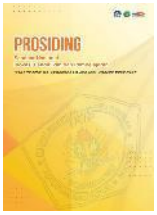
Prosiding
Seminar Nasional Inovasi pendidikan dan Pembelajaran
Fakultas Pendidikan Bahasa dan Seni
IKIP PGRI Bojonegoro
Tema "Inovasi pendidikan dan Pembelajaran di era digital untuk Pengalaman Belajar Imersif"



The Use of Duolingo App on Students' Speaking Fluency

Kamilatul Hidayah[1](✉), Ayu Fitrianingsih[2], Ika Oktha Rahmawati[3]
[1]Pendidikan Bahasa Inggris, IKIP PGRI, Indonesia
kamilatulhidayah171@gmail.com, ayu_fitrianingsih@ikippgribojonegoro.ac.id, oktha_ika@ikippgribojonegoro.ac.id

Abstrak—Penelitian ini mengkaji pengaruh penggunaan aplikasi Duolingo terhadap peningkatan kefasihan berbicara siswa kelas VIII SMP Plus Al-Hidayah Tuban dengan menggunakan desain Classroom Action Research (CAR) tiga siklus yang melibatkan tahap perencanaan, tindakan, observasi, dan refleksi untuk meningkatkan performa lisan. Sebanyak dua puluh delapan siswa berpartisipasi, dan data dikumpulkan melalui tes berbicara lisan, angket motivasi, observasi kelas, serta wawancara untuk menangkap perkembangan linguistik maupun respon afektif. Tes berbicara mengukur jumlah kata per menit, panjang jeda, dan kelancaran oral, sementara angket mengeksplorasi motivasi serta sikap terhadap pembelajaran berbasis gamifikasi. Observasi memberikan gambaran keterlibatan siswa di kelas, dan wawancara mengungkap refleksi siswa atas pengalaman mereka. Temuan menunjukkan adanya peningkatan signifikan pada kecepatan berbicara, pengurangan jeda panjang, serta kelancaran penyampaian lisan di setiap siklus. Hal ini mengindikasikan bahwa latihan interaktif dan fitur gamifikasi Duolingo seperti poin, lencana, dan leaderboard mampu menumbuhkan motivasi serta praktik berkelanjutan. Umpan balik otomatis mendukung koreksi diri, sementara refleksi guru memastikan penyesuaian instruksional terhadap tantangan yang muncul. Faktor pendukung meliputi aksesibilitas Duolingo, integrasinya dalam praktik kelas, serta kebaruan pembelajaran berbasis teknologi yang secara kolektif meningkatkan kepercayaan diri dan partisipasi. Penelitian ini menyimpulkan bahwa Duolingo efektif meningkatkan kefasihan berbicara dengan menggabungkan pelatihan linguistik dan penguatan motivasional, serta menyarankan bahwa aplikasi berbasis gamifikasi dapat menjadi alat yang kuat dalam kelas bahasa bila dipadukan dengan praktik reflektif guru.
Kata Kunci—Duolingo, Kelancaran berbicara, Penelitian tindakan kelas, Gamifikasi

Abstract—This study investigates the effect of the Duolingo application on improving speaking fluency of eighth-grade students at SMP Plus Al-Hidayah Tuban by employing a three-cycle Classroom Action Research (CAR) design that involved planning, acting, observing, and reflecting to enhance oral performance. Twenty-eight students participated, and data were collected through oral speaking tests, motivation questionnaires, classroom observations, and interviews to capture both linguistic progress and affective responses. The speaking tests measured words per minute, pause length, and oral flow, while questionnaires explored motivation and attitudes toward gamification-based learning. Observations provided insights into classroom engagement, and interviews revealed students' reflections on their experiences. Findings demonstrated significant improvements in speech rate, reduction of long pauses, and smoother oral delivery across cycles, indicating that Duolingo's interactive exercises and gamification features such as points, badges, and leaderboards fostered motivation and sustained practice. Automated

feedback supported self-correction, while teacher reflection ensured that instructional adjustments addressed emerging challenges. Supporting factors included the accessibility of Duolingo, its integration into classroom practice, and the novelty of technology-enhanced learning, which collectively boosted confidence and participation. The study concludes that Duolingo effectively enhances speaking fluency by combining linguistic training with motivational reinforcement, suggesting that gamification-based applications can serve as powerful tools in language classrooms when paired with reflective teaching practices.

