

Students' Experience in Learning English Vocabulary Through the Duolingo Application

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ABSTRACT

Vocabulary skills. While previous research has demonstrated the effectiveness of the Duolingo app in enhancing vocabulary acquisition, studies focusing on students' learning experiences remain limited. A pre-research survey indicated that Duolingo is the most preferred application for independent vocabulary learning. This study explores the experiences of eighth-semester students in learning English vocabulary using Duolingo, focusing on cognitive, affective, and behavioral aspects. A qualitative case study method was employed, with data collected through questionnaires and semi-structured interviews involving students from the Faculty of Teacher Training and Education in a private university in West Kalimantan. The findings underscore the importance of integrating mobile technology as a standalone, enjoyable, and meaningful tool for vocabulary learning.

Keywords: *Duolingo, Gamification, Learning Experience, Mobile-Assisted Language Learning, Vocabulary Learning*

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INTRODUCTION

In the current context of higher education, the student learning experience is a central element that not only reflects the quality of the learning process, but also greatly influences the level of engagement, motivation and academic success of the students themselves. As stated by Matus et al. (2021), a thorough understanding of the student learning experience allows educational institutions to identify hidden barriers to learning, develop more targeted learning support, and design personalized and meaningful learning strategies. Furthermore, they state that a positive learning experience has a strong correlation with increased student retention, academic achievement, and overall study success.

Based on this understanding, this research highlights how technology, specifically the Duolingo app, plays a role in shaping an independent, fun and challenging learning experience for students in learning English vocabulary. Duolingo app is chosen because it offers a gamification-based learning approach that is considered to increase students' motivation and engagement in learning independently outside the formal classroom. To deeply understand how this learning experience is formed, this research refers to the theoretical framework proposed by Inayah et al. (2020), which divides students' learning experience into three main aspects, namely cognitive, affective, and behavioral aspects.

Cognitive Aspect (Material Understanding)

The cognitive aspect refers to the extent to which students understand the learning material, especially English vocabulary, through the use of the Duolingo application. This understanding includes students' ability to recognize, remember, and use vocabulary appropriately in the context of appropriate sentences. Thus, this aspect reflects the effectiveness of learning in terms of material mastery.

Affective Aspect (Emotional Response to Gamification)

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The affective aspect relates to the emotional response of students in using the app, especially through the gamification elements offered by Duolingo, such as XP (experience points), badge system, and leaderboard. Responses such as pleasure, excitement, enthusiasm, and frustration show how emotional experiences shape students' perception of the learning activity.

Behavioral Aspect (Application Usage Pattern)

The behavioral aspect observes students' habits in using Duolingo app, including their frequency and consistency in accessing the app for learning. This aspect is important to see the extent to which students show commitment to continuous self-learning, whether they study regularly or only occasionally access the app.

In relation to language learning, vocabulary mastery plays a very important role in language learning. Andini (2024) states that vocabulary is a basic component in communication, both oral and written, as well as a major indicator of one's language proficiency. This view is reinforced by Machfudi and Afidah (2022) who state that no information can be conveyed without grammar or vocabulary. Thus, vocabulary mastery must be an integral part of the language learning process, equal in importance to other language skills.

In defining vocabulary, Eichholz and Barbe, as cited by Angela (2024), refer to it as "all the words in a language" or "a list of words usually organized alphabetically and defined." Angela (2024) adds that vocabulary learning involves not only the recognition of new words, but also the understanding and ability to use them in various communication contexts. Furthermore, Al-Faris and Jasim (2021) describe vocabulary as the "glue" that holds stories, ideas and content together, thus enabling better understanding for language learners. Abdulazizovna and Kizi (2023) also emphasize that vocabulary includes understanding words and their definitions.

In line with this, Aprilani (2021) asserts that it is impossible for someone to learn a language without understanding its vocabulary. A broad and precise vocabulary not only improves communication skills, but also becomes the foundation in mastering other linguistic aspects, such as grammar. Therefore, vocabulary development is a crucial aspect of English language learning, as it contributes to confidence and fluency in communication, both in academic and professional contexts.

