

Integration Duolingo as a Technology-Based Approach to Improve Students' Motivation and Vocabulary Skills at SMP ISLAM YUHA Cempaka Putih

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Abstract: *This study investigates the effectiveness of integrating Duolingo as a technology-based approach to enhance the learning motivation and vocabulary mastery of seventh-grade students at SMP Islam YUHA Cempaka Putih. Employing a quantitative method, the research adopted a pre-experimental one-group pre-test and post-test design. A purposive sample of 22 students participated in the study. Data were collected using a vocabulary test and a motivation questionnaire, both administered before and after the treatment. The findings revealed a significant improvement in students' motivation, with mean scores rising from 17.09 (pre-test) to 33.50 (post-test). Similarly, vocabulary mastery scores improved from 38.86 to 68.64. A paired sample t-test confirmed the significance of these results ($p < 0.05$), leading to the rejection of the null hypothesis. These findings demonstrate that Duolingo is an effective technological tool to improve students' motivation and vocabulary acquisition.*

Keywords: *Duolingo; vocabulary; motivation; technology-based learning*

Abstrak: Penelitian ini bertujuan untuk menguji efektivitas integrasi Duolingo sebagai pendekatan berbasis teknologi dalam meningkatkan motivasi belajar dan penguasaan kosakata siswa kelas VII di SMP Islam YUHA Cempaka Putih. Penelitian ini menggunakan metode kuantitatif dengan desain pra-eksperimental one-group pre-test dan post-test. Sampel berjumlah 22 siswa yang dipilih melalui purposive sampling. Data dikumpulkan menggunakan tes kosakata dan angket motivasi yang diberikan sebelum dan sesudah perlakuan. Hasil penelitian menunjukkan adanya peningkatan signifikan pada motivasi siswa, dengan rata-rata skor meningkat dari 17,09 (pre-test) menjadi 33,50 (post-test). Demikian pula, skor penguasaan kosakata meningkat dari 38,86 menjadi 68,64. Uji t berpasangan mengonfirmasi signifikansi hasil ini ($p < 0,05$), sehingga hipotesis nol ditolak. Temuan ini membuktikan bahwa Duolingo merupakan alat berbasis teknologi yang efektif untuk meningkatkan motivasi belajar dan penguasaan kosakata siswa.

Kata kunci: Duolingo, kosakata, motivasi, pembelajaran berbasis teknologi

1. INTRODUCTION

English proficiency has become a fundamental skill in the global era, serving as a vital tool in education, technology, and communication. In Indonesia, English is taught as a foreign language from junior high school onwards, where vocabulary mastery plays a crucial role. As McCarthy [1] emphasizes, meaningful communication is hindered without adequate vocabulary knowledge, even with strong grammar and pronunciation skills. Likewise, Nation [2] asserts that vocabulary is the foundation of the four language skills—listening, speaking, reading, and writing.

Despite its importance, students often face challenges in vocabulary acquisition. At SMP Islam YUHA Cempaka Putih, many seventh-grade students exhibited low intrinsic motivation and difficulty grasping new vocabulary. Observations indicated that students studied English primarily to meet academic demands rather than personal interest. According to Slavin [3], motivation significantly influences language learning outcomes, where intrinsic and extrinsic factors shape students' engagement. Low motivation and passive learning methods, such as lectures, have contributed to weak vocabulary mastery.

In response, integrating technology offers a promising solution. Duolingo, a gamification-based language learning platform, has gained recognition for enhancing learner motivation and vocabulary retention. Vesselinov and Grego [4] demonstrated Duolingo's effectiveness in improving vocabulary within a short time, while Golonka et al. [5] highlighted how gamified technologies foster learner engagement through interactive and competitive features. By integrating Duolingo into classroom learning, teachers can transform passive learning into an engaging experience.

Duolingo's design incorporates elements such as points, levels, and rewards, which provide learners with a sense of achievement and encourage persistence. This interactive model aligns with Deci and Ryan's [6] self-determination theory, where autonomy, competence, and relatedness enhance intrinsic motivation. Hence, this study examines whether the integration of Duolingo can significantly improve students' motivation and vocabulary mastery.

