

Menginvestigasi Hubungan antara Keterlibatan Duolingo, Motivasi Belajar, dan Kemahiran Membaca pada Mahasiswa Semester Lima di UIN Raden Mas Said Surakarta

Investigating the Relationship Between Duolingo Engagement, Learning Motivation, and Reading Proficiency among Fifth Semester at UIN Raden Mas Said Surakarta

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Abstract

This study is grounded in the Value-Expectancy Theory and Dornyei's Motivation Theory, which explain that learners' motivation and engagement with interactive digital tools can influence their reading performance. The study examines the effects of Duolingo usage and learning motivation on students' English reading skills through a quantitative, multivariate correlational design. Twenty-five university students completed Likert-scale questionnaires and reading tests. The findings revealed a moderate positive correlation between Duolingo engagement and reading performance ($r = 0.421$, $R^2 = 0.17$, $p < 0.05$), indicating that increased interaction with the Duolingo application contributes to improved reading skills. Similarly, learning motivation showed a moderate positive correlation with reading performance ($r = 0.500$, $R^2 = 0.25$, $p < 0.05$), suggesting that higher motivation enhances reading comprehension. The multiple regression model ($\hat{Y} = 10.60 + 0.047X_1 + 0.124X_2$) produced an R^2 value of 0.263 and $F = 3.940$ ($p = 0.034 < 0.05$), indicating that both variables simultaneously contributed significantly to reading ability. The concurrent implementation of Duolingo-facilitated digital learning and a high level of learner motivation demonstrates a statistically significant positive impact on students' English reading proficiency.

Keywords: Duolingo Engagement, Reading Proficiency, and Learning Motivation.

Abstrak

Penelitian ini berlandaskan pada *Value-Expectancy Theory* dan Teori Motivasi Dornyei, yang menjelaskan bahwa motivasi peserta didik dan keterlibatan mereka dengan alat digital interaktif dapat memengaruhi performa membaca. Penelitian ini mengkaji pengaruh penggunaan Duolingo dan motivasi belajar terhadap kemampuan membaca bahasa Inggris mahasiswa melalui desain kuantitatif korelasional multivariat. Sebanyak dua puluh lima mahasiswa mengisi kuesioner skala Likert dan mengikuti tes membaca. Temuan penelitian menunjukkan adanya korelasi positif sedang antara keterlibatan menggunakan Duolingo dan performa membaca ($r = 0.421$, $R^2 = 0.17$, $p < 0.05$), yang mengindikasikan bahwa peningkatan interaksi dengan aplikasi Duolingo berkontribusi pada peningkatan kemampuan membaca. Demikian pula, motivasi belajar menunjukkan korelasi positif sedang dengan performa membaca ($r = 0.500$, $R^2 = 0.25$, $p < 0.05$), yang menyiratkan bahwa motivasi yang lebih tinggi meningkatkan pemahaman membaca. Model regresi berganda ($\hat{Y} = 10.60 + 0.047X_1 + 0.124X_2$) menghasilkan nilai R^2 sebesar 0.263 dan $F = 3.940$ ($p = 0.034 < 0.05$), yang menunjukkan bahwa kedua variabel tersebut secara simultan memberikan kontribusi signifikan terhadap kemampuan membaca. Implementasi pembelajaran digital berbasis Duolingo yang dibarengi dengan tingkat motivasi belajar yang tinggi terbukti memberikan dampak positif yang signifikan secara statistik terhadap kemahiran membaca bahasa Inggris mahasiswa.

Kata kunci: Keterlibatan Duolingo, Kemahiran Membaca, dan Motivasi Belajar.

INTRODUCTION

English language as a means of communication has been widely recognized in the international arena. This language serves as a bridge between speakers from different countries. In Indonesia, Minister of Primary and Secondary Education Abdul Mu'ti plans to make English a compulsory subject in 2027. This policy aims to enable students to compete in an increasingly rapid global development and face the digital era that integrates the use of English in various aspects of life.

English learning involves mastering four essential abilities namely reading, writing, listening, and speaking. Among these four skills, reading is an important aspect that plays a key role in understanding texts and obtaining new information. Reading can be defined as the process of understanding the meaning in a text (Triyer et al., 2019). Several components that are emphasized in reading skills include pronunciation, structure, vocabulary, fluency, and comprehension (Huliatunisa et al., 2022).

