Gamification in Independent Learning: Vietnamese University Students' Experience with Duolingo

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Abstract

It is argued that in our current digital era, MALL (mobile-assisted language learning) is an indispensable mode either for independent self-learning or for integrating with the school curriculum. The present study explores the possibility of using gamification as a home assignment in English as a foreign language course for students of non-English majors at a university in Vietnam. Data was collected and analyzed using 69 questionnaire responses and 41 essays written by students in a class of General English. The questionnaire and essay topic prompt required students to provide an evaluation of their personal experience learning English with Duolingo outside the classroom, as part of the compulsory home assignments during a 15-week semester. The questionnaire items were in Vietnamese and the essays were either in Vietnamese or English for students' convenience. The results showed detailed benefits and problems of learning English with Duolingo as perceived by the students. The key benefits include the fact that Duolingo is a valuable resource: rich and free; the limitation is mainly learners' lack of experience with the application. It is suggested that with teachers' guidance, Duolingo could be used as an effective and motivating tool for independent learning.

Keywords: Duolingo, gamification, general English, homework, independent-learning

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1. **Introduction**

In countries like Vietnam, although English is considered an important language to learn, opportunities for authentic practice are limited. It is therefore an essential responsibility of a teacher to provide sufficient practice beyond the constraints of the classroom. Such extra practice is possible thanks to technology, as Alfuhaid (2021) points out, "using technology to compensate for the lack of interaction is helpful in improving EFL students' language proficiency" (p. 9). While commercial online applications offering English lessons prevail nowadays which could be a solution to the issue of resource shortage for learners, the majority of these apps are not free of charge. Exceptional to this commercial trend, Duolingo is the only app that people worldwide do not have to pay to use. There have been research studies investigating the effectiveness of learning English with this app, the majority of which are reports written by assessment experts, sponsored by the producer company, and publicized on their website. The results of such studies do not provide a true and complete picture of Duolingo's effectiveness. It can be argued that active users of Duolingo are certainly highly motivated language learners, thus they are more likely to have high achievement and success. Not much is known, nevertheless, about how Duolingo works for an average student in terms of learning motivation and progress. Hence, the present study is aimed to evaluate Duolingo's positive and negative aspects from the learner's perspective. It is also expected to know the extent to which students accept Duolingo lessons as homework activities to supplement their English learning tasks in class. And also, the sustainability of Duolingo use is an issue to investigate, as Isaacson (2021) puts it, "While Duolingo looks promising and gamified, it lacks elements leading to long-term engagement" (p. 94).

2. Literature Review

2.1. Technology in Language Education: From CALL/MALL to Gamification

Technological advancements have had an enormous influence on every aspect of our lives, and education is no exception. Computer-assisted language learning which refers to studying activities and studying modes using computers became an area of research attention and was thought to bring about various benefits to language learners (Alfuhaid, 2021; Kashoob & Attamimi, 2021; Davudova & Türel, 2022; Inayati & Karifianto, 2022). Later on, when such mobile devices as cell phones, iPads, tablets, etc. were getting popular, applications to support language learning

based on these mobile platforms were also created and employed more widely, hence the term MALL (mobile-assisted language learning). Edwards and Drew (2021) refer to MALL as "becoming more prevalent in educational contexts as a way of furthering both formal and informal language learning" (p. 88). The reasons for this prevalence of MALL in language learning, as Klopfer et al. (2002) outline, lie in the ubiquitous nature of cell phones, the high accessibility to learning resources with no constraints of time and space, the social interactivity and connectivity, as well as the context- and individuality-sensitivity of the mobile apps, with which teachers and students can tailor and customize the learning materials to suit their particular needs and interests. With such characteristics, MALL is a learning mode that provides unique and dynamic opportunities to learn a foreign language, an experience that cannot be found in traditional classroom settings.

With its convenience and high level of mobility, a pocket device can support learners with a variety of activities. Various activities that students can do with a mobile phone range from searching for information and knowledge from the Internet, to using built-in cameras and recorders to make video and audio recordings for their learning projects, to writing essays and completing written assignments in place of a traditional desktop or laptop. The benefits of mobile learning have been recognized by many authors and researchers including Huzairin et al. (2020) and García Botero et al. (2022).

