Students Perception of Using the Duolingo Application in Mastering English Language Skills in an English Study Program

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ABSTRACT

This research aims to analyze the effect of using the Duolingo application on students' mastery of English in the English Education Study Program at one of the universities in Indonesia. A quantitative approach was used in this study, using data collection methods through a Likert scale-based questionnaire adopted from scientific articles. Respondents were selected using a purposive sampling technique, using the criteria of students who have used the Duolingo application for at least one month. The questionnaire consisted of closed-ended statements that measured the intensity of Duolingo application usage and students' English mastery level, including vocabulary, reading, writing, listening, and grammar skills. Data were analyzed using simple linear regression to determine the relationship between the independent variable (intensity of Duolingo usage) and the dependent variable (English language acquisition). The results showed that using the Duolingo application significantly influences students' mastery of English. Duolingo allows students to learn independently outside of class in a more fun and interactive way and improve their English skills effectively. This finding indicates that Duolingo can be used as an effective supplementary learning medium in the context of English language education.

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INTRODUCTION

Duolingo application is a technology-based learning media designed to facilitate the independent learning of foreign languages, including English. The app uses an interactive approach that incorporates game elements to increase users' learning motivation (Suci, 2022). Through various exercises, such as vocabulary

recognition, pronunciation, grammar, and reading comprehension, Duolingo provides an engaging and structured learning experience. The app also allows users to learn at their own pace and needs, making it suitable for use by university students to support formal learning. With progress reporting and automatic evaluation features, Duolingo is an effective tool for improving English language acquisition (Kusumadewi and Widyastuti, 2018).

English language acquisition refers to an individual's ability to understand, use, and apply English actively and passively (Fitri et al., 2023). This ability includes basic skills such as listening, speaking, reading, and writing, which support each other to form a comprehensive language competence. For students of English study programs, mastery of this language is a key competency that supports academic achievement and readiness to face global challenges (Irwit Santi et al., 2023). Various factors, such as learning methods, intensity of practice, and use of technological media, can affect English language mastery. Therefore, integrating learning applications such as Duolingo is one of the relevant alternatives to help students improve their skills optimally (Apoko et al., 2023).

Technology has become an integral part of foreign language learning in the digital age, providing opportunities to increase the effectiveness and flexibility of the learning process. Najwa (2023) states that technology can increase the accessibility of language learning through an interactive approach. One of the technological innovations used is the Duolingo app, which, according to Indrawan et al. (2023), is designed to provide a structured and engaging learning experience through a gamification approach. In addition, Andini (2024) revealed that gamification elements in Duolingo can increase users' learning motivation by providing challenges and rewards. Another study by Hadina et al. (2023) showed that the app positively contributes to vocabulary and grammar acquisition, especially in English language learning.

English language mastery, one of the important skills in the era of globalization, includes listening, speaking, reading, and writing skills. Sari and Octaviani (2022) explained that mastering language requires consistent and purposeful practice. In the context of technology-based learning, Borang et al. (2023) stated that applications such as Duolingo provide a learning environment that supports the development of these skills. Pammu (2023) added that gamification in learning can increase intrinsic motivation, a key factor in learning success. Furthermore, Shinta (2024) showed that technology-based applications allow for flexible learning in terms of time and place, making it highly relevant for students. Slamet and Surakarta (2024) also emphasized that successful language learning requires intensive exposure to the target language, which can be facilitated by apps such as Duolingo.

Many studies have evaluated the effectiveness of Duolingo in English language learning. For example, Anisa (2021) found that the app effectively improves language acquisition if used consistently. Fatmawati et al. (2023) argued that

although Duolingo is applicable, the app is more suitable as a learning support tool than a primary method. In addition, Anitra (2021) highlighted that the successful use of learning technology relies heavily on user motivation and commitment. Rahman et al. (2024) recommended integrating apps like Duolingo with formal learning to produce more optimal results. Based on these findings, Duolingo has excellent potential as a learning tool, but its effectiveness depends on the strategy and context in which it is used.

Current research on the effectiveness of Duolingo in English language learning is still limited to general evaluations without considering contextual factors such as language acquisition level and user motivation. Existing research focuses more on beginners, while there has been no in-depth study on the effect of Duolingo on English language program students (Risky and Syafi', 2023). In addition, while gamification can increase motivation, no research has linked students' motivation with improving their language skills (Risky and Syafi', 2023). This study aims to fill this gap by exploring the effect of Duolingo on students' English language acquisition and the factors that influence its effectiveness.