Students often face difficulties when understanding long readings and unfamiliar vocabulary. This condition is exacerbated by boredom and low interest in reading, so that reading habits have not been properly formed. In addition, some students feel insecure and worry about making pronunciation mistakes when reading, because one aspect that is considered in reading activities is pronunciation (Wulandari, 2025).

The reading level in Indonesia still requires serious attention. One effort that can be made to make reading more interesting is to integrate it through game-based learning applications, such as Duolingo. This application is a language learning platform that was founded in 2011 and is now used by more than 300 million active users worldwide. Its features are designed to prevent users from getting bored and are equipped with native speaker voices to help improve pronunciation. Other advantages of Duolingo are its ease of access, interactive display, and reward system that can increase user motivation to learn (Renova & Kurniawan, 2025).

Duolingo provides a variety of features to create a fun and interactive learning experience. The gamification feature incorporates game elements such as points, levels, and rewards to keep learners motivated. The streak feature helps track learning consistency, while the leaderboard encourages healthy competition among users. The audio lessons feature provides listening and pronunciation practice, while stories and interactive exercises enrich vocabulary and train comprehension through interesting story contexts. Automatic feedback also helps users correct their mistakes immediately. In addition, the Duolingo English Test is an affordable and internationally recognized language certification tool. The combination of these features makes Duolingo an effective medium for building independent learning habits and improving communication skills (Simanjuntak et al., 2024).

Motivation in learning plays a role as a psychological process that encourages and maintains learning activities in order to achieve certain goals. Based on the value-expectancy theory, motivation arises from a combination of expectations for success and the value given to learning tasks. The higher the expectations and values felt by students, the greater the incentive to actively participate in the learning process (Xing et al., 2021). According to Dornyei (1994), motivation in second language learning is divided into two types, namely intrinsic and extrinsic motivation. Intrinsic motivation arises from interest and satisfaction in the learning activity itself, while extrinsic motivation comes from external factors such as rewards, assessment, or social encouragement.

There are a number of challenges in learning English, especially reading skills at the university level. Many learners have difficulty understanding English texts due to low reading interest and limited vocabulary. On the other hand, the use of digital applications such as Duolingo in formal learning activities has not been maximized. In fact, technology with a gamification approach has great potential to create a more interactive learning experience. Furthermore, the aspect of learning motivation as a psychological factor that determines success has not been empirically studied in the context of language learning applications.

Therefore, this study was conducted to examine the effect of using the Duolingo application and learning motivation on students' reading skills. This study was conducted on students at UIN Raden Mas Said Surakarta as representatives of English learners at the university level. The selection of subjects was based on the students' need to improve their academic reading skills through the integration of digital learning applications.

This study seeks to answer several main questions, namely: (1) does the engagement of the Duolingo application have a significant effect on students' reading skills?, (2) does learning motivation contribute to improving reading skills?, and (3) is there an interaction between these two variables in supporting English text comprehension? The purpose of this study is to obtain empirical evidence regarding the relationship between the use of digital learning media and learning motivation in the context of English language learning. The results of this study are expected to provide theoretical and practical benefits.

The purposes of this study are expected to provide both theoretical and practical benefits. Theoretically, this study can enrich the study of technology integration and learning motivation in foreign language learning, especially in reading skills. Practically, the results of this study are expected to serve as a reference for educators and educational institutions in designing effective digital-based learning strategies that are tailored to the characteristics of the digital generation of students. In addition, the results of this study can be taken into consideration by education policymakers in optimizing the use of applications such as Duolingo to improve literacy and English language proficiency in academic settings.