For independent learning, however, students need motivation that helps keep them working regularly for a certain amount of time. It is this need that requires an additional element of motivation to the present apps and software: gamification. The term 'gamification' is defined as any application with a game-like design, used in non-game settings (Deterding et al., 2011). The ultimate purpose of gamification, according to Lee and Hammer (2011), is to attract participants to get involved and try to achieve established goals by using game mechanisms and dynamics. The basic elements of a game are "rules, variable quantifiable outcomes, valued outcomes, player attachment to outcomes, and effort" (Miller 2013, p. 196). Other features of gamification include challenge, role-playing, and competition. It is essential, however, that any adoption of innovative initiatives needs a rationale, and it holds true for gamification. Glover (2013, pp. 2004-2005) provides a helpful checklist of questions for teachers to consider before implementing gamification in education.

- Is the motivation of the students really a problem?

- Are there any behaviours needed to be incentivized?

- Is it possible to gamify specific activities?

- Is it possible to create a parallel evacuation route?

- Does the use of gamification elements help certain types of students?

- What type of rewards will generate higher motivation in the students?

- Will some activities require a higher time disposition than others?

- Are the rewards too easy to obtain?

Just like how games can make the learning atmosphere in the physical language classroom fun and motivating, gamified online applications arguably add motivational flavours to independent learning outside the classroom. For students learning a foreign language, it is indispensable not to use online apps such as dictionaries, AI translation, flashcards for vocabulary learning, etc. New language learning apps appear and the list of names (e.g. Anki, Quizlet, Memrise, Babbel, Mondly, Lingoda, Busuu, Duolingo) seems to never stop growing.

2.2. Duolingo and Its Features

Duolingo is a well-known name for a foreign language learning application, and as it is put on its website, Duolingo is the world's largest online language learning platform, with over 500 million users (Von Ahn, 2020). This over twelve-year-old application can be run online as a web-based app or offline with a smartphone on Android, Apple iOS, and Google Play. According to Edwards and Drew (2021), Duolingo offers a total of 106 different courses in 40 languages. Duolingo courses are completely free. As far as content is concerned, Duolingo courses follow a functional approach (such as ordering food in a restaurant, talking about plans, etc.), with a focus on grammar-translation activities. Examples of tasks on Duolingo include matching images to words, forming phrases by ordering words, voice recordings, reading sentences, and listening to pronunciation.

Duolingo has a high degree of personalization (Peláez-Sánchez & Velásquez-Durán, 2023). It allows learners to choose among options in terms of how much time they would like to spend studying every day (i.e. five, ten, or fifteen minutes, or more). It also provides students with opportunities to either start learning from the beginning or to take a diagnostic test so that they can skip lessons and start with their current level of proficiency to save time. Within each lesson, using a machine

learning system, Duolingo can be individualized by being responsive and sensitive to each student, giving them appropriate questions according to how well or poorly they answer the previous ones.

In terms of methodology, Duolingo allows learners to discover language rules and patterns for themselves through implicit inductive learning and the completion of various repetitive tasks on these language patterns. However, when learners need it, there is always a complementary section on Duolingo called 'Tips' with explicit instruction containing clear and concise explanations and examples of language items such as grammar, pronunciation, and vocabulary.

As for communication, Duolingo has some typical and unique functions of its own to enhance social interaction between users and the app and among users themselves. For each question answered, for example, Duolingo provides encouraging feedback and compliments. Duolingo sends emails to users to show its care and remind them to keep studying. Duolingo permits making friends, following someone, and being followed on other social networking sites. From time to time users get notifications of their friends' achievements so that they can exchange high five and congratulate each other.

Furthermore, the motivational aspects of gamification are fully exploited by Duolingo to engage users with its rewarding system offering gems (virtual currency), crowns, XP points, and badges. Learning is also encouraged with a sense of competitiveness among users using structures such as study streaks, leaderboards, and the possibility to unlock new levels. Edwards and Drew (2021) claim that "Duolingo's bite-sized lessons, its guilt-inducing mascots, and its penchant for interesting sentences ("We don't sell planes to elephants") adds to its appeal as a fun way to learn a language" (p. 88). Additional functions on Duolingo include interactive stories, podcasts, online tutorials, in-person events, online forums, Duolingo School, and most recently Duolingo English Test which is thought to be convenient, inexpensive, and accepted by a great number of American universities for English requirements to enter higher education (Wagner, 2019).