This study aims to analyze the use of Duolingo application on English language mastery of English study program students. This study also aims to identify factors that influence the effectiveness of using Duolingo in improving English skills and explore the role of gamification in increasing students' learning motivation. As such, this research is expected to provide insights into the potential of Duolingo as a tool in English language learning at the tertiary level.

METHOD

This study uses a quantitative approach to analyze the effect of using the Duolingo application (X) on English Study Program students' mastery of English (Y). This approach was chosen to obtain objective data through statistical data collection and analysis. The main instrument used was a Likert scale-based questionnaire with five answer categories: Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree (Kusmaryono et al., 2022). This questionnaire was adapted from an article written by Inayah, Yusuf, and Fibula (2020) in the journal "Humanities & Social Sciences Reviews," so no additional validity test was required (Inayah et al., 2020).

Table 1. Research Indicators

Variable	Questionnaire	Reference
Using the Duolingo application (X)	Duolingo is easy to use.	(Jumbrowati et al., 2023)
	Duolingo is easily accessible.	(Ummah, 2019)

	The features in Duolingo are interesting and diverse	(Dhea, 2024)
	I can use Duolingo independently without the help of others.	(Rouabhia & Kheder, 2024)
	Duolingo encourages me to spend more time learning English outside of class.	(Kristen, 2024)
	Duolingo encourages me to learn English independently.	(Al-Ayub et al., 2022)
	Duolingo makes learning English more fun and interesting.	(Mujiarni, 2024)
	Learning English through Duolingo on your phone is more fun than learning in class.	(Azhima & Halim, 2024)
	Duolingo is an effective tool for learning English.	(Lahji, 2024)
	Duolingo provides many opportunities for me to learn English.	(Ode et al., 2024)
	Duolingo helped me improve my English skills.	(Jaelani & Sutari, 2020)
Student English Mastery	I can improve my English vocabulary by using Duolingo.	(Youlanda, 2023)
	I can improve my listening skills using Duolingo.	(Suci & Hubbulwathan, 2023)
	I can improve my reading skills using Duolingo.	(Anggraeni & Degeng, 2024)
	I can improve my writing skills using Duolingo.	(Zakiyah et al., 2024)
	I can practice translating words and sentences using Duolingo.	(Mevia et al., 2024)

| | | I can learn grammar or language structure by using Duolingo. | (Yundayani et al., 2023) |

The research subjects were students of the English Education Study Program at one of the universities in Indonesia who were selected using a purposive sampling technique. Respondents in this study were students who had used the Duolingo application for at least one month. The questionnaire consisted of several closed-ended statements that measured the frequency of application use and students' level of English mastery. The data collected through the questionnaire was analyzed using the simple linear regression method. This analysis was conducted to determine the relationship between the independent variable, namely the intensity of use of the Duolingo application, and the dependent variable, namely the level of English mastery. The results of the data analysis will be used to test the research hypothesis, which states that the use of Duolingo significantly influences students' mastery of English.

RESULTS

This section presents the research results obtained from data analysis and discusses the findings relevant to the research objectives. The research results are presented in the form of descriptive statistics to provide an overview of the data collected and further analysis that connects the independent variables and the dependent variable. The explanation in this section includes the mean, minimum, maximum, and standard deviation of the variables studied. The results obtained are then compared with findings from previous research to strengthen the interpretation and provide a broader context. This analysis is expected to answer the research questions formulated and provide a deeper understanding of the relationship between the use of the Duolingo application and the mastery of English by English study program students.

Table 2. Descriptive Statistics

Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
X	45	20	100	85.11	14.557	211.919
Y	45	20	100	83.33	16.096	259.091
Valid N (listwise)	45					

Table 2 displays the descriptive statistics of the two variables measured in this study: X (Duolingo app usage) and Y (students' English language acquisition). The

data collected shows that the scores on both variables range from 20 to 100, which indicates a wide distribution of Duolingo usage and English language acquisition levels among students. The average score for Duolingo usage is 85.11, which indicates that students are actively engaged with the app, with a relatively high average frequency of use. On the other hand, the mean score for English language acquisition is 83.33, which indicates that students have a good level of English proficiency, although the variation in scores shows that there are differences in English language ability among the respondents.

The standard deviation values for both variables provide further insight into the spread of the data. For Duolingo usage (X), the standard deviation is 14.557, which indicates that although most students use Duolingo frequently, there is some variation in the frequency of usage. For English language acquisition (Y), the standard deviation is 16.096, which is slightly higher than Duolingo usage. This suggests that there is greater variability in students' English proficiency compared to the frequency of Duolingo usage. In addition, the variance in Y (259.091) is higher than X (211.919), which reinforces the idea that students' English ability varies significantly more compared to the use of the app. Despite the relatively high usage of Duolingo, the variation in English ability suggests that there are other factors affecting students' language ability.