In an effort to get an initial picture of students' interest and learning behavior related to self-learning of English vocabulary through technology, a pre-research survey was conducted among semester 8 students of the Faculty of Teacher Training and Education in a private university in West Kalimantan. The survey involved three study programs, namely Mathematics Education, Physics Education, and English Education. The survey results show that most students around 63% still have a strong desire to learn English independently at home. However, there were also 36% of students who stated that they did not take the time to study independently. Interestingly, the majority of the group who did not take the time came from study programs outside of English Education, namely from Mathematics Education and Physical Education.

Some students have developed more interesting learning methods with technology. The use of technology, such as smartphones, to get information is important in this era. Some students have a strong belief that technology can be used for education, especially in learning English. Observations show that students have access to apps that offer engaging learning methods, including higher-level learning and competence among users through the XP (Experience Points) system. The acquisition of XP is effective in increasing the intensity of use of the application which can encourage users to continue learning English where users compete to collect the most XP, with points earned from various activities such as completing lessons, answering correctly, maintaining a daily learning record, and participating in special challenges and the name of the application is Duolingo Application. Figure 1 shows the apps most frequently used by students to improve their English vocabulary.

Jika menggunakan aplikasi, aplikasi apa yang paling sering Anda manfaatkan dalam pembelajaran Bahasa Inggris?
107 jawaban

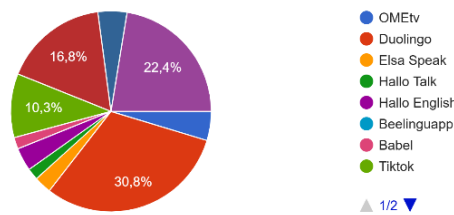


Figure 1. English Learning Application

The diagram shows that the majority of the semester 8 students prefer the Duolingo application which can help accompany learning English, especially to learn to improve vocabulary independently at home. Duolingo is an online language learning application created by Ahn and Hacker (2011). Duolingo is a language learning app designed to help users master vocabulary and other language skills through an interactive and engaging approach (Matra & Kunci, 2020). The app is available for free and can be accessed through various platforms such as Web, Android, iOS, and Windows, making it easily accessible to users from all walks of life (Pratasik, 2022).

Duolingo's main advantage lies in its fun and innovative design, which actively engages learners in the learning process. This makes Duolingo a popular choice among students of all ages Febriani et al. (2023) According to Purwanto and Syafryadin (2023), Duolingo not only helps students understand the material they are learning, but also increases interest in learning and makes the learning process more fun.

Suci (2022) adds that Duolingo's main appeal lies in its game-based approach. The app focuses on vocabulary development through various modules, such as basic knowledge, food, animals, common idioms, and plural words. This gamification element allows students to learn without pressure, while still being effective in improving vocabulary acquisition.

Duolingo is also highly relevant in the context of independent learning. Its game-like design can significantly increase user engagement, while helping to overcome learning fatigue and boredom. In addition, the app facilitates students to study flexibly in their spare time with an engaging approach, thus encouraging them to spend more time learning English.

Studies between revealed that the Duolingo application was effective in improving English vocabulary acquisition (Astarilla, 2018; Inayah et al., 2020; Nurshiyam et al., 2022; Andini, 2024; Nurhayati and Suryaman, 2024). Nurshiyam et al. (2022) found that 10 students of the English Language Education Study Program at Tadulako University had a positive perception of Duolingo, with an average score of 89.76%. This application is considered easy, interesting, and fun, although it requires an internet connection. Apoko et al. (2023) studied students from various majors at the tertiary level and reported that 83% of respondents found Duolingo easy to use, flexible, and helpful in improving vocabulary. This study recommends Duolingo for both EFL and non-EFL students. Nurhayati and Suryaman (2024) through a quasi experimental study showed a significant increase in post-test scores in high school students in the experimental group who used Duolingo compared to the control group. Astarilla (2018) involved 135 university students in Pekanbaru and found that 82.3% found Duolingo's features easy to use, and 90.4% found the app useful in improving English skills, despite shortcomings such as offline limitations and some unnatural sentences. Inayah et al. (2020) who used mixed methods on 60 students of Syiah Kuala University, found that the majority of respondents rated Duolingo as a