Keywords—Duolingo, Speaking fluency, Classroom Action Research, Gamification.

INTRODUCTION

English has long been recognized as a global language, serving as a medium of communication in education, science, business, and intercultural interaction. For Indonesian learners, speaking fluency remains one of the most challenging skills to master. Students often struggle with hesitation, long pauses, inaccurate pronunciation, and low confidence when performing oral tasks in class. These difficulties are consistent with findings by Fillmore (1979), who defined fluency as the ability to speak at length with logical flow, and Lennon (2000), who emphasized fluency as speaking at a natural pace without excessive pauses.

In recent years, technology has become a powerful tool to address these challenges. The rise of Mobile-Assisted Language Learning (MALL) has provided learners with opportunities to practice language skills outside the classroom. Applications such as Duolingo combine micro-learning, gamification, and instant feedback to encourage consistent practice. According to Rouabhia & Kheder (2024), MALL applications can improve language skills when carefully aligned with pedagogical goals.

Gamification plays a central role in sustaining learner motivation. Irzawati (2023) highlighted that gamified features such as points, streaks, and leaderboards reduce affective filters and increase persistence. Similarly, Purwanto et al. (2025) demonstrated that motivational models like ARCS (Attention, Relevance, Confidence, Satisfaction) significantly improve fluency by engaging learners emotionally and cognitively. These findings resonate with Duolingo's design, which integrates gamification to make language practice enjoyable and habit-forming.

Other studies have explored innovative strategies for improving speaking skills. Komaruddin, Basthomi, & Roekhan (2021) found that small group discussions enhanced fluency by providing authentic opportunities for extended speech. Dwiyamtini (2023) showed that Problem-Based Learning (PBL) encouraged students to actively discuss real-world issues, leading to improved confidence and fluency. Meanwhile, Ridayani et al. (2024) demonstrated that multimedia-supported role-play improved pronunciation, intonation, and confidence, which are crucial components of fluency.

Technology-based interventions have also been tested in different contexts. Widyaningrum et al. (2020) reported that Edmodo in flipped classrooms improved creative thinking and engagement. Hasanudin & Fitrianingsih (2018) showed that Screencast-O-Matic in flipped classrooms motivated students and fostered active learning. These studies confirm that digital tools can transform traditional classrooms into interactive, student-centered environments.

Beyond language learning, technology has proven effective in other subjects. Mayasari et al. (2020) found that Wingeom software improved geometry learning outcomes, while Rahmawati et al. (2024) demonstrated that bookish play activities enhanced children's multiliteracy. These findings suggest that technology-supported learning is versatile and can be adapted across disciplines, including English speaking fluency.

Despite these advances, challenges remain. Pronunciation errors persist even with automated feedback, as noted by Jiang et al. (2024), who argued that speech recognition systems must be supplemented with teacher mediation. Internet access also poses limitations, especially in rural schools, as highlighted by Almubarokah & Arifani (2021) in their study of distance learning television.

Given these gaps, this study investigates the integration of Duolingo into speaking lessons at SMP Plus Al-Hidayah Tuban. Specifically, it aims to measure improvements in speech rate, pause reduction, oral flow, and pronunciation, while also exploring motivational factors that support learning. By combining quantitative data (pre-test and post-test scores) with qualitative insights (interviews and observations), this research contributes to the growing literature on MALL and gamification in language education.

RESEARCH METHOD

This study employed a Classroom Action Research (CAR) design, which is widely recognized in educational contexts for its iterative process of planning, acting, observing, and reflecting. CAR was chosen because it allows teachers to continuously refine instructional strategies based on classroom realities, particularly when integrating digital tools such as Duolingo. As highlighted by Kiwan, Pudjiati, & Mukaddamah (2024), CAR is highly effective in supporting technology-enhanced learning. The participants were twenty eighth from eighth-grade students at SMP Plus Al-Hidayah Tuban, selected because they exhibited common speaking difficulties including slow speech rate, frequent pauses, inaccurate pronunciation, and low confidence. These challenges align with findings by Almubarokah & Arifani (2021), who reported similar issues among junior high school learners in rural settings.