Table 3. Model Summary

Model Summary

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate
1	.818a	.669	.661	9.367

a. Predictors: (Constant), X

Table 3 presents the model summary, which presents the relationship between Duolingo usage and students' English proficiency. The R value of 0.818 shows a strong positive correlation between the two variables, indicating that the more frequently students use Duolingo, the better their English proficiency tends to be. The R Square value of 0.669 means that 66.9% of the variation in students' English proficiency can be explained by the use of Duolingo. This is a significant proportion, implying that the use of Duolingo plays a major role in influencing students' language proficiency. The remaining 33.1% of the variation can be attributed to other factors not accounted for in this study, such as prior exposure to English, teacher influence, or additional language learning tools.

In addition, the Adjusted R Square value of 0.661 indicates that even after accounting for the number of predictors in the model, the relationship between Duolingo use and English proficiency remains strong. The Standard Error of the

Estimate is 9.367, which indicates the average deviation of the predicted value from the actual observed value. This relatively small error indicates that the model is quite accurate in predicting students' English proficiency based on Duolingo usage.

Table 4. Anova

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7627.383	1	7627.383	86.936	<,001 b
	Residual	3772.617	43	87.735		
	Total	11400.000	44			

a. Dependent Variable: Y

b. Predictors: (Constant), X

Table ANOVA described the results of the variance analysis (ANOVA) test used to test whether variable X (the use of Duolingo application) has a significant influence on variable Y (students' mastery of English). Based on the table, the Sum of Squares value for regression is 7627.383 with a degree of freedom (df) of 1, and the Mean Square value is 7627.383. Meanwhile, the Sum of Squares value on the residual is 3772.617 with 43 degrees of freedom, resulting in a Mean Square of 87.735. The F test results show a value of 86.936, with a significance level (Sig.) of less than 0.001, which means that the effect of variable X on variable Y is very significant. In other words, the use of the Duolingo application is statistically proven to significantly impact students' mastery of English.

Table 5. Coefficient

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	6.356	8.373		.759	.452
	X	.904	.097	.818	9.324	<,001

a. Dependent Variable: Y

Table 5 presents the coefficients for the regression model, which provides further insight into the impact of using Duolingo on students' English proficiency. The B value for the constant is 6.356, indicating that if students do not use Duolingo, their English language acquisition is predicted to be 6.356. The B value for variable X (Duolingo usage) is 0.904, indicating that for every additional unit of Duolingo usage, students' English proficiency increases by 0.904 points. This coefficient underscores the positive effect Duolingo has on students' language proficiency. The t-value of 9.324, with a significance level of $p<0.001$, confirms that this relationship is statistically significant and further supports the conclusion that Duolingo usage has a meaningful impact on students' English proficiency.

The Beta value of 0.818 indicates the strength of the relationship between Duolingo usage and English proficiency. A Beta value close to 1 implies that the use of Duolingo has a substantial influence in improving students' language skills, especially in writing. The significance of this relationship, as confirmed by the t-test and p-value, suggests that the use of Duolingo is a key factor in improving students' English proficiency.

Discussion

This section provides a detailed analysis of the findings from this study, focusing on the use of the Duolingo app and its significant impact on English proficiency. The results obtained from descriptive statistics, regression analysis, and other statistical tests all lead to the conclusion that the use of Duolingo can significantly improve students' English proficiency, especially in an academic context (Irzawati & Unamo, 2023). This section is divided into several parts, including interpretation of the findings, evaluation of the results compared to previous research, and analysis of the challenges faced in using Duolingo in language learning. By examining these aspects, we aim to better understand how Duolingo contributes to students' language acquisition and the factors that might affect its effectiveness.

From the descriptive statistics, it can be seen that students' use of Duolingo is quite frequent, with a mean score of 85.11 for the variable Duolingo usage. This shows that students engage with this app regularly. When looking at the variables corresponding to students' English proficiency, the average score was 83.33, which indicates a relatively high level of proficiency among the participants. The results from the variance and standard deviation analysis further support the interpretation that although the students consistently used Duolingo, their English proficiency varied widely. The higher standard deviation and variance in English proficiency suggests that there are other factors beyond the use of Duolingo that affect students' English proficiency. These factors could include individual learning styles, prior exposure to English, the effectiveness of other teaching methods, and students' personal motivation.