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useful and motivating tool, although its use was less consistent due to time constraints. Overall, these five studies show that Duolingo is an effective, practical and engaging learning tool to improve English vocabulary acquisition, especially at the higher education level in Indonesia. Despite its technical limitations, the app is still recommended for both EFL and non-EFL students.

Although previous studies have demonstrated the effectiveness of Duolingo in supporting EFL learners for vocabulary acquisition and revealed students' positive perceptions of its features, most of these studies have primarily focused on quantitative outcomes, such as test scores and app usage statistics. However, few studies have explored students' learning experiences, particularly in how they cognitively, emotionally, and behaviorally engage with the application. This study addresses that gap by investigating the actual experiences of students using Duolingo for vocabulary learning. By applying a qualitative case study approach, this research aims to provide deeper insights into how Duolingo shapes students' independent learning of vocabulary from multiple dimensions. To that end, this study is guided by the following questions: (1) How do students experience in learning English vocabulary using Duolingo application as a self-learning media? (2) How do students utilize quizzes in Duolingo app to help learn English vocabulary?

These questions aim to explore the cognitive, affective, and behavioral aspects of the vocabulary learning process through Duolingo from the perspective of the students themselves. Understanding these experiences is crucial to improving technology-based language learning strategies and encouraging a more personalized and enjoyable approach to vocabulary acquisition in higher education.

This research focuses on students' experiences in understanding English vocabulary materials through the Duolingo application. The research also highlights how students use the app by answering quizzes in learning vocabulary. The importance of this research lies in its contribution to improving the quality of language learning through technology. With technology, users or learners can learn independently and enjoyably by using an application. This research is also important in providing valuable insights into how technology can be integrated into teaching strategies and can inspire to explore new ways of acquiring knowledge through technology.

METHOD

Research Design

This study employed a qualitative case study design to explore students' experiences in learning English vocabulary through the Duolingo application. A case study can be defined as an intensive study about a person, a group of people, or a unit, which aims to generalize over several units (Heale and Twycross, 2018). Thus, the researchers attempt to reveal the students' experience in a private University in West Kalimantan.

Data Collection Technique

The researchers used purposive sampling to select 10 individuals to be interviewed in order to gain deeper insights. The participants consisted of 6 students from the English Education program, 2 from the Mathematics Education program, and 2 from the Physical Education program. The purpose of this sampling was to ensure diversity of backgrounds while remaining relevant to the research topic.

Data collection was conducted in two stages, namely survey and interview. The closed-ended questionnaire consists of 15 statements measured using a Likert scale. This questionnaire was designed to assess students' understanding, motivation, and consistency in using the Duolingo app. The cognitive aspect included items such as perceived ease of understanding vocabulary, usefulness of quizzes, and understanding of word meaning and structure. The affective aspect explored students' emotional

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responses to gamification features such as XP, leaderboards, and daily challenges. The behavioral aspect measured usage patterns, including frequency, consistency, and goal setting in using Duolingo. In addition to the closed-ended questions, the questionnaire also included one open-ended question that allowed participants to describe the most enjoyable or challenging experience while using Duolingo to learn English vocabulary.

The semi-structured interviews were conducted to explore students' experiences in learning vocabulary through Duolingo in greater depth, particularly how they utilized the quiz feature and their perceptions of the app's gamification elements. Semi-structured interviews and questionnaires were the two main tools used to collect data. The first step was to distribute pre-research questionnaires to 107 semester 8 students from three different study programs at the Faculty of Education and Teacher Training, Universitas Katolik Santo Agustinus Hippo. The purpose of this survey was to identify students who actively used the Duolingo app to learn new vocabulary. It was found that 33 students were still actively using the Duolingo app.