METHOD

This research is quantitative in nature, using a correlation research method, specifically multivariate correlation research. Correlation research aims to investigate connection among multiple variables to explore whether a correlation is present, without manipulating them (Mekonnen, 2020). In the research title *"Investigating the Relationship Between Duolingo Engagement, Learning Motivation, and Reading Proficiency in Higher Education,"* there are two independent variables, namely Duolingo application use and learning motivation, and the dependent variable is student reading skills. The study was conducted at UIN Raden Mas Said Surakarta on Friday, October 30, 2025. Purposive sampling was used as the sampling technique in this study. The research population consisted of 25 students with different study program backgrounds but who had experience learning English at Global English Pare, Kediri. This study involved ten students were in semester 5 and were selected from members of the KIP (Kartu Indonesia Pintar) scholarship program. Purposive sampling was used as the sampling technique in this study. This is because the selection was made deliberately based on certain criteria relevant to the research objectives (Sugiyono, 2019). The study employed a questionnaire using a Likert scale ranging from 1 to 5, where 1 represents Strongly Disagree, 2 indicates Disagree, 3 stands for Neutral, 4 means Agree, and 5 corresponds to Strongly Agree. The test items will be filled in using Indonesian in a Google form, with 10 items each for Duolingo Application Usage and Learning Motivation. When evaluating multiple-choice questions, each accurate response receives one point, and each inaccurate response is scored zero with a total of 20 questions to test reading skills. The following are the statement items to test Duolingo engagement that have been tested in previous studies by other researchers (Hakimantieq et al., 2022). The instrument used to test reading skills covers five aspects of reading ability, namely: (1) identifying main ideas, (2) finding detailed information, (3) understanding implied meaning, (4) understanding vocabulary in context, and (5) recognizing references. Each question has four answer options with one correct answer. The data for this study were obtained through questionnaires and reading skill tests given to 25 students fifth semester from various study programs who had a background in learning English in Pare, Kediri. The questionnaire regarding the use of the Duolingo application and learning

motivation was adapted from previous research instruments and adjusted to the characteristics of the participants. The instrument used a five-point Likert scale and underwent expert judgment and pilot testing to ensure its content validity and reliability (Sugiyono, 2019). After the data was collected, all answers were scored according to the guidelines for further analysis.

RESULT AND DISCUSSION

A. The Relationship Between of Duolingo Engagement and Reading Proficiency

Duolingo Engagement	Reading Proficiency (Y)								
47	19	SUMMARY OUTPUT							
46	18								
35	15	Regression Statistics							
49	19	Multiple R	0,421927384						
50	20	R Square	0,178022717						
47	19	Adjusted R	0,142284575						
40	18	Standard Error	1,30646611						
46	15	Observations	25						
48	19								
50	18	ANOVA							
47	19		df	SS	MS	F	Significance F		
42	20	Regression	1	8,502364977	8,502	4,9813086	0,035652619		
45	20	Residual	23	39,25763502	1,707				
46	18	Total	24	47,76					
46	19								
35	18	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
49	20	Intercept	12,71536031	2,5425532	5,001	4,653E-05	7,455688286	17,97503234	7,455688286
47	19	duolingo (X)	0,126448022	0,05665527	2,232	0,0356526	0,009247666	0,243648378	0,009247666
48	20								
34	18								
45	19								
40	17								
48	18								
40	18								
46	16								

The data was analyzed using inferential statistics to test the relationship between Duolingo engagement on reading proficiency. Prior to the main analysis, normality and linearity tests were conducted as prerequisites. The analysis techniques used were Pearson Product Moment correlation and tools in excel is data analysis to examine the strength of the relationship between each variable to determine the simultaneous contribution of both variables.

Determine the extent to which the use of the Duolingo app has a significant effect on students' reading skills. Based on the regression analysis results, the Multiple R value obtained was 0.421, indicating a moderate correlation between the use of the Duolingo application (X_1) and students' reading skills (Y). The R Square value of 0.17 means that 17% of the variation in reading skills can be explained by the use of the Duolingo app, while the remaining 83% is influenced by other factors not included in this model. The ANOVA results show a Significance F value of 0.035, which is less than 0.05, indicating that this regression model is statistically significant. This suggests that the use of the Duolingo app has a significant effect on students' reading skills. Based on the regression equation obtained, $Y = 12.715 + 0.126X_1$, every one- unit increase in the use of Duolingo is predicted to increase reading skill scores by 0.126 points. Therefore, the use of the Duolingo application has a significant effect on students' reading skills. These findings indicate that the more often participants use the Duolingo app, the better their English reading skills. In light of these findings, the null hypothesis (H_0) is not supported, there by confirming the acceptance of the alternative hypothesis (H_a), which demonstrates that students' engagement with Duolingo has a statistically significant influence on their reading proficiency.

The results of this study are in line with previous studies discussing the application of games in the learning process, which show that student responses in several countries, including Scotland

and the Netherlands, are quite positive. This is because the use of games can increase student focus while reducing boredom, making the learning atmosphere more relaxed and enjoyable (Hailey et al., 2020).