In terms of regression analysis, the relationship between Duolingo usage (X) and students' English proficiency (Y) is highly significant. With an R value of 0.818 and an R Square value of 0.669, it is clear that the use of Duolingo accounts for 66.9% of the variance in students' English proficiency. This is a strong indication that the use of Duolingo plays an important role in improving students' English proficiency, especially in terms of writing and speaking. However, it is important to note that 33.1% of the variance cannot be explained by the model, which suggests that other factors, such as individual study habits, access to other learning resources, or the influence of classroom teaching, also play an important role in determining the level of English proficiency achieved by the students.

The statistical significance of the relationship between the two variables was further confirmed by the ANOVA test, which yielded a highly significant F value of 86.936 ($p < 0.001$). This provides further validation to the hypothesis that Duolingo has a significant impact on students' English language acquisition. In addition, the coefficient analysis shows that for every one unit increase in Duolingo usage, students' English proficiency is predicted to increase by 0.904 points. This emphasizes the substantial influence of Duolingo on students' language proficiency, with a high level of statistical confidence as indicated by a t-value of 9.324 and a p-value of less than 0.001. These findings support the idea that Duolingo is an effective tool for improving English language proficiency, especially in language acquisition outside the formal classroom environment.

However, despite the promising results, there are some limitations and challenges that need to be addressed to maximize the effectiveness of Duolingo as a language learning tool. One of the main challenges is the reliance on Duolingo as a supplementary tool and not as the primary method for learning. While Duolingo offers valuable vocabulary practice, grammar practice, and speaking practice, it cannot replace the range of academic writing skills required for university-level English. For example, Duolingo may be less effective in helping students develop advanced writing techniques, such as argumentation, cohesion, and synthesis of information. It is important to realize that while Duolingo can significantly improve basic language skills, students still need more comprehensive training in academic writing, including the development of critical thinking, research skills, and the ability to construct sophisticated arguments in writing.

Another challenge highlighted in the results of this study is the need for teacher training. The integration of Duolingo into the learning environment requires educators to be adequately trained in the use of technology and how to incorporate it into their teaching methods. Teachers need to be equipped with knowledge on how to combine Duolingo with other language learning strategies to create a more thorough and effective language acquisition process. Without proper guidance on how to integrate Duolingo with other forms of teaching, there is a risk that students cannot fully benefit from the app. Additionally, there is a need for curriculum design that allows for the effective use of Duolingo alongside more traditional

learning methods. A curriculum that incorporates Duolingo as one component of language learning, but does not rely solely on it, would be more balanced and allow for a more comprehensive development of students' language skills.

In addition, the use of Duolingo as a self-learning tool raises questions about access to technology and the internet. Students in areas with limited access to high-speed internet or modern smart phones may not be able to fully participate in the Duolingo experience, potentially creating a digital divide. This issue highlights the need for institutions to provide equal access to technology resources to ensure that all students have equal opportunities to benefit from technology-enhanced learning tools. Furthermore, while Duolingo is a flexible and accessible tool, it does not offer the same level of interaction and personalization that in-person classroom teaching does. Personalized feedback from teachers, peer interaction, and real-world language use are important aspects of language acquisition that Duolingo cannot replicate.

While the use of Duolingo has been shown to be effective in improving students' English proficiency, it is important to recognize that the use of Duolingo should be part of a broader and more integrated approach to language learning. Duolingo's role as a tool to increase vocabulary acquisition, improve grammar skills, and provide speaking practice is well established, but it cannot replace the need for more comprehensive academic language training. For example, students still need instruction in academic writing skills, research methodology, and critical thinking, which cannot be effectively taught through the app alone. Therefore, it is imperative for Duolingo to be used in conjunction with other teaching methods that emphasize the development of advanced language skills necessary for academic success.

In conclusion, the research findings confirmed that Duolingo is a useful and effective tool for improving English language proficiency, especially in terms of writing and speaking skills. Statistically significant results show that regular use of this app correlates with improved English proficiency, but it is not a comprehensive solution. For optimal results, Duolingo should be integrated into a larger, more structured language learning curriculum that includes opportunities for real-world practice, feedback from teachers, and development of higher-level language skills. In addition, it is important for educators to be properly trained in the use of Duolingo and for institutions to ensure equal access to the technology for all students. While there are still challenges such as teacher training, digital access, and integration of cultural context into the language curriculum, Duolingo's overall potential as a tool for improving language proficiency is undeniable. With the right support and integration, Duolingo can play an important role in improving English language acquisition in higher education.

Despite the positive effects observed, there are some areas where the integration of Duolingo into language learning could be further optimized. For example, the Duolingo platform primarily focuses on individual language acquisition, which, while effective in building basic skills, lacks the emphasis required for complex

academic writing tasks. Academic writing in English requires more than just proficiency in grammar and vocabulary; it requires an understanding of genre-specific conventions, argumentation strategies, and the ability to analyze and synthesize information. Duolingo's current offerings, while valuable for basic language skills, could be improved by including tasks that focus more on these higher-level academic skills. This would ensure that students not only practice vocabulary and grammar, but also develop the critical thinking and writing strategies necessary for success in higher education.

