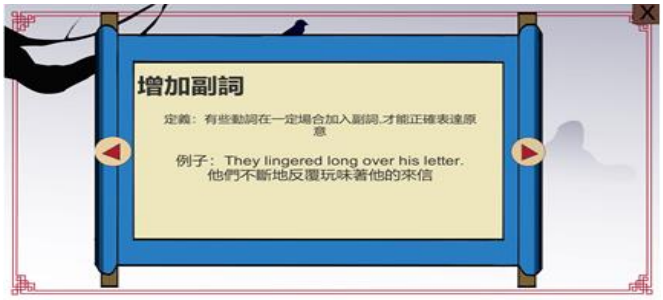

Figure 5
Skill introduction and examples

Figure 6
Skill practice with scores

Figure 7
Competition mode

Data collection and instrument

The study objectives were achieved using mixed methods. During the quantitative stage, a survey was adopted to collect data on participant motivation and activity engagement in learning English-to-Chinese translation, as well as perception of using CHEN-slate in translation courses. After the survey, the researcher re-examined the data through semistructured interviews with 14 participants who were willing to be interviewed.

Quantitative stage

A 5-point Likert scale questionnaire with four sections was used. Section 1 asked for demographic information. Section 2 measured student motivation in learning English-to-Chinese translation. Section 3 assessed student perceptions of the use of CHEN-slate in the courses, and Section 4 evaluated student attitudes towards and involvement in the activities in the translation courses. To ensure that the participants fully understood the questionnaire, it was written in both English and Chinese.

The first section collected basic personal information. The participants were asked to provide information such as their name, major, class standing, age, gender, English proficiency, English learning experience, and score on any official English proficiency test. The second section measured student motivation in learning English-to-Chinese

translation. It was created based on the adjusted intrinsic and extrinsic motivation rationale (Deci & Ryan, 2000) for the translation context. This section used a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The third section surveyed student intention of using CHEN-slate in translation courses. The items used a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The questions were designed based on how users interact with the app.

The fourth section of the questionnaire explored student engagement in CHEN-slate activities in the translation courses. It was created based on the principles of hands-on activities and scaffolding concepts to translator education proposed by Kiraly (2000). This section was divided into three parts reflecting the principles of hands-on activities and social constructivism that the researcher adopted in the translation courses. Part A was designed based on notions of hands-on activities, such as those in Bruner's discovery learning. Part B was based on the social constructivist approach proposed by Kiraly. It surveyed participants on their attitudes towards the scaffolding provided by instructors in the translation courses. Part C was created to reveal the attitudes of participants towards situated learning and their active involvement in authentic tasks in the translation courses. The items of this section were also measured using a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Table 3 provides a brief summary of the contents of the questionnaire, and Figure 8 presents the study's conceptual framework.

Table 3
Summary of questionnaire items

Section	Rationale	Components	Reliability
1. Demographic information	- Understanding some basic features of the participants in this study	Name, age, gender, major, English proficiency, and English learning experience	
2. Motivation in learning English to Chinese motivation	- Adjusted concept of intrinsic and extrinsic motivation (Deci & Ryan, 2000)	Intrinsic motivation	.87
		Extrinsic motivation	.95
3. Intention to use Interactive APP (CHEN-slate)	Perception of using the app	Attitudes toward the use of CHEN-slate	.95
4. Activity Engagement	- Hands on activity - Social Constructive Approach (Kiraly, 2000)	Part A. Hands-on Activity	.96
		Part B. Scaffold learning	.94
		Part C. Involvement in authentic and experiential learning	.90

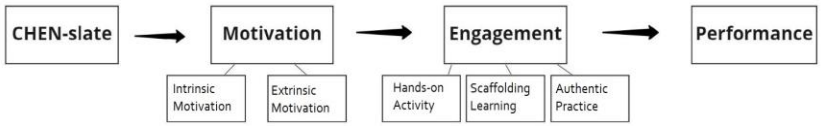

Figure 8
Conceptual framework of the study

The questionnaire items were created based on the theoretical frameworks previously discussed and were adapted from previous studies, with some adjustments to fit the items to the context of the current study. Hence, the reliability and validity of the questionnaire must be considered. Regarding content validity, again, the items of the questionnaire were developed or adapted from previous studies based on the discussed theoretical frameworks (see Figure 8) as summarized in Table 2. Cronbach's α for each variable was higher than .90 (except intrinsic motivation, whose α was .87), indicating high reliability (Lin & Liu, 2002).