Data Aanalysis

The data in this study were analyzed using a qualitative content analysis approach based on the model developed by Miles and Huberman (2014), which consists of three main components: data condensation, data display, and data verification analysis of conclusions.

Data Condensation

This stage involved the process of transforming, focusing, simplifying, and selecting data derived from questionnaires and interviews. The researcher provided information relevant to the research objectives, namely data related to cognitive (word comprehension), affective (emotional response to Duolingo application), and behavioral (students' use of Duolingo) aspects.

Data Display

At this stage, the data has been organized and visually presented using theme analysis and summary tables. This display allows the researcher to methodically group the findings according to the three aspects of cognitive, affective, and behavioral aspects that allow patterns and relationships to emerge more clearly.

Verification and Analysis of Conclusions

After presenting the data, the researcher analyzed the data and analyzed the students' learning experience using Duolingo. The conclusions were continuously monitored and analyzed to ensure they were consistent with the data collected. The researcher also verified the accuracy and consistency of the data by analyzing the respondents' responses.

Through this structured process, the study was able to provide in-depth insights into how students perceived and utilized the Duolingo application for vocabulary learning, revealing both the benefits and challenges encountered during independent learning.

FINDINGS AND DISCUSSION

This section addresses the research questions by presenting the findings and analysis of students' experiences using the Duolingo application to learn English vocabulary. The discussion is structured based on the two research questions and draws from the three theoretical dimensions of learning experience: cognitive, affective, and behavioral (Inayah et al., 2020)

*Students Experience in Learning English Vocabulary Using Duolingo Application as a Self-Learning media**Cognitive Experience*

According to the majority of students, Duolingo improved their comprehension and retention of new English vocabulary. Through contextualized tasks including matching, sentence-building, and listening exercises, students (93%) agreed that the program enhanced

their comprehension. Students were able to observe terminology in action thanks to these interactive aspects, which promoted deeper processing and long-term memory.

The overall results indicate that Duolingo has a strong positive impact on the cognitive aspect of English vocabulary learning. This is evident in students' improved understanding and mastery of vocabulary, supported by both qualitative feedback and survey responses.

Table 1. Survey Results on the Use of Duolingo in Cognitive Aspects

Statement	Percentage of agree/strongly agree
I find understanding new vocabulary easier with the help of the Duolingo app.	100%
The quiz feature helps me understand the meaning and usage of words	100%
Duolingo helped me understand sentence structure in English	100%
Duolingo helps me understand the context of vocabulary usage in sentences	97%
I can remember vocabulary longer after learning it with the Duolingo app	94%

Based on the results, it can be concluded that the Duolingo application makes a significant positive contribution to the cognitive aspect of learning English vocabulary. This is supported by the high percentage of students who felt aided in vocabulary understanding (93%), the effectiveness of interactive quiz features (90%), and the ability to use vocabulary in the right context (81%). The integration of technology in language learning, especially through mobile applications like Duolingo, proves to be an effective solution to improve cognitive aspects in vocabulary acquisition. Duolingo's gamification strategy creates an engaging and interactive learning environment and has a measurable positive impact on learning outcomes. Therefore, it can be recommended as a complementary tool in language learning curricula to optimize students' cognitive development.