Like any other language learning app, Duolingo has its strengths and weaknesses. In a systematic review of the literature relevant to foreign language learning apps, Tommerdahl et al. (2021) found that 81% of the apps including Duolingo are effective in improving users' target language. Both Munday's (2016) and Loewen et al.'s (2019) studies reveal that most students have positive attitudes towards the use of Duolingo as part of their language courses, although the levels of motivation and

satisfaction fluctuate across age groups and tend to be lower among university students.

A disadvantage of learning a language with an app like Duolingo is related to the fact that learners' communicative competencies may not be sufficiently developed due to lack of exposure to non-verbal aspects of communicating in the language being learned (e.g. gesture meanings, impolite actions, facial expressions, etc.). Also, according to Nushi and Eqbali (2020), the fact that online apps can have no other choice than adopting the out-of-date grammar translation method to second language learning has caused hesitation among educators in employing Duolingo. As for motivation, Vesselinov and Grego's (2012) study, which focuses on the effectiveness of Duolingo in an eight-week program for English speakers learning beginner-level Spanish, indicates that the learners' interest becomes lower over time. Given such disadvantages, possible justifications for using Duolingo can be that this app should be a supplementary tool but not a replacement for classroom activities and that it works better for highly motivated users.

In short, there have been several studies on Duolingo, its benefits and limitations, and its application in EFL classrooms. Generally, Duolingo is found to contribute to students' development of language aspects and skills (pronunciation, vocabulary, grammar, listening, speaking, reading, and writing) as well as their confidence, motivation, and attitudes (Bustillo et al., 2017; Syahputra 2019; Ajisoko, 2020; Jaelani & Sutari, 2020; Nguyen et al., 2021; Redjeki & Muhajir, 2021). Duolingo is also perceived positively by students and is thought to be facilitating teachers (Mahbub et al., 2020; Almufareh, 2021). Klimova (2020) found that Duolingo can help older people to study foreign languages effectively. Given that abundant research has been conducted about the application of Duolingo to support EFL learning English in different contexts worldwide, most studies focus on Duolingo used either in class or as a stand-alone app for independent learners. There is still a need to investigate the pros and cons of using Duolingo to accompany students' homework in the Vietnamese higher education context. It is this need that motivates the conduction of this study.

Particularly, this study is aimed to answer the following three research questions.

RQ1. What are the strengths of learning English with Duolingo?

RQ2. What are the limitations of learning English with Duolingo?

RQ3. To what extent do students accept Duolingo as homework?

3. Methodology

This research is a descriptive study seeking quantitative and qualitative data on how university students perceive the role of the app Duolingo used as their homework assignments. The data were collected after the students had an experience of 15 weeks learning English independently at home with Duolingo in their free time.

3.1. Participants

The participants of the study were 69 EFL university students from two intact classes taught by one of the researchers. The students came from various faculties within a university in Vietnam and were studying the course General English III. Their English proficiency ranged from A2 to B1 on the Vietnamese 5-level scale (which is approximately equivalent to pre-intermediate / intermediate level). The study was conducted during the first semester of the academic year 2022-2023, when the participants had three hours of English in class per week.

3.2. Instruments

The instruments used in this study were a questionnaire adapted from Inayah et al. (2020) and students' essays. The questionnaire consisted of 25 items designed on a 5-point Likert scale, with 1 as 'strongly disagree', 2 as 'disagree', 3 as 'neutral', 4 as 'agree', and 5 as 'strongly agree'. With these items in the questionnaire, students provided their evaluation of the habits and motivation they had while studying with Duolingo. The essays, on the other hand, were employed to collect qualitative data, specifically information about what students viewed as the advantages and disadvantages of Duolingo as an app for foreign language learning. The essay prompt was 'What are the advantages and disadvantages of studying English with Duolingo?', with which students were asked to write their answer in a 200-220 word essay. The two instruments together are believed to be appropriate means for understanding the learners' perception and evaluation of the app under question.