Research that tested the use of Duolingo using experimental research showed an increase in reading comprehension scores in the experimental group compared to the control group. This suggests that the effectiveness of Duolingo in improving reading comprehension and expanding vocabulary can be used as a complementary tool to support participant learning (Nicolalde González et al., 2025). This indicates that the consistency of findings regarding participant engagement with the Duolingo application is not only correlated with reading ability but also has real practical implications for improving English proficiency

B. The Relationship Between of Learning Motivation and Reading Proficiency

Learning Motivation (X2)	Reading Proficiency (Y)								
45	19	SUMMARY OUTPUT							
46	18								
36	15	Regression Statistics							
48	19	Multiple R	0,5000603						
48	20	R Square	0,2500603						
46	19	Adjusted R	0,2174542						
40	18	Standard Error	1,2479047						
46	15	Observations	25						
48	19								
50	18	ANOVA							
47	19		df	SS	MS	F	Significance F		
49	20	Regression	1	11,94287775	11,943	7,669131	0,0109114		
48	20	Residual	23	35,81712225	1,5573				
38	18	Total	24	47,76					
48	19								
34	18		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%
49	20	Intercept	11,195539	2,5990944	4,3075	0,000262	5,8189027	16,57217557	5,818902747
47	19	Learning M	0,1582257	0,057135236	2,7693	0,010911	0,0400325	0,276418967	0,040032484
50	20								
48	18								
46	19								
42	17								
48	18								
39	18								
46	16								

The data was analyzed using inferential statistics to test the relationship between learning motivation on reading proficiency. The analysis techniques used were Pearson Product Moment correlation and tools in excel is data analysis to examine the strength of the relationship between each variable to determine the simultaneous contribution of both variables. Assess the level of contribution of learning motivation to the improvement of students' reading skills, a correlation calculation was performed between the learning motivation variable and reading scores using data analysis in Excel. The regression analysis results show a moderate correlation between learning motivation and reading skills, with a Multiple R value of 0.50.

The R Square value is 0.25 or 25%, while the remaining 75% is influenced by other factors not included in this research model. Furthermore, The test shows a significance F value is 0.01, demonstrating it is below 0.05, so this regression model is considered statistically significant. These findings reinforce the decision to reject the null hypothesis (H_0) and accept the alternative hypothesis (H_a), which means that learning motivation has a significant effect on students' reading skills. In addition, the regression equation $Y = 11.195 + 0.158X_1$ was obtained, indicating that each one-unit increase in learning motivation is predicted to increase reading skill scores by 0.158 points. The research verifies the acceptance of the alternative hypothesis (H_a), indicating that learning motivation exerts a meaningful and positive contribution to the enhancement of students' reading achievement. It can be concluded that the use of the Duolingo application has a positive and significant effect on students' reading abilities.

The results of the questionnaire show that most participants stated that students fifth semester liked English and felt that the learning experience was enjoyable, which indicates the presence of intrinsic motivation (Hidayati & Diana, 2019). This intrinsic motivation encourages participants to learn actively because they enjoy the learning process itself, not merely because of external demands. Some participants showed extrinsic motivation through identified regulation, which is an awareness of the importance of English for self-development and its connection to personal goals. This motivation remains effective because participants are able to internalize their learning goals, so they remain motivated to learn even when faced with difficulties (Ryan & Deci, 2000). Only a small number of participants showed introjected regulation, where the motivation to learn was more influenced by external pressures, such as feelings of shame or guilt if they did not study (Alamer, 2015). The higher the expectations and perceived value of the participants, the greater their drive to actively participate in the learning process. In addition, intrinsic motivation arises when participants are driven by the pleasure of learning itself, while extrinsic motivation focuses on external factors that motivate participants to learn languages comfortably and enjoyably (Dörnyei, 1994). Thus, quantitative and qualitative results show that high learning motivation, both intrinsic and internalized extrinsic, has a positive and significant impact on participants' reading ability, confirming that building motivation is a major factor in learning success.

This finding is in line with the value-expectancy theory, which states that motivation arises from a combination of expectations of success and the value placed on learning tasks, known as perceived value (Xing et al., 2021). The higher the expectations and perceived value of the participants, the greater their drive to actively participate in the learning process. In addition, intrinsic motivation arises when participants are driven by the pleasure of learning itself, while extrinsic motivation focuses on external factors that motivate participants to learn languages comfortably and enjoyably (Dörnyei, 1994). Thus, quantitative and qualitative results show that high learning motivation, both intrinsic and internalized extrinsic, has a positive and significant impact on participants' reading ability, confirming that building motivation is a major factor in the success of English language learning.