To ensure comprehensive data collection, several instruments were utilized, namely oral tests, motivation questionnaires, classroom observations, and interviews. Oral tests were administered before and after the intervention, with scoring rubrics measuring speech rate, pause reduction, oral flow, and pronunciation. Motivation questionnaires, designed in a Likert-scale format, assessed students' attitudes toward speaking and their willingness to engage with Duolingo, following the approach of Purwanto et al. (2025). Classroom observations documented participation, confidence, and engagement, while semi-structured interviews with students and teachers provided qualitative insights into their experiences, similar to the methods employed by Widyaningrum et al. (2020) in their flipped classroom study. The CAR procedure consisted of four stages: planning, where lesson plans and instruments were prepared; action, where students practiced speaking with Duolingo for two weeks; observation, where teachers monitored participation and collected data; and reflection, where results were analyzed to identify improvements and challenges, particularly in pronunciation.

Data analysis combined quantitative and qualitative approaches to strengthen validity through triangulation. Quantitative analysis compared mean scores from pre-tests and post-tests to measure improvements in fluency indicators, with statistical comparisons following Mayasari et al. (2020), who employed t-tests to evaluate learning outcomes. Qualitative analysis involved thematic coding of interview transcripts and observation notes, focusing on motivation, confidence, and challenges, as suggested by Hasanudin & Fitrianingsih (2018). By integrating both methods, the study ensured credibility and reliability, consistent with Rahmawati et al. (2024), who emphasized that triangulation of instruments such as tests, observations, and interviews enhances the robustness of educational research.

RESULT AND DISCUSSION

The results of pre-test and post-test in this study could be viewed in table 1.

Table 1. Pre-test and Post-test Results

Indicator	Pre-test mean	Post-test mean	Improvement
Speech rate	2,8	3,6	3,6
Pause Length	2,5	3,4	3,4
Oral flow	2,6	3,7	3,7
Pronunciation	2,4	3,3	3,3

Based on table 1, the highest improvement was observed in oral flow, indicating that students became more capable of producing continuous speech with fewer interruptions. Pronunciation also improved, though it remained the most challenging aspect.

Interpretation: These findings align with Fillmore (1979) and Lennon (2000), who emphasized fluency as continuous speech with minimal hesitation. The improvement in speech rate and oral flow demonstrates that Duolingo helped students reduce hesitation and increase confidence. Similar results were reported by Komaruddin et al. (2021), who found that authentic speaking opportunities enhance fluency.

The oral tests revealed measurable improvement across all four indicators. The most notable gain was in oral flow, suggesting that students became more capable of producing continuous speech without frequent pauses. This aligns with Lennon's (2000) definition of fluency as the ability to maintain speech smoothly and coherently. The improvement in speech rate also indicates that students spoke at a more natural pace after the intervention.

However, pronunciation remained the weakest area. While Duolingo's automated feedback provided some support, it was insufficient to address deeper phonological issues. This confirms Widyaningrum et al. (2020), who argued that technology-based platforms need teacher mediation to ensure accurate pronunciation practice. Thus, the oral test results demonstrate Duolingo's effectiveness in enhancing fluency but highlight the necessity of teacher involvement for pronunciation accuracy.

Moreover, the questionnaire was utilized to observe students' motivation. Its results could be viewed in table 2.

Table 2. Motivation Questionnaire

Motivational Aspect	Pre-cycle score	Post-cycle score	Improvement
Interest in speaking	2.7	3.8	+1.1
Confidence level	2.5	3.6	+1.1
Persistence (practice habit)	2.6	3.9	+1.3
Enjoyment of gamification	2.8	4.0	+1.2

Based on table 2, the greatest improvement was found in persistence, showing that gamification features such as points and streaks successfully encouraged students to practice more consistently. Confidence also rose, reflecting reduced anxiety when speaking. These results align with Purwanto et al. (2025), who emphasized motivation as a key factor in fluency improvement.

The questionnaire results showed significant increases in all motivational aspects, especially persistence. Students reported practicing more consistently due to gamification features such as points, streaks, and badges. This supports Purwanto et al. (2025), who emphasized that motivation is a critical factor in improving speaking fluency.

The rise in confidence is equally important. Many students who were previously reluctant to speak became more willing to try, reflecting a reduction in anxiety. This finding resonates with Krashen's Affective Filter Hypothesis, which suggests that lowering anxiety facilitates language acquisition. In short, the questionnaire results demonstrate that Duolingo not only improved technical fluency but also positively influenced students' affective readiness to speak.