3.3. Procedure

In week 1 of the semester, one of the researchers, who was at the same time the

instructor in the two English classes of the participants, introduced Duolingo to them and gave them necessary instructions regarding studying extra hours at home with the Duolingo English course. Then during the following weeks, the students were required to continue this voluntary work. They were regularly reminded to keep working until week 15 of the semester. In week 16, the students were requested to answer the questionnaire administered online in a convenient Google form. The questionnaire employed for this study was a Vietnamese version adapted from Inayah et al. (2020). Also, the participants were given an essay question to answer. The topic was sent to them online via email in week 15 and they were allotted as much time at home as they wished to finish their writing. The students were told to write either in English or Vietnamese for comfortability and submit their essays online via email by the end of week 16.

As for data analysis, the numeric answers from the student questionnaires were imported to SPSS for statistical descriptive tests. The means and standard deviations corresponding to 25 items of the questionnaire were reported. The student essays were read and analyzed by the researchers for thematic categories. All the scanning, skimming, and classifying tasks were facilitated by the various functions of words (e.g. find, highlight, and so on). The key advantages and disadvantages of Duolingo were identified and reported.

4. Results

4.1. Findings from the Questionnaire: Students' Perception of Duolingo

The data collected from the questionnaire were processed and analyzed using SPSS Statistics version 22. First, a reliability test was conducted which resulted in a Cronbach's Alpha of .968 indicating that the instrument was appropriate for collecting data on the subjects' experience with Duolingo.

Figure 1
Reliability of the Questionnaire

Cronbach's Alpha	N of Items
.968	25

4.1.1. Duolingo's High Practicality and Usefulness

Ten out of twenty-five items in the questionnaire give the students opportunities to rate the levels of usefulness and practicality of Duolingo (see Table 1). As a whole, Duolingo is found to be easy to use, even for new users (Mean of item 11 = 4.21). It has instructions in simple language (Mean of item 6 = 4.13). Duolingo can be used on mobile devices (Mean of item 24 = 3.84) and gives a wide flexibility of time and space. It is accessible at any time and from everywhere (Mean of item 12 = 3.96). Duolingo also provides suitable content and learning materials (Means of items 8 & 19 = 3.82 & 3.88) which meets the need of students for an additional learning tool to improve their English (Means of items 1 & 22 = 4.09 & 4.03).

Table 1
Usefulness and Practicality

Items	Means
Supplementary learning tool (item 1)	4.09
Easy and comprehensive tool (item 6)	4.13
Appropriate materials (item 8)	3.82
Compatible with student ability (item 10)	4.22
Simple usage tactics (item 11)	4.21
Time and space flexibility (item 12)	3.96
Meeting user needs (item 18)	3.74
Adequate content (item 19)	3.88
Improving English (item 22)	4.03
High mobility (item 24)	3.84

4.1.2. Duolingo as a Motivating Learning Tool

Duolingo is viewed by the students as a motivating learning tool (see Table 2). It is said to be exciting, enjoyable, and fun ($M = 3.93$). Duolingo provides topics that are diverse ($M = 3.74$) and interesting ($M = 3.82$). All of these features help to increase users' motivation ($M = 3.82$) and keep them continuing to use it to learn ($M = 3.94$).

Table 2
Motivating Tool

Items	Means
Exciting gadget (item 2)	3.93
Enjoyable and fun (item 9)	3.93
Interesting topics (item 20)	3.82
Diverse topics (item 21)	3.74
Increasing motivation (item 23)	3.82
Continuing to use (item 25)	3.94

4.1.3. Duolingo as a Rich and Appropriate Resource for Independent Learning

For the remaining 9 items of the questionnaire, the students evaluate the activities and practices offered by Duolingo (see Table 3). Overall, Duolingo contains a variety of exercises to practice the English language skills and aspects: vocabulary ($M = 4.03$), grammar ($M = 3.68$), reading and writing ($M = 3.90$), listening and speaking ($M = 3.91$), and translation ($M = 3.66$). Duolingo is seen to provide meaningful ($M = 3.85$), creativeness-stimulating ($M = 3.81$), and balanced activities ($M = 4.00$) that facilitate different learning styles ($M = 3.78$).