Furthermore, while Duolingo's interactive learning environment and gamification are beneficial for keeping students motivated, the platform does not provide sufficient opportunities for peer feedback and collaborative learning. Peer review is an important component of academic writing, as it allows students to receive constructive criticism and develop their writing through social interaction. The ability to interact with peers in a classroom or collaborative environment provides a more immersive learning experience. This is an area where Duolingo can enhance by facilitating collaborative features such as peer review systems, group discussions, or even collaborative writing tasks within the app. By encouraging communication and collaboration, Duolingo can mimic an authentic academic writing environment, which is a social and interactive process.

Finally, future research could explore how Duolingo can be more effectively integrated in hybrid or blended learning models, where the platform serves as an additional tool alongside classroom instruction. This integration can offer a more well-rounded language learning experience, blending the benefits of Duolingo technology with traditional face-to-face teaching. In such a model, Duolingo can help students reinforce grammar, vocabulary, and speaking skills learned in class, while instructors provide more focused guidance on academic writing techniques, critical analysis, and cultural nuances. This hybrid approach can create an optimal learning environment that balances technology and human interaction, ensuring students are well-equipped for practical language use and academic success.

Moreover, it is important to acknowledge the motivational aspects inherent in the use of Duolingo, which contribute substantially to sustained learner engagement. Gamification elements—such as points, scores, and leaderboards—encourage consistent practice, which is a key factor in language mastery. Motivation is often cited as a crucial determinant of successful language learning, and Duolingo's design leverages this by transforming learning into an enjoyable activity rather than a burdensome task. Therefore, the psychological impact of gamification on student perseverance should not be underestimated when evaluating Duolingo's effectiveness.

Additionally, cultural context plays a significant role in language learning, yet this is an area where Duolingo shows limitations. Language learning is not just about grammar and vocabulary but also involves understanding cultural nuances and the pragmatic use of language in real-life situations. The app's standard lessons

often lack the depth to incorporate culturally relevant content, which can limit students' ability to fully grasp contextual meaning and social appropriateness. Future improvements could include integrating local content and cultural scenarios to better prepare learners for authentic communication, thereby expanding the app's pedagogical scope.

Finally, considering the rapid development of artificial intelligence and adaptive learning technology, Duolingo has significant potential to evolve into a more personalized language tutor. Adaptive algorithms can tailor content not only to learners' proficiency but also to their learning speed, preferred learning style, and areas of difficulty. These advancements could address current gaps, such as limited personalized feedback and a lack of nuanced corrections in speaking and writing exercises. This future direction aligns with current trends in educational technology emphasizing learner-centered approaches, which could make Duolingo a more holistic and effective tool for language acquisition in diverse learning contexts.

CONCLUSION

According to the data analysis and discussion results, the Duolingo application significantly influences students' mastery of English in English study programs. The results of the descriptive analysis show that students generally use the Duolingo application with a high frequency, with an average usage of 85.11, and have good English skills, with an average mastery of 83.33. However, the variation in students' mastery of English is greater than the variation in the level of application use, which indicates that other factors influence students' English skills besides the use of the Duolingo application.

The regression analysis results show that using the Duolingo app significantly improves students' English language acquisition. The R Square value of 0.669 indicates that using the Duolingo app can explain 66.9% of the variation in English language acquisition. In addition, the ANOVA test results show an F value of 86.936 with a significance level of less than 0.001, which means that the relationship between the two variables is highly statistically significant. The coefficient analysis results show that every one-unit increase in using the Duolingo application will increase students' mastery of English by 0.904 points. Thus, using the Duolingo app can be an effective learning method in improving students' English proficiency, although it is important to consider other external factors that also affect learning outcomes.

The research suggests that students should continue utilizing the Duolingo app as an independent learning medium to improve their English language skills. However, students must also complement their learning with other methods, such as group discussions, live speaking practice, and reading English literature, to enrich their learning experience. In addition, lecturers and educational institutions are advised to integrate the Duolingo application into formal learning activities in the classroom. This app can be part of a blended learning strategy that combines

conventional learning with digital technology. However, it is also important to develop a balanced curriculum by considering students' needs and other factors that can affect learning outcomes, such as motivation, learning environment, and support from family. Further research is also recommended to explore other factors that influence students' English language acquisition and the effectiveness of various other digital learning applications in the context of language learning.

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