Data analysis

Quantitative analysis

The Statistical Package Social Science (SPSS), which was developed by IBM, was used to code and analyse the data. Various statistical procedures were used to analyse the collected data as follows:

(1) Cronbach's α was used to evaluate the reliability of the data collected using the questionnaire.
(2) Descriptive statistics: Frequency, percentage, mean, and standard deviation described the demographic information of the participants and its distribution.
(3) Simple linear regression analysis: This analysis was used to determine whether the app was a strong predictor of participant engagement and motivation. Hence, it was also used to analyse whether the level of engagement predicted the final course grade. The results of this analysis revealed the answers to research questions 1 and 3.
(4) Multiple linear regression analysis: This analysis was used to identify which type of motivation (intrinsic or extrinsic) was a stronger predictor of class engagement. The result of the analysis revealed the answer to the second research question.
(5) Statistical significance was achieved when $p < .05$ to ensure 95% confidence in the findings.

Qualitative analysis

The interviews were transcribed to capture the essential aspects of this study. The interview data were categorized and analyzed qualitatively to examine and elaborate on the questionnaire data. The first reason to conduct semi-interviews is to examine the findings from the quantitative phase about the learning translation motivation and the possible influence of some factors such as engagement with English to Chinese translation, and the use of CHEN-slate in translation courses on the learning motivations of students. Another reason is to elaborate the findings from the quantitative phase such as exploring some possible reasons that may explain for the findings from the collected

quantitative data. To enhance the reliability of the findings, all the transcripts were sent by email to the students who participated in interviews. The participants were asked to read the interview transcripts and verify their accuracy. Afterwards, the transcribed data were coded based on a tiered system of codes. After the data were coded, themes were developed to reveal patterns in the data. Finally, based on the developed themes, the data were interpreted to determine whether they validated or elaborated upon the data collected in the survey.

FINDINGS

Regression analysis

Simple regression analysis was conducted to answer the first research question,. It was conducted to determine whether participant app perception served as a predictor of their course engagement. The results are presented in Tables 4 and 5.

Table 4
ANOVA table for app perception and engagement

	Sum of squares	df	Mean square	F	Sig.
Regression	9.63	1	9.63	53.73	.000[b]
Residual	13.09	73	.18		
Total	22.72	74			

Note. a. Dependent variable: engagement, b. Predictors: (constant) app

Table 5
Regression model for predicting student course engagement and using the app to learn (N = 75)

Dependent variable	Predictor variables	*B*	*SEB*	*β*	*t*	R^2
Class engagement	APP perception	1.75	.34		5.11	.42
		.62	.08	.65	7.33	

A simple linear regression was fitted to explain final course engagement based on the participants' perceptions of using CHEN-slate. The model explained 42.0% ($R^2 = .42$) of the variation in engagement and was significant in explaining engagement; $F(1, 73) = 53.73$, $p < .05$. With a one-unit increase in using the app to learn, the engagement score increased by 0.62, which was a significant change; $t(75) = 7.33$, $p < .05$.

Simple regression analysis was conducted to determine whether participant app perception served as a predictor of their learning motivation. The results are provided in Tables 6 and 7.

Table 6
ANOVA table for app perception and motivation

	Sum of squares	df	Mean square	F	Sig.
Regression	11.44	1	11.44	118.58	.000[b]
Residual	7.04	73	.10		
Total	18.49	74			

Note. [a]Dependent variable: motivation., [b]Predictors: (constant), app.