Table 3
Appropriate and Rich Learning Resource

Items	Means
Accommodating different learning styles (item 3)	3.78
Balanced practice (item 4)	4.00
Meaningful interaction (item 5)	3.85
Stimulating creativeness (item 7)	3.81
Reading and writing practice (item 3)	3.90
Listening and speaking practice (item 14)	3.91
Grammar practice (item 15)	3.68
Translating practice (item 16)	3.66
Vocabulary practice (item 17)	4.03

4.2. Results from Students' Essays

4.2.1. Duolingo's Positive Aspects

As for the advantages of using Duolingo to study English, through their essays, the students expressed several positive comments. The positive evaluation roughly fell into four categories: free cost and easy usability, unique features, rich content, and motivation.

The first strength of Duolingo as described in the students' essays reflected the fact that this app was easy to use and completely free of charge. This opinion was revealed several times, for example, in essays 10, 25, 27, and so on.

Firstly, it provides us with an environment to practice English for free. We can learn all the contents in this app without limitation and cost. (Essay 10)

Everything is free on Duolingo and you can learn them at any time after study time. (Essay 25)

It is fast, it is free and most importantly it is good for your brain. (Essay 27)

A second benefit that was identified by the students was related to the unique nature of the application. The student in essay 12 mentioned Duolingo's user-friendly interface and its appealing gamification elements while the student in essay 18 highlighted the supportive functions (e.g. learning log, XP gained) of the app as well as the competitiveness it creates for users.

Duolingo has a simple but lovely interface. Activities are gamified so they are suitable for many types of users, and they cause no boredom. The game-like exercises make learning pass quickly. (Essay 12)

Duolingo also provides many convenient features to support your learning. You can also track your own progress and compete with other learners. (Essay 18)

Other characteristics of Duolingo that the participants labeled as benefits could be seen in its wide range of practice exercises and rich language content. Among others, the following three excerpts were noticeably representative of a multitude of similar ideas in the evaluation of this area.

You will be able to listen, read, and write in the language all the time using the Duolingo app. (Essay 3)

It uses a mix of audio, and visuals as well as questions about the grammar, and vocabulary of English, which helps us remember new knowledge in a very fun way. (Essay 10)

The content is rich and diverse, covering all topics for learning English. (Essay 18)

The last area of evaluation was related to the motivational elements of Duolingo. This was also the benefit that was mentioned in almost all the essays. Duolingo is thought by the students to be a learning platform that is fun, interesting, relaxing, non-threatening, unstressful, etc.

Duolingo contains a lot of lessons with interesting examples to help us remember and have more interest in learning. (Essay 6)

Using Duolingo also helps you reduce stress in the process of learning English because it provides many interesting lessons for you. (Essay 28)

Students can not only access a wider range of knowledge but also learn it in a more interesting way. (Essay 39)

Duolingo is programmed as a game to help you reduce stress and have more interesting experiences than you learn in class. (Essay 41)

It's fine when we get wrong answers because "Duolingo" will give us another chance to fix it right again. (Essay 2)

4.2.2. Duolingo's Negative Aspects

On the other side of the evaluation, however, the problems that the participants identified include (1) challenges to learning speaking and developing communicative skills, (2) boredom with beginner lessons, and (3) overwhelming notifications. First, the students found it hard to do the speaking exercises, where they were required to produce English sentences by saying them on the microphone. Most of the time, they needed to speak in a loud voice, and the app did not always accept their answers as correct. This reality was mentioned in essays 28 and 2 as follows.

The first disadvantage refers to speaking lessons. They are limited because the app can't recognize your voice correctly. (Essay 28)

Another difficulty while using it is when we do the speaking, it sometimes can't hear you clearly and doesn't accept our answer. (Essay 2)

Some students also complained that Duolingo does not provide the kind of communication that we have in real life. Instead, it offers conversations that sound like an unnatural computer voice. Students wrote the following comments.

