



Improving Legal Students' Vocabulary by Using Duolingo at First Semester in Universitas Muhammadiyah Papua

Irfun¹

Program Studi Hukum, Universitas Muhammadiyah Papua, Papua, Indonesia

ARTICLE INFO

Article history:

Received: 12 Februari 2024

Revised 27 Februari 2024

Accepted, 27 Maret 2024

Keywords:

Duolingo,
legal vocabulary,
language learning,
gamification,
law students,
digital education

How to Cite:

Irfun, I. (2024). The Improving Legal Students' Vocabulary by Using Duolingo at First Semester in Universitas Muhammadiyah Papua. *Tut Wuri Handayani : Jurnal Keguruan Dan Ilmu Pendidikan*, 3(4).
<https://doi.org/10.59086/jkip.v3i1.1115>

ABSTRACT

Vocabulary mastery plays a pivotal role in legal education, where precise language understanding determines the accuracy of reasoning, interpretation, and communication within academic and professional contexts. This study investigates the effectiveness of Duolingo, a gamified digital language learning platform, in improving the vocabulary mastery of first-semester law students at Universitas Muhammadiyah Papua. Grounded in Krashen's Input Hypothesis, Schmidt's Noticing Hypothesis, and Constructivist learning theory, the research adopts a quantitative experimental design employing pre-test and post-test procedures. Twenty students participated in the study, with vocabulary tests administered before and after a Duolingo-based learning intervention. Statistical analysis using IBM SPSS revealed a significant improvement in students' mean scores—from 70.33 (pre-test) to 80.83 (post-test)—with a p-value of .000 (<0.05), confirming a substantial positive effect of the intervention. The findings demonstrate that Duolingo's adaptive feedback, gamification elements, and contextualized vocabulary activities effectively enhance learners' retention and engagement. These results underscore the potential of integrating mobile-assisted language learning tools into legal education to address the challenges of low motivation and limited exposure to specialized terminology. The study concludes that Duolingo offers a practical, engaging, and empirically supported alternative for developing legal vocabulary competence among novice law students in higher education contexts.

This is an open access article under the [CC BYSA](#) license



Corresponding Author:

Irfun
Universitas Muhammadiyah Papua
Jln. Raya Abepantai No 25 Tanah Hitam (Abepura Kota Jayapura)
irfunedc@gmail.com

Introduction

Vocabulary acquisition is a critical foundation for legal students, as it directly affects their ability to comprehend complex legal texts, engage in academic discussions, and perform professionally. Traditional vocabulary learning methods often fall short in sustaining student motivation and providing adequate practice opportunities, resulting in suboptimal retention of specialized legal terms. Digital platforms like Duolingo have revolutionized language learning by employing gamification principles, interactive exercises, and adaptive learning paths to facilitate effective and enjoyable vocabulary acquisition. According to Krashen's Input Hypothesis (1985), learners progress best when exposed to language input slightly beyond their current level, a condition well met by Duolingo's progressive modules. Schmidt's Noticing Hypothesis (1990) further suggests that conscious recognition of language features is essential for learning, which Duolingo promotes through instant feedback and correction mechanisms.

From a Constructivist perspective (Piaget, 1954; Vygotsky, 1978), language is best acquired through active engagement and social interaction, and Duolingo's interactive activities and community features support this learning mode. Behaviorism (Skinner, 1957) also underpins Duolingo's use of constant reinforcement via points, streaks, and badges, which motivate learners' continuous practice. Schema Theory (Anderson, 1984) highlights that new vocabulary integrates



better when linked to existing knowledge, and Duolingo contextualizes words within meaningful themes to build learners' cognitive frameworks.

Vocabulary mastery is fundamental for legal students as it directly influences their comprehension of legal texts, critical thinking, and communication within academic and professional settings. Unlike general language learning, legal vocabulary acquisition requires understanding specialized terminology that is often complex and context-specific. Traditional methods of vocabulary instruction face challenges such as low student engagement and limited opportunities for repeated practice, which are critical for effective retention (Sandipuniversity, 2024). The emergence of digital learning platforms, particularly Duolingo, offers an innovative, interactive, and adaptive approach to language acquisition. Duolingo incorporates gamification elements that motivate learners through immediate feedback, consistent repetition, and progressive difficulty levels, facilitating sustained vocabulary growth (Indrasari, 2024). Research by Aisyah & Hidayatullah (2023) demonstrated that Duolingo significantly enhances students' vocabulary acquisition by integrating features such as initial ability assessment, emotional engagement, and varied practice exercises. These elements increase learners' retention rates and vocabulary application capabilities.