2. RESEARCH METHOD

This study applied a pre-experimental one-group pre-test and post-test design [7]. The population consisted of all seventh-grade students at SMP Islam YUHA Cempaka Putih, totaling 68 students. A purposive sample of 22 students from class 7B was selected.

Instruments: Data were collected using (1) a 20-item multiple-choice vocabulary test and (2) a 10-item motivation questionnaire based on a 4-point Likert scale. Both instruments were validated through Pearson Product Moment and reliability tested using Cronbach's Alpha ($\alpha > 0.60$).

Procedure: Students were given a pre-test and motivation questionnaire before the treatment. The treatment was conducted over four sessions, where Duolingo was projected and guided by the teacher. After treatment, a post-test and post-questionnaire were administered.

Data Analysis: Data were analyzed using descriptive statistics, normality tests (Shapiro-Wilk), and paired sample t-tests with IBM SPSS. The significance threshold was set at $p < 0.05$.

3. RESULT AND DISCUSSION

The findings revealed notable improvements in both motivation and vocabulary mastery after the integration of Duolingo.

Table 1. Descriptive Statistics of Students' Scores

Variable	N	Pre-test mean	Post-test Mean	Gain Score
Motivation	22	17.09	33.50	+16.41
Vocabulary	22	38.86	68.64	+29.78

The descriptive statistics indicated that motivation and vocabulary scores significantly increased after the intervention. The paired sample t-test results further confirmed these findings: motivation ($t = -21.987, p = 0.000$) and vocabulary ($t = -19.089, p = 0.000$). These results indicate a significant difference between pre-test and post-test scores.

These findings align with previous studies

such as Munasiroh [8], who reported a significant increase in students' motivation after using Duolingo, and Hernadijaya [9], who found that Duolingo effectively enhanced vocabulary mastery. The gamification elements in Duolingo created a more engaging classroom atmosphere, encouraging students to participate actively. The sense of achievement fostered by Duolingo's interactive design contributed to improved intrinsic motivation, in line with Deci and Ryan's [6] framework.

Furthermore, students showed greater enthusiasm and confidence in vocabulary learning, which supports Schmitt's [10] emphasis on the importance of repeated exposure and meaningful interaction in vocabulary acquisition. The use of Duolingo not only provided repetition but also incorporated interactive contexts that sustained students' focus.

4. CONCLUSION

The integration of Duolingo as a technology-based approach proved effective in enhancing seventh-grade students' motivation and vocabulary mastery at SMP Islam YUHA Cempaka Putih. The significant improvement in post-test scores compared to pre-test scores demonstrates that Duolingo's gamified learning features successfully engaged students and improved learning outcomes. These findings suggest that incorporating gamification-based technology into classroom instruction can address motivational challenges and strengthen language acquisition.

5. CLOSING STATEMENT

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REFERENCES

- [1] M. McCarthy, *Vocabulary*, Oxford: Oxford University Press, 1990.
- [2] I. S. P. Nation, *Learning Vocabulary in Another Language*, Cambridge: Cambridge University Press, 2001.
- [3] R. E. Slavin, *Educational Psychology: Theory and Practice*, 10th ed., Boston: Pearson, 2011.
- [4] R. Vesselinov and J. Grego, "Duolingo effectiveness study," City University of New York, 2012.
- [5] E. M. Golonka, A. R. Bowles, V. Frank, D. L. Richardson, and S. Freynik, "Technologies for foreign language learning: A review of technology types and their effectiveness," *Computer Assisted Language Learning*, vol. 27, no. 1, pp. 70–105, 2014.
- [6] E. L. Deci and R. M. Ryan, *Self-Determination Theory: An Approach to Human Motivation and Personality*, New York: Springer, 2000.
- [7] B. B. Frey, *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation*, Thousand Oaks: SAGE Publications, 2018.
- [8] S. Munasiroh, "The Effectiveness of 'Duolingo for School' Application on Students' Motivation," *Journal of English Language Studies*, vol. 8, no. 2, 2023.
- [9] N. S. Hernadijaya, "The Use of Duolingo Application to Enhance Junior High School Students' English Vocabulary," *English Education Journal*, vol. 11, no. 1, 2020.
- [10] N. Schmitt, "Review article: Instructed second language vocabulary learning," *Language Teaching Research*, vol. 12, no. 3, pp. 329–363, 2008.