Duolingo's lessons all use pre-recorded or computer-generated voices, so sometimes learners will be limited in learning how to reflect and communicate in real-life contexts. (Essay 1)

You can't interact directly with the teacher or practice speaking skills like you would in the classroom. (Essay 33)

In addition, a number of students found it boring to study the lower-level lessons on Duolingo, saying that since the lessons were programmed beforehand, they could not choose to proceed to the next level. Particularly the following were mentioned.

Learners will not be able to choose and learn vocabulary for the topic that they need. (Essay 1)

Some other students argued that Duolingo lessons might not fit their learning style. For those learners who needed explicit instructions rather than inductive learning, this could be a challenge as can be seen in an excerpt from essay 25 below.

You can only learn some vocabulary and phrases, there isn't any proper and suitable grammatical explanation and rules for sentence structure. (Essay 25)

The final most common complaint had to do with the excessive notifications Duolingo makes to keep users learning. Once you pause your learning for a little while for instance, your electronic mailbox may be full of reminders from Duo (the

green owl representing the course host). This good intention might be interpreted as something troublesome and irritating by the students. Essays 6 and 26 were among those which mentioned this disadvantage.

The second too much notification is also an annoyance for many people. (Essay 6)

Next, it might annoy you with notifications. (Essay 26)

In summary, the students reported positive aspects of Duolingo: free of charge, easy to use, rich in content, highly motivating, and having unique features. Limitations of Duolingo are lack of speaking activities, boredom of beginning lessons, and excessive notifications.

5. Discussion

This section discusses the main findings and what relations they have with previous research in the application of Duolingo to supplement EFL students' English acquisition. Overall, the participants had a positive evaluation of the application: it is a helpful and appropriate tool for learning outside the classroom. Duolingo was also believed to provide rich content and various forms of exercises for students to learn and practice English. As an app with highly gamified features, Duolingo tended to be able to inspire and engage users in learning. These findings were consistent throughout in students' responses both in the questionnaire and the essays. Moreover, the students' detailed and recurrent ideas of evaluation could be summarized as the following. Positive aspects of Duolingo were its free cost and ease of use, its special and unique features, its rich practice forms and wide coverage of content, and its motivational elements. Negative aspects of Duolingo included the difficulties with practicing speaking and communicative skills, the boredom connected with low-level lessons, and the overwhelming number of notifications. The pros and cons as perceived by the Vietnamese students were mostly similar to those identified in the studies in other educational settings worldwide such as Boterro and Questier (2016), Astarilla (2018), Boterro et al. (2018), Inayah et al. (2020), and Redjeki and Muhajir (2021).

However, some personal evaluations that the students in this study made about the weaknesses of Duolingo seemed not radical. Among these few misjudgments were the complaints that students could not skip lessons to advance to higher levels and that students did not have explanations of grammatical rules and structures. This could be evident in the students' insufficient understanding of the app. For the first

complaint, for example, students could, in fact, take a diagnostic test, or use the 'unlock level' function to move to the lessons corresponding to their current proficiency. For the second complaint, there is a 'tip' section available in Duolingo lessons to support learners with grammatical guidance and examples.

Some practical implications could be drawn from the findings of this study. Firstly, in order to fully exploit the effectiveness of the application, students need to be given the necessary instructions by the teacher so that they can understand the tool as much as possible and make the best use of its functions. Secondly, helpful tips and strategies should be shared among students or provided by experienced users and teachers so that each individual can maximize the results of their learning experience.

Lastly, given that every gamified application in general and Duolingo, in particular, may inevitably have weaknesses, it is advisable for both students and teachers, during their implementation of technology, to find ways to overcome the limitations and improve the present practice rather than look for something perfect that is hardly affordable.

While plenty of research evaluates Duolingo through the lens of the application developers and users, little is done by teachers and students. The current study focuses on realistic evaluative feedback by students after their real experience with the app. The key findings reveal a high level of student acceptance to use gamification as homework to supplement what they study at school. Besides, although m-learning using apps like Duolingo is appropriate for independent learning, it needs to be supported by teachers who play the role of experienced users giving necessary instructions and helpful tips and guidance.