Moreover, multiple studies affirm the effectiveness of Duolingo in diverse educational contexts. For instance, Syarifuddin (2023) found a statistically significant improvement in vocabulary mastery among middle school students after employing the Duolingo app, with post-test scores notably higher than pre-test scores (Syarifuddin, 2023). Pramesti et al. (2025) qualitatively reported that students perceived Duolingo as a practical and engaging tool that promoted consistent vocabulary learning habits and increased classroom engagement (Pramesti, 2025). Despite these positive outcomes, integrating Duolingo in legal education remains underexplored, especially in Indonesian universities. Given the specialized nature of legal terminology, this study aims to investigate how Duolingo could be adapted and utilized to enhance legal vocabulary acquisition for first-semester law students at Universitas Muhammadiyah Papua. Addressing this gap can contribute to more engaging, technology-assisted legal language education and potentially improve overall academic performance in law faculties.

Literature Review

Legal vocabulary learning requires techniques that address complex and context-specific terminology (Sandipuniversity, 2024). Duolingo's gamified approach facilitates vocabulary retention through interactive exercises and immediate feedback loops (Indrasari, 2024). Empirical evidence supports Duolingo's effectiveness across various educational levels from middle school to university (Syarifuddin, 2023; Pramesti, 2025). The adaptability of Duolingo allows its use in formal education settings with positive impacts on student motivation and learning outcomes (Indrasari, 2024).

Methodology

This study employed a quantitative experimental design using a pretest–posttest model. The design was chosen to objectively measure the effectiveness of the intervention by comparing participants' performance before and after the treatment. The participants were first-semester law students at Universitas Muhammadiyah Papua, selected because they were at the initial stage of learning academic English and had relatively similar levels of proficiency.

The research instrument consisted of vocabulary tests administered twice once before (pretest) and once after (posttest) the intervention using the Duolingo application. These tests were designed to assess the extent of improvement in students' English vocabulary knowledge following a period of structured Duolingo-based learning.

The collected data were analyzed using statistical tests to determine the significance of vocabulary improvement. This analysis aimed to identify whether the use of Duolingo had a statistically significant effect on enhancing the English vocabulary mastery of law students at Universitas Muhammadiyah Papua.

Result and Discussion

This study's data description focuses on the test outcomes. This part examines the test scores of students in improving legal students' vocabulary who were instructed using Duolingo. This approach is part of an effort to enhance legal students' vocabulary mastery.

Based on the students' scores, the categorization is as follows: The highest scores for both the pre-test and post-test range from 80 to 100. Medium scores fall between 60 and 75, while the lowest scores range from 0 to 55. To clarify, the following table presents the categories of the legal students' vocabulary comprehension scores.

Table 1. The categories of the legal students' Vocabulary

Score Class	Category
80-100	Highest Score
60-75	Medium Score
0-55	Lowest Score

a. Data of the pre-test score

The pre-test for the experimental class took place on April 16, 2024. Utilizing IBM SPSS Statistics 20 for data analysis, the mean, standard deviation, variance, and total scores were determined. The following table categorizes the legal students' vocabulary based on the results of pre-test.

Table 2.The frequency of the legal students' mastery in vocabulary based on the result of the pre-test

Score class	Number of students	Percentage	Category
80-100	2	10%	Highest score
60-75	14	70%	Medium score
0-55	4	20%	Lowest score
Total	20	100%	

In the table above, it is evident that 2 students (10%) fall into the highest score category, 14 students (70%) are in the medium category, and 4 students (20%) are in the lowest category. The legal vocabulary test comprises 20 items, with a probable highest score range of 80-100 and a probable lowest score range of 0-55. The frequency distribution data of the students' pre-test scores indicate that the highest score is 85, while the lowest score is 50. The mean score is 70. The detail information is presented the table below.

Table 3.The descriptive analysis on the pre-test

Mean	SD	Score Max	Score Min	N
70.33	8.889	85	50	20

According to the descriptive analysis of vocabulary test scores, the mean pre-test score is 70.33 with a standard deviation of 8.889. In line with the table of classifications above, law students' vocabulary falls into the medium category. The typical score for the is 70.33. It falls between the class scores of 70 and 75. As a result, it is determined that the student's vocabulary competence before to treatment falls within the medium range.

b. Data of the post- test score

The purpose of this description is to determine whether duolingo enhanced student's vocabulary. The table below summarizes the statistical data on legal students' competence based on the post-test results. The data were collected after the legal students had certain treatments. The



table below demonstrates that 24 students (80%) are in the highest classification, 6 students (20%) are in the medium category, and none are in the lowest category. After analyzing the statistical data from the pre-test and post-test, there is little doubt that the students improve their vocabulary ability. The post-test results show that the law students have the following vocabulary competence:

Table 4. The category of the legal students' vocabulary ability after the treatment

Score class	Number of students	percentage	Category
80-100	16	80%	Highest score
60-75	4	20%	Medium score
0-55	-	-	Lowest score
Total	20	100%	

However, this statement should be ensured as the result of the t-test may say differently. Another table below describes the analysis on the result of the legal students' vocabulary ability after the treatment.