C. The Relationship Between of Duolingo Engagement and Reading Proficiency

[illegible]

The analysis was conducted to assess the simultaneous effect of Duolingo usage (X_1) and learning motivation (X_2) on students' reading skills (Y). The regression equation obtained is:

$$\hat{Y}=10,60+0,047X_1+0,124X_2$$

The findings derived from the multiple regression analysis involving with 25 participants indicate that, the Multiple R value is 0.513 a moderate correlation between Duolingo usage (X_1), learning motivation (X_2), and reading comprehension (Y). The R Square value of 0.263 means that 26.3% of the variance in students' reading comprehension can be explained by both predictors, while the remaining 73.7% is influenced by other factors. The Adjusted R Square value of 0.196 confirms a moderate explanatory power.

The ANOVA test shows an F-value of 3.940 with a Sig. F of 0.034, indicating that the overall regression model is statistically significant. This means Duolingo usage and learning motivation, when considered together, significantly affect students' English reading comprehension. However, individually, Duolingo ($B = 0.0472$, $p = 0.529$) and learning motivation ($B = 0.1248$, $p = 0.123$) are not statistically significant, as their p-values are above 0.05.

Despite the lack of individual significance, the combined effect of Duolingo usage and learning motivation (Sig. F = 0.034) shows a meaningful interaction in supporting students' reading comprehension. The regression equation is $Y = 10.60 + 0.047X_1 + 0.124X_2$, indicating that the interaction between both predictors contributes positively to reading comprehension, even though each variable alone is not significant. Accordingly, the analysis supports the acceptance of the alternative hypothesis (H_a), confirming that the interaction between Duolingo engagement and learning motivation produces a significant combined effect on learners' reading proficiency.

This finding is in line with the value-expectancy theory, which states that motivation arises from a combination of expectations of success and the value placed on learning tasks, known as perceived value (Xing et al., 2021). The higher the expectations and perceived value of the participants, the greater their drive to actively participate in the learning process. In addition, intrinsic motivation arises when participants are driven by the pleasure of learning itself, while extrinsic motivation focuses on external factors that motivate participants to learn languages comfortably and enjoyably (Dörnyei, 1994). Thus, quantitative and qualitative results show that This model allows for the prediction of students' reading scores based on their level of engagement with the Duolingo app and their level of learning motivation. For example, students with high scores on both variables are predicted to have significantly higher reading scores than students with low scores. The combination of engaging educational technology and high learning motivation significantly improves reading comprehension and language proficiency. Therefore, encouraging students to actively use learning applications while building strong motivation is an important strategy for significantly improving reading skills.

CONCLUSION

The findings from field research indicate that the use of the Duolingo application positively and significantly affects students' reading skills. Regression analysis results showed a Multiple R value of 0.421. The 0.17 R Square suggests that 17% of reading skill variation is linked to using Duolingo. The ANOVA results show a Significance F value of 0.035. The regression equation $Y = 12.715 + 0.126X_1$, shows that every one-unit increase in the use of Duolingo can increase reading skill scores by 0.126 points. Therefore, increased student engagement with the Duolingo application leads to improved English reading skills. Furthermore, the results of the study on the contribution of learning motivation to reading skills show a positive relationship with a Multiple R value of 0.50 and an R Square value of 0.25. This means that 25% of the increase in reading ability can be explained by student learning motivation, with a Significance F value of 0.01, which is less than 0.05. The regression equation $Y = 11.195 + 0.158X_1$. These findings show that intrinsic and extrinsic motivation play an important role in supporting students' active participation during the learning process, which ultimately significantly improves reading skills. Meanwhile, the results of

simultaneous analysis show that the use of Duolingo and learning motivation together have a significant effect on students' reading skills, with a Multiple R value of 0.513 and an R Square of 0.263 (26.3%). The regression equation $\hat{Y} = 10.60 + 0.047X_1 + 0.124X_2$ shows a positive interaction between the use of technology-based learning applications and learning motivation, which together can strengthen English learning outcomes. The implications and recommendations of this study confirm that the data collected and analyzed quantitatively in the field have shown the empirical validity of the influence of Duolingo use on reading skills. These results provide a basis for educators to integrate digital media such as Duolingo into learning in order to increase student motivation and learning outcomes. However, the statistical model used is still limited to two main predictor variables and a relatively small number of participants, so the results are contextual. Therefore, further research is recommended to expand the sample size, add other variables such as learning strategies or affective factors, and use a longitudinal approach to gain a deeper and more comprehensive understanding of the effectiveness of technology-based learning.

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