6. Limitations and Conclusions

The present study had two limitations worth acknowledging. Firstly, as for the implementation of gamified homework, there was a lack of controllability in terms of the time spent by the students and the number of lessons they learned. This was a preliminary study in which the students were invited to participate voluntarily, so the researchers could not assign concrete numbers of hours and lessons to the participants. Future research might overcome this by applying proper punish-award grading policies and making sure participants have equal experience to yield a fair evaluation. Secondly, writing evaluation essays at home with no time restriction

could result in unrealistic reflection. In other words, some students might take ideas from somewhere instead of reflecting on their own experience. Future studies could use essays as an instrument for data, but it is important that the writing of essays be done in class and within a limitation of time. A follow-up study is also necessary to evaluate how students can develop independent learning skills with similar implementations.

In short, this study was aimed at investigating Vietnamese EFL students' evaluation of the use of Duolingo as a supplementary learning activity to do at home. It found that the students had positive attitudes about the application of Duolingo, seeing it as a suitable tool for self-learning besides their regular class hours. Duolingo was recommended mostly for use thanks to the motivational elements in its gamification nature. The findings were in congruence with previous studies, for example, Munday (2016) and Loewen et al. (2019). Generally, it was also found that learning with Duolingo was an enjoyable experience for Vietnamese students - a similar result for the case of Japanese university students studied by Edwards and Drew (2021). The rapid development of technology has made learning opportunities available in the learner's hands, so they are expected to seek knowledge and develop skills for themselves, even beyond the classroom space. While it is hardly possible to replace the traditional classroom with technology, foreign language learning apps like Duolingo should be appropriately used alongside the well-established practice.

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APPENDIX

Results of Students' Evaluation of Duolingo

Item	Mean	SD
1/ I am trying to find additional learning tools when I have trouble learning English.	4.07	.714
2/ I am excited to use new learning technologies like Duolingo because it is interesting.	3.91	.781
3/ I use Duolingo because it suits my learning style.	3.78	.838
4/ I am comfortable using Duolingo because it provides a balance of activities (for example, the practice questions are grouped according to the students' ability level).	4.00	.840
5/ I use Duolingo because it provides activities that encourage sufficient communicative and meaningful practice.	3.86	.791
6/ I understand the material in Duolingo because it provides information and questions that are easy to understand.	4.13	.616
7/ I like the activities in Duolingo because they promote creative, original, and independent responses.	3.81	.809
8/ I must focus on practicing the skills that I need and Duolingo provides the appropriate material for the user.	3.83	.874
9/ I really like using Duolingo because it makes English learning more enjoyable and interesting.	3.93	.792
10/ I easily understand the language used in Duolingo; it is	4.22	.704

Item	Mean	SD
adjusted to the ability level of students.		
11/ I don't find it difficult when operating Duolingo because the app is easy to use even for the beginner user.	4.19	.753
12/ I really enjoy Duolingo because it allows me to study whenever and wherever I am.	3.96	.882
13/ I often practice reading and writing through Duolingo.	3.90	.910
14/ I often practice listening and speaking through Duolingo.	3.91	.836
15/ I often learn grammar or structure through Duolingo.	3.68	.993
16/ I often practice translating words and sentences through Duolingo.	3.67	.902
17/ Based on my experience using Duolingo, the app enriches my vocabulary.	4.03	.822
18/ I am looking for learning materials that I need and Duolingo appropriately facilitates these needs.	3.74	.918
19/ I like to content in Duolingo which is relevant to my need as an English language learner.	3.88	.916
20/ I really enjoy using Duolingo because the subject and content of the materials is interesting, challenging and motivating.	3.83	.839
21/ I don't get easily bored of using Duolingo because there is sufficient variety in the subject and content in Duolingo.	3.74	.902
22/ I believe that using Duolingo will improve my learning process to be more effective.	4.03	.766
23/ I raise my interest in further English language study after using Duolingo.	3.83	.890
24/ I prefer practicing English using Duolingo on the smartphone rather than other media because it is more fun and enjoyable.	3.84	.918
25/ I will use Duolingo to study English even after this course.	3.94	.906

About the Authors

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