Table 7
Regression model for predicting student translation learning motivation by using the app to learn (N = 75)

Dependent variable	Predictor variables	*B*	*SEB*	*β*	*t*	R^2
Motivation	APP perception	1.32	.25		5.28	.62
		.67	.06	.79	10.89	

A simple linear regression was fitted to explain student motivation based on app learning perception. The model explained 62.0% ($R^2 = .62$) of the variation in motivation and was significant in explaining motivation; $F(1, 73) = 118.58$, $p < .05$. With a one-unit increase in using the app to learn, motivation increased by 0.67, which was a significant change; $t(75) = 10.89$, $p < .05$.

Multiple regression analysis was conducted to answer the second research question which was used to determine whether participant intrinsic or extrinsic motivation served as a predictor of course engagement. The results are displayed in Tables 8 and 9.

Table 8
ANOVA table for intrinsic motivation, extrinsic motivation, and engagement

	Sum of squares	df	Mean square	F	Sig.
Regression	6.07	2	3.04	13.13	.000[b]
Residual	16.65	72	.23		
Total	22.72	74			

Note. [a]Dependent variable: engagement.
[b]Predictors: (constant), intrinsic motivation, extrinsic motivation.

Table 9
Regression model for predicting student intrinsic and extrinsic motivation through class engagement (N = 75)

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.	R^2
		B	Std. Error	Beta			
1	(Constant)	2.16	.46		4.70	.000	.27
	Extrinsic motivation	. 40	.10	. 45	4.10	.000	
	Intrinsic motivation	.12	.11	. 12	1.11	.27	

Note. Dependent variable: engagement.

A multiple linear regression was fitted to explain student course engagement according to extrinsic and intrinsic motivation. The overall motivation model (extrinsic and intrinsic motivation) explained 27.0% ($R^2 = .27$) of engagement variation and was significant in explaining engagement; $F(2, 72) = 13.13$, $p < .05$. With a one-unit increase in extrinsic motivation, the engagement score increased by .40, which was a significant change; $t(75) = 4.10$, $p < .05$. With a one-unit increase in intrinsic motivation, the exam score increased by .12, which was a nonsignificant change; $t(75) = 1.11$, $p > 0.05$.

Simple regression analysis was conducted to answer the third research question to determine whether participant course engagement served as a predictor of final course grades. The results are shown in Tables 10 and 11.

Table 10
ANOVA table for engagement and final grade

	Sum of squares	df	Mean square	F	Sig.
Regression	13623.43	1	1362.43	29.20	.000[b]
Residual	3406.29	73	46.66		
Total	4768.72	74			

Note. [a]Dependent variable: final grade., [b]Predictors: (constant), engagement.

Table 11
Regression model for predicting final class grade through course engagement (N = 75)

Dependent variable	Predictor variables	*B*	*SEB*	*β*	*t*	R^2
Final grade	APP perception	47.79	6.10		7.83	.29
		7.74	1.43	.54	5.40	

A simple linear regression was fitted to explain final grades based on level of engagement. The model explained 29% ($R^2 = .29$) of final course grade variation and significantly explained final grades; $F(1, 73) = 29.20$, $p < .05$. With a one-unit increase in course engagement, the final grade increased by 7.74, which was significant; $t(75) = 5.40$, $p < .05$.

Semistructured interviews

Regarding the translation learning motivation of the participants, the results of the interviews indicated that the use of CHEN-slate in the translation courses delivered positive learning experiences.

Interviewees indicated the following about the app:

S1: "I think it provided instant feedback for the questions I did wrong."

S2: "This app provides more explanation for some translation skills."

S4: "The app is really interesting, and is helpful for learning in this class."

S5: "I think it's really beneficial for people who are just starting to learn translation."

S9: "I think that the design of the app is good, but some parts still need debugging."

Regarding engagement in the learning process, the interviewees indicated that the app provided engaging ways for them to be more involved in the learning process as follows:

S7: "The game, just like, we can have fun while learning. And that made me feel like, oh, I want to learn more. Yeah.**"**

S10: "Because of the app, I can quickly to learn."

S11: "The app will make the course more fun."

S12: "The game we play in class is really fun. I want to use it to do more practice."