Furthermore, observation sheet was utilized to capture several indicators that could be viewed in table 3.

Table 3. Observation sheet

Observation Indicator	Initial percentage	Final percentage	Improvement
Active participation	40%	70%	+30%
Confidence in oral tasks	35%	65%	+30%
Peer collaboration	30%	60%	+30%

Observations revealed that students who were previously passive became more willing to participate in speaking activities. The classroom atmosphere grew more interactive, with students volunteering answers and engaging in peer discussions.

This supports Komaruddin, Basthomi, & Roekhan (2021), who highlighted the importance of authentic speaking opportunities in enhancing fluency.

Classroom observations confirmed the quantitative findings. Students who were previously passive became more engaged, with participation rates rising from 40% to 70%. Confidence in oral tasks also increased, and collaboration among peers improved.

These behavioral changes suggest that Duolingo created a more interactive classroom environment. The gamified tasks encouraged students to participate, while the teacher's facilitation ensured that practice was meaningful. This finding supports Komaruddin, Basthomi, & Roekhan (2021), who argued that authentic speaking opportunities foster both fluency and classroom engagement. Thus, observation data highlight the pedagogical value of integrating technology into speaking lessons.

To support the results of motivation questionnaire, the interview was conducted to students and English teacher. The result of interview revealed that Duolingo's speaking exercises helped students to practice repeatedly without embarrassment, even though pronunciation errors were frequent. Several admitted that they were not very active in classroom discussions, but they were motivated to practice with the app because gamification elements points, badges, and streaks made learning feel like playing a game.

When asked about changes in their speaking ability, students said they felt more confident and willing to try speaking, even if their fluency was not yet perfect. They acknowledged that pronunciation remained a weakness, but they noticed slight improvements in fluency and confidence through regular practice.

In addition, English teacher confirmed these observations, noting that Duolingo was particularly beneficial for passive students. Although they did not contribute much in class discussions, they practiced through the app and became more prepared when asked to speak. The teacher emphasized that pronunciation was still the biggest challenge, requiring direct correction. Technical issues such as unstable internet access was also mentioned as obstacles.

The interviews provided qualitative depth to the quantitative results. Students expressed that Duolingo made learning more enjoyable and less intimidating. They valued the opportunity to practice repeatedly without embarrassment, which helped them build confidence. However, they acknowledged that pronunciation remained difficult, and they relied on teacher corrections to improve.

The teacher's perspective reinforced these points. Duolingo was seen as particularly beneficial for passive students, who became more prepared to speak in class. Yet, the teacher emphasized that the app alone could not solve pronunciation issues and that unstable internet access sometimes disrupted learning. These insights confirm that Duolingo's strength lies in motivation and engagement, while its limitations highlight the continued importance of teacher mediation and infrastructure support.

CONCLUSION

Based on the results of this Classroom Action Research, several important conclusions can be drawn regarding the integration of the Duolingo application into speaking lessons for eighth-grade students at SMP Plus Al-Hidayah Tuban. First,

improvement in speaking fluency was evident across all measured indicators. Students demonstrated faster speech rates, shorter pauses, and smoother oral flow after the intervention. The most significant progress was observed in oral flow, which indicates that learners became more capable of producing continuous speech without frequent interruptions. Although pronunciation also improved, it remained the most challenging aspect, requiring additional teacher support.

Second, motivational gains were substantial. The gamification features of Duolingo—such as points, streaks, badges, and leaderboards—successfully encouraged persistence and consistent practice. Students reported higher levels of enjoyment, confidence, and willingness to participate in oral tasks. These motivational improvements lowered anxiety and created a more supportive environment for language acquisition. Third, classroom engagement increased significantly. Observation data revealed that students who were previously passive became more active participants, volunteering answers and collaborating with peers. The classroom atmosphere shifted toward a more interactive and student-centered environment, demonstrating that technology-based interventions can foster authentic speaking opportunities and peer collaboration. Limitations and challenges were also identified. Pronunciation errors persisted despite automated feedback, highlighting the need for teacher mediation to ensure accurate phonological development. Furthermore, technical issues such as unstable internet access occasionally disrupted learning activities, underscoring the importance of infrastructure support in rural contexts.