Excerpt 1:

"Duolingo helps me understand new words in a sentence. It's repeated in different forms until I get used to it." (Student 5)

These results are consistent with cognitive constructivist theories, which place an emphasis on active learning, multimodal input, and repetition (Bruner, 1966; Schmitt, 2008). The idea of recycling vocabulary across contexts for long-term acquisition, as proposed by Nation (2001), is shown by Duolingo's regular exposure to words in a variety of formats. Similar advantages were noted in studies by Nurhayati and Suryaman (2024) and Apoko et al (2023), which pointed out that contextual assignments on Duolingo assisted students in applying vocabulary in meaningful ways as opposed to memorization of lists. The same process seen in this study was also supported by Inayah et al. (2020), who discovered that 88% of users reported increased vocabulary recall as a result of in-app quizzes and listening modules. Nevertheless, several students reported that it was occasionally more difficult to understand structural norms due to the absence of clear grammar explanations, indicating that the app functions best when combined with formal instruction. This observation is in line with Matra and Kunci (2020), who suggest that for best results, Duolingo be used in conjunction with specific classroom-based grammar instruction.

Affective Engagement

Affective engagement refers to students' emotional responses during the learning process with Duolingo, including feelings of joy, enthusiasm, motivation, as well as possible boredom and frustration. The findings show that the majority of students reported positive affective responses while using the Duolingo application.

The results suggest that emotional responses are highly individualized. Achievement-oriented students were particularly motivated by XP and ranking systems, while others lost interest when exposed to monotonous material. This highlights the importance of varied content and personalization in educational apps to sustain emotional engagement.

Table 2. Survey Results on the Use of Duolingo in Affective Aspects

Statement	Percentage of agree
I have fun using Duolingo to learn English vocabulary	100%
Features like XP (experience points), leaderboard, and daily challenges make me more enthusiastic about learning	97%
I feel like learning with Duolingo is like playing a fun game	97%
I have felt bored or lost motivation while learning using Duolingo	60%
I stay motivated to learn even though i don't always get prizes or rewards	91%

Table 2 reveals 100% of students felt happy learning English vocabulary with Duolingo, with enjoyment mainly driven by the app's interactive and playful elements. Furthermore, gamification features such as XP points, leaderboards, and achievement badges were seen as effective motivational tools. About 91% of students felt motivated by these game elements, as they created a sense of accomplishment and a healthy level of competition. In fact, 91% of students stated they remained motivated even without receiving material rewards, indicating that the intrinsic satisfaction of learning itself was a powerful factor.

Excerpt 2:

"Duolingo feels like a fun game, so it doesn't feel like a burden when learning"
(student 3)

Excerpt 3:

"I feel motivated to keep learning because I want to rank up on the leaderboard" (student 6)

These responses highlight how Duolingo's game-like interface succeeded in making learning enjoyable and emotionally engaging. The design helped remove the rigid feeling often associated with formal language learning. This reflects the findings of Vesselinov and Grego (2012) and Anton Adi Purwanto and Syafryadin (2023) who highlighted how Duolingo's game mechanics transform passive learning into an enjoyable and rewarding activity. Gamification theory Yu (2023) suggests that elements like point scoring and competition stimulate dopamine release, leading to positive affect and deeper cognitive investment. However, the study also uncovered some emotional challenges. Approximately 40% of students experienced boredom, which was generally caused by repetitive content and lack of variation. Some students also expressed frustration with restrictions in the free version, such as the "hearts" system that limits learning after several mistakes. This echoes Astarilla (2018), who found that 17% of students disengaged over time due to content fatigue.

Behavioral Patterns

Behavioral patterns refer to how students use Duolingo in their daily routines, including frequency, consistency, and habit formation. Survey results confirmed these findings, showing that a majority of students developed relatively consistent study habits:

Table 3. Survey Results on the Use of Duolingo in Behavioral Aspects

Statement	Percentage of agree
I use Duolingo more than three time a week to learn vocabulary	90%
I have a specific schedule or target 12 in using the Duoingo app	81%
I feel consistent using Duolingo to study every week	78%
Sometimes I find it hard to keep up with studying with Duolingo	87%
Using Duoingo is more effective for me than other vocabulary learning methods	100%

Based on these findings, Duolingo appears to have a strong impact on students' behavioral engagement with vocabulary learning. The app is effective in creating initial motivation and helping form study habits through its interactive interface and gamified structure. However, maintaining long-term consistency remains a significant challenge. To

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enhance sustained engagement, it is important to incorporate additional strategies that foster intrinsic motivation – encouraging students to learn not only for points or rankings but also for the personal goal of mastering the English language. Interview results showed that most students demonstrated high enthusiasm at the beginning of using the Duolingo app. In fact, 90% of students used the app more than three times a week in the initial phase of learning, indicating that Duolingo successfully attracted students' attention and initiated routine vocabulary learning.