S13: "I like the app. It's good for learning translation, and I like the ways the teachers support us in class.**"**

DISCUSSION

The regression analysis conducted in this study suggested that student attitude towards using the app was a strong predictor of course engagement and translation learning motivation. Moreover, the model combining extrinsic and intrinsic motivation produced significant results regarding course engagement. The effect of extrinsic motivation was more significant than that of intrinsic motivation on course engagement. Finally, learner engagement also produced a significant result regarding final course grades. This means that learner performance was enhanced by course engagement, and this engagement was increased by learning motivation, especially extrinsic motivation. Engagement is a critical factor in the learning process and enhances learning experiences to help learners achieve high grades (Amriani et al., 2013). Gamification can be used to stimulate engagement by motivating learners by providing game-simulated situations for nongame contexts (Lee & Hammer, 2011). Iosup and Epema (2014) argued that gamification has been recognized as being positively correlated with student performance; it enhances voluntary participation in course activities and helps foster interaction. In the present study, the app served as an extrinsic motivation tool to promote engagement and influence overall course performance. The results of the semistructured interviews also indicate that the learning experience of the app could enhance the student learning experience with more fun and engaging ways to sustain their learning.

This result is consistent with the study of Jayalath and Esichaikul (2022), which indicated that embedding game components at the implementation stage provide learning opportunities to motivate and engage learners, thereby achieving the acquisition of expected competencies. Bateman and Nacke (2010) discovered a positive cognitive effect occurs during gameplay because it increases reward-seeking behaviour (motivation), increases stress, and leads to excitement. This learning process induces enjoyment and motivates players to engage throughout the game more sustainably because learning progress requires high levels of user motivation and engagement. The emerging trend of gamification is becoming stable and sustainable for deploying distributed human interaction systems that can capture emerging opportunities, especially in the education and training sector (Jayalath & Esichaikul, 2022). Seaborn and Fels (2015) reviewed 32 studies on the utilization of digital gamification elements pedagogically. Approximately 20 of those studies yielded positive results that connected gamification to increased levels of motivation and engagement. Gamification might help learners overcome areas of weakness, such as high learning anxiety and low levels of achievement. Thus, the need for higher motivation and engagement is considered crucial in learning progress (Jayalath & Esichaikul, 2016).

CONCLUSION

Pedagogical implications

Integrating a game-based learning app into translation courses provides learners with control and choice, addressing the need for autonomy to enhance motivation and foster the master of required competencies (Blanchard & Frasson, 2004). The results showed that adopting game-based learning app in translation courses can provide more positive

learning experiences and encourage students to be more involved in the learning process. The purpose of the app in this study was to enhance students' translation learning motivation and help them sustain their translation practice in the activities provided in the course. Motivation sets the stage for cognitive engagement and leads to achievement by increasing the quality of engagement. This means that if students can build knowledge and employ deeper learning strategies, their understanding of content and skill capacities are enhanced (Blumenfeld et al., 2006). Füller et al. (2014) also stated that motivation commonly leads to user engagement in innovation communities. The combination of strong motivation and high task engagement facilitates successful learning experiences (Davis & McPartland, 2012).

The primary contribution of this study is its exploration of integrating a game-based learning app to promote EFL leaners' motivation and course engagement and enhance their learning performance. Moreover, when working with the app, students can receive instant feedback from the app. students might resolve the difficulties encountered during translation learning more efficiently through the app. Learning with the app may improve the ease with which students learn the translation. The learning process provided in the class may improve their motivation and activity engagement in learning translation skills. The results indicate that students' learning motivation and course engagement are enhanced by characteristics of gamification and their attitudes towards game-based learning instruction. Therefore, teachers might be able to use learning apps as an additional mode of promoting learning outcomes, especially in the translation education context.

Limitations and further study

Although the present study was conducted with considerable care, it has certain limitations. The participants in this study were representative of the target population, but it focused on only EFL students at one private university in Taiwan. Thus, caution should be exercised when generalizing the study findings. Future studies should be conducted on a larger scale and include both private and public universities in Taiwan.

The translation courses in this study only emphasized English-to-Chinese translation because the translation courses only offer English–Chinese translation; thus, future studies can focus on Chinese-to-English translation courses and compare their findings with those of the present study. Finally, the gamified course might not satisfy learners with different learning behaviours because it cannot fulfil all learners' preferences.

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