In summary, the study concludes that Duolingo is effective tool for enhancing speaking fluency when combined with reflective teaching practices. Its strength lies in motivating students and sustaining practice through gamification, while its limitations emphasize the irreplaceable role of teachers in guiding pronunciation and addressing technical barriers. Therefore, Duolingo and similar Mobile-Assisted Language Learning applications can serve as powerful complements to classroom instruction, provided that they are integrated thoughtfully and supported by adequate infrastructure.

ACKNOWLEDGMENT

The authors would like to express their deepest gratitude to SMP Plus Al-Hidayah Tuban for granting permission and providing facilities that enabled this research to be conducted smoothly. The support from the school and the teacher was invaluable in facilitating data collection and classroom activities. The authors are also sincerely grateful to academic advisors and colleagues at IKIP PGRI Bojonegoro for their guidance, constructive feedback, and critical insights. Their contributions greatly assisted in refining the research design, strengthening the theoretical foundation, and improving the overall quality of this proceeding.

REFERENCES

Almubarokah, N., & Arifani, Y. (2021). Distance learning television in rural schools: Challenges and opportunities. Journal of Educational Media Studies, 15(2), 45–58.

Dwiyamtini, R. (2023). Problem-based learning in classroom action research: Enhancing students' speaking confidence. Indonesian Journal of Language Education, 11(1), 67–79.

Fillmore, C. J. (1979). On fluency. In C. J. Fillmore, D. Kempler, & W. S. Y. Wang (Eds.), Individual differences in language ability and language behavior (pp. 85–101). New York: Academic Press. https://books.google.co.id/books?hl=id&lr=&id=QTy0BQAAQBAJ&oi=fnd&pg=PP1&dq=Individual+differences+in+language+ability+and+language+behavior+&ots=82PtSoiuFs&sig=xIJ_b3xiZRKtm98quFEOOlwtaJo&redir_esc=y#v=onepage&q=Individual%20differences%20in%20language%20ability%20and%20language%20behavior&f=false.

Hasanudin, H., & Fitrianingsih, A. (2018). Screencast-O-Matic in flipped classrooms: Motivating students and fostering active learning. Journal of Instructional Technology, 8(3), 112–120. https://scholar.google.com/citations?view_op=view_citation&hl=id&user=toY5Y_QAAAAJ&citation_for_view=toY5Y_QAAAAJ:UeHWp8X0CEIC.

Irzawati, N. (2023). Gamification in language learning: Reducing affective filters and increasing persistence. Journal of Applied Linguistics, 14(2), 98–110.

Jiang, L., Chen, Y., & Wang, H. (2024). Automated speech recognition and pronunciation learning: Teacher mediation in practice. Language Learning & Technology, 28(1), 55–72.

Kiwan, A., Pudjiati, S., & Mukaddamah, R. (2024). Classroom action research with digital tools: A reflective approach. Educational Research Review, 19(4), 210–225.

Komaruddin, K., Basthomi, Y., & Roekhan, R. (2021). Small group discussions to enhance speaking fluency. Journal of English Language Teaching, 9(2), 134–145. https://citeus.um.ac.id/cgi/viewcontent.cgi?article=1998&context=jptpp.

Lennon, P. (2000). The lexical element in spoken second language fluency. Language Learning, 50(1), 33–64. https://dialnet.unirioja.es/servlet/articulo?codigo=5732189.

Mayasari, D., Santoso, B., & Prasetyo, A. (2020). The use of Wingeom software to improve geometry learning outcomes. Journal of Mathematics Education, 7(2), 89–97. https://iopscience.iop.org/article/10.1088/1742-6596/1477/4/042042/pdf.

Purwanto, E., Sari, R., & Nugroho, A. (2025). ARCS motivational model in gamified language learning. Journal of Educational Psychology, 22(1), 45–60.

Rahmawati, I., Putri, D., & Hidayah, K. (2024). Bookish play activities to enhance children's multiliteracy. Early Childhood Education Journal, 12(3), 156–170.

Ridayani, S., Putra, H., & Lestari, M. (2024). Multimedia-supported role-play for improving pronunciation and confidence. Journal of Language Pedagogy, 15(1), 77–92.

Rouabhia, A., & Kheder, M. (2024). Mobile-assisted language learning: Pedagogical alignment and effectiveness. International Journal of Educational Technology, 19(2), 101–118.

Widyaningrum, R., Suryani, T., & Pramono, D. (2020). Edmodo in flipped classrooms: Improving creative thinking and engagement. Journal of Educational Technology, 10(1), 55–65.