Excerpt 4 :

"I used this most often maybe 4-6 times a week. About 10-15 minutes per day because it tells me how many days I've studied " (student 1)

These trends demonstrate how nudging, a behavioral economics principle that involves providing small cues (such as notifications or streaks) to stimulate engagement, influences the formation of habits in digital learning (Thaler & Sunstein, 2008). These nudges are best illustrated by Duolingo's "daily streak" and "goal-setting" capabilities. However, 87% of students saw a reduction in usage over time. Academic overload, app fatigue, and waning novelty were among the causes. The results of Inayah et al (2020), who noted a decline in weekly consumption following the first month, are in line with this. These practical obstacles highlight the limitations of extrinsic motivation and underscore the need for more comprehensive learner support and diverse content.

Utilizing the Quiz Features in the Duolingo App to Learn English Vocabulary

Quizzes were found to be the most engaging and beneficial feature for vocabulary retention. The format of matching, sentence arrangement, and fill-in-the-blank exercises allowed students to interact with words in meaningful contexts.

Excerpt 5:

"My experience in understanding new vocabulary is very easy, because at every stage of the Duolingo application there are sentences or words that continue to be repeated until we can understand." (Student 4)

Excerpt 6:

"The quiz features such as matching pairs, sentence construction, listening, and multiple choice are very helpful. Because by matching pairs and composing sentences, I can understand the context. The listening feature also improved my ability to recognize pronunciation." (Student 7)

Excerpt 7:

"The quizzes help me remember because I see the same word in many different types of questions. However, the incorrect answers are not explained" (Student 10)

These experiences are consistent with the Depth of Processing Hypothesis (Craik & Lockhart, 1972), which maintains that information is more likely to be recalled the more thoroughly it is processed (via involvement, context, and association). Such opportunities are available through the variety of quiz types on Duolingo. As quizzes activate different learning pathways, students prefer learning through them over static flashcards Suci (2022). However, the quiz style does have certain drawbacks. Several students expressed that they were left wondering because incorrect responses were not explained. Matra and Kunci (2020) have pointed out this drawback and contend that to facilitate learner development and correction, digital learning applications should include metalinguistic feedback.

CONCLUSIONS

This study examined the experiences of eighth-semester students in acquiring English vocabulary through the Duolingo application, focusing on the cognitive, affective, and behavioral dimensions of their learning. The results demonstrate that Duolingo substantially facilitates vocabulary acquisition via interactive, contextual, and engaging learning experiences. Students indicated enhanced comprehension and retention of vocabulary through repetitive practice and contextualization inside sentences. From an emotional

standpoint, gamification components like XP points, leaderboards, and daily challenges significantly enhanced students' motivation and enjoyment throughout the learning experience. Nevertheless, several students encountered ennui owing to the monotonous content and restricted functionalities in the complimentary version. Duolingo promoted the cultivation of self-directed learning habits among students, although sustaining long-term consistency poses a barrier. These findings confirm that Duolingo serves as a significant resource for autonomous English vocabulary acquisition. The software fosters an effective and motivating environment for vocabulary acquisition by integrating technology, gamification, and contextual learning. Consequently, Duolingo is advisable as an ancillary resource in language instruction, applicable in both formal classroom environments and for independent study. App developers and instructors are encouraged to incorporate diverse content and methodologies to foster intrinsic motivation and ensure sustained learner engagement.

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