Table 5. Data of the legal students' vocabulary mastery

Mean	SD	Score Max	Score Min	N
80.83	4.698	90	70	20

The data from the frequency distribution of the students' post-test score inform that the highest score of the experimental class is 90 while the lowest score is 70. The mean score of the experimental class is 80.83, while the standard deviation of the experimental class is 4.698. Based on the score category as displayed on table 7, it can be said that the legal students' on mastery vocabulary belongs to highest category (very good). The mean score is (80.83) lies between class categories 80-90.

c. The comparison of pre-test and post- test of the legal students' vocabulary ability by using Duolingo (Paired Sample Test)

Paired sample t-test is used to determine the effectiveness of Duolingo in improving legal students' Vocabulary at first semester in Universitas Muhammadiyah Papua. The scores of pre-tests and post-test class were compared to know the improvement between pre-test and post-test in the of first semester legal students. The data were analyzed by using IMB SPSS statistics to compare the score of the pre-test and the post-test of class. The assumption whether the null hypothesis is accepted is if the significance level of t-test is higher than probability significance ($\text{Sig} < .05$). The result is presented in table 6.

Table 6. The descriptive statistics of legal students' class before and after treatment.

SD	Mean	Numbers	Variable
8.899	70.33	20	Pre- Test
4.564	80.83	20	Post- Test

Table 6 indicates that the mean score before the treatment is 70.33, whereas the mean score of the after treatment is 80.83. It is claimed that the mean score after treatment is the higher than that before the treatment. Therefore, there is a positive effect of Duolingo in teaching vocabulary.

Table 7. The paired sample test

Sig (2-tailed)	df	SD	t_o	Variable
.000	29	6.345	-9.064	Vocabulary Mastery



The significant value of the difference between before and after treatment at the significance level of 0.05 is .000 which is less than 0.05 ($.000 < 0.05$). So it can be claimed that there is a significant difference between the mean score of legal students' vocabulary ability score before and after treatment by using Duolingo. Therefore, APP Duolingo has the decisive influence on the score of legal students' vocabulary test.

Conclusion

The finding of this study confirms that there is significant difference was found in the legal students' vocabulary achievement scores before and after treatment. The class after treatment by using APP Duolingo was the higher score than before treatment. This implies that students who were taught by using APP Duolingo show significant improvement in their vocabulary achievement than before. And also independent samples test showed that there is the significant improvement of Duolingo in improving students' Vocabulary at first semester legal students of Universitas Muhammadiyah Papua. This study suggests that students who are taught vocabulary by using duolingo benefited more in their vocabulary.

References

- Aisyah & Hidayatullah. (2023). Study on Duolingo's Vocabulary Acquisition Impact.
- Anderson, R. C. (1984). Role of the reader's schema in comprehension, learning, and memory. In R. C. Anderson, J. Osborn, & R. J. Tierney (Eds.), *Learning to read in American schools: Basal readers and content texts* (pp. 243-257). Hillsdale, NJ: Erlbaum.
- Duolingo (2024). Official Language Learning Application Features.
- Indrasari, H. A. (2024). Exploring Duolingo's Impact on Vocabulary Learning. Repository Universitas PGRI Delta.
- Krashen, S. D. (1985). *The input hypothesis: Issues and implications*. London, UK: Longman.
- Piaget, J. (1954). *The construction of reality in the child*. New York, NY: Basic Books.
- Pramesti, R. D., Padmadewi, N. N., & Wahyuni, L. G. E. (2025). Duolingo: A Qualitative Study on Vocabulary Acquisition. *TATEFL Journal*.
- Sandipuniversity. (2024). *Mastering Law: Enhancing Your Legal Vocabulary*.
- Skinner, B. F. (1957). *Verbal behavior*. New York, NY: Appleton-Century-Crofts.
- Syarifuddin, S. S. (2023). Using Duolingo Application for Students' Vocabulary Mastery at MTs Negeri Pinrang.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.