

Achieving Desired Learning Outcomes in Learning English Independently of Young Learners Through Duolingo

Binti Su'aidah Hanur^{1*}
Ika Ruliaziszah²
Giska Enny Fauziah³

^{1,2}Education of Islamic Early Childhood Department, Tarbiyah Faculty, Badrus Sholeh Islamic Institute, Kediri, Indonesia.

³Madrasah Ibtidaiyah Teacher Education Department, Tarbiyah Faculty, Badrus Sholeh Islamic Institute, Kediri, Indonesia.

Abstract

This research explores how the use of gamification apps, particularly Duolingo, can help achieve independent learning habits in kindergarten students in East Java, Indonesia. The study employs a qualitative case study approach, focusing on understanding how gamification influences the development of learning behaviors in young children. Data were collected through a combination of classroom observations and semi-structured interviews, offering insights into the dynamics between teachers and students. The participants included a group of four- and five-year-old children, alongside their teacher, who were selected using purposive sampling methods. The findings highlight several key factors contributing to the success of gamification apps in fostering independent learning. Motivation plays a significant role, as the interactive and rewarding nature of Duolingo keeps children engaged and eager to participate. Parental involvement also emerges as an important factor, as parents' encouragement and support enhance students' progress. Additionally, the app's adaptability to different learning paces is crucial, allowing children to learn at their own speed, which accommodates varying levels of comprehension. The results suggest that gamified learning platforms like Duolingo not only support language acquisition but also promote the development of self-directed learning habits, a vital skill for young learners in their educational journey.

Keywords: Learning English, Young Learners, Duolingo app.

1. INTRODUCTION

Language learning mobile application soft wares (apps) for smart mobile devices are evolving in functionality and pedagogical approaches as their accessibility increases. the integration of gamification elements within these apps has the potential to create more interactive and enjoyable learning experiences, promoting sustained motivation among users. The integration of mobile applications in language learning must also consider the varying levels of access and resources among learners, particularly those from underprivileged backgrounds. By addressing these disparities, we can enhance the overall

^{1*}Corresponding author, email: suaidah@badrussholeh.ac.id

Citation in APA style: Hanur, B.S., Ruliaziszah, I., Fauziyah, G.E. (2026). Achieving Desired Learning Outcomes in Learning English Independently of Young Learners Through Duolingo. *JOSAR*, Vol. 11. No. (1):198-207.

Received:
February, 20th 2026

Revised:
March, 15th 2026

Published:
April, 05th 2026

effectiveness of mobile learning tool-sand ensure that all students have the opportunity to benefit from these innovative educational resources (Govender, 2021).

The integration of gamified elements within these applications not only enhances engagement (Ajisoko, 2020) but also fosters a more enjoyable learning experience for young users (Irwit Santi et al., 2023), making language acquisition feel less like a chore and more like an adventure (Kang, 2025). Additionally, the adaptability of AI-driven language tools allows for personalized learning paths that cater to the individual needs of each child (Loewen, 2019), accommodating different learning styles and paces (Hanur, 2019a), which is crucial in a diverse classroom setting. This innovative integration not only promotes active participation (Ma, 2024) but also equips educators with tools to better support diverse learning needs (Nomoto, 2020), aligning with contemporary educational paradigms (Neuschafer, 2024).

Pham-pham (Pham, 2022) highlights that language learning mobile applications, like Duolingo, have shown high potential in assisting students with language acquisition. The study focuses on the experiences of 15 students participating in the challenge, revealing their positive perceptions of the app, while also noting some limitations such as voice recognition issues and constraints on achieving high linguistic proficiency. Duolingo is particularly effective in facilitating vocabulary learning. A study involving elementary school students found that Duolingo helped them learn and remember new vocabulary, which they could use in daily conversations (Sakina & Astuti, 2024). The application is also perceived to improve various language skills, including pronunciation, writing, listening, and speaking, as reported by students majoring in English (Daniswara et al., 2024).

Duolingo's gamification elements, such as points, badges, and self-paced learning, have been shown to increase students' motivation to learn English. In one study, 53.3% of respondents strongly agreed that Duolingo was effective in boosting their motivation, while 46.7% agreed (Suryanto, 2024). The application is also noted for making learning more enjoyable and interesting, with 75% of students agreeing that it encourages independent learning (Sari et al., 2022). The use of Duolingo in a classroom setting has been reported to increase motivation and learning outcomes, particularly in specific topics like fraction materials (Ranti Maulya, 2023). However, the majority of research focuses on vocabulary acquisition, with fewer studies examining its impact on comprehensive language skills (Irwit Santi et al., 2023).

Duolingo, a very popular application for language learning. It is applied to improve English language skills. This research aims to explore the role of Duolingo in facilitating English language development among young learners, examining its pedagogical implications and effectiveness in fostering language acquisition in a digital age. The findings will contribute to the ongoing discourse on digital tools in education and their potential to enhance language learning experiences for young EFL students.

2. LITERATURE REVIEW

As mobile technology continues to reshape the educational landscape, learning applications like Duolingo have become increasingly popular for teaching languages, especially to young learners. The effectiveness of such tools, particularly in acquiring a second language like English, can be significant when combined with proper instructional strategies. This extended analysis delves into the outcomes of young learners using Duolingo, with particular focus on motivation, self-regulated learning, and challenges

faced in language acquisition. Drawing upon academic theories and empirical studies, this paper evaluates Duolingo's pedagogical value, discussing both its strengths and limitations for young learners. Language acquisition, particularly in early childhood, is deeply influenced by cognitive development theories, as well as social interactionist perspectives.

According to Piaget, children's cognitive development occurs in stages, and language learning is closely linked to these developmental stages. He suggested that young learners, like the six-year-olds in this study, are typically in the preoperational stage, where they rely heavily on interaction with their environment to form cognitive frameworks. Duolingo's design offering repetitive, gamified practice through interactive lessons aligns with Piaget's idea that children learn through active participation. The app's use of visual and auditory stimuli engages different cognitive pathways, aiding in the internalization of language structures. Vygotsky's social constructivist theory also underpins the pedagogical foundation of Duolingo's design, as it encourages learning within the Zone of Proximal Development (ZPD) (Hanur, 2019b). This theory emphasizes the importance of guided learning through social interactions and support, which is why parental involvement in Duolingo usage is critical.

The Role of Parental Involvement

Pham (Pham, 2022), who emphasized the importance of parental involvement in mobile learning applications for young learners. In her study, it was found that children who had parental support not only performed better but also exhibited higher levels of motivation to continue using the app. Parental guidance in Duolingo usage helps children navigate difficulties, celebrate achievements, and create a learning environment that extends beyond the digital platform. While Duolingo can be used independently, the active involvement of parents ensures that the educational experience remains focused and goal-oriented. However, this reliance on parental involvement also introduces challenges for families with limited access to resources. According to Santi et al. (Santi et al., 2023), the effectiveness of gamified learning apps may be compromised in underprivileged communities where access to digital devices and internet connectivity is limited.

This underscores the importance of addressing digital divides to ensure that the benefits of such educational tools reach all learners, regardless of socioeconomic status. Parental support played an instrumental role in helping learners exceed their expected targets (Antunes, 2022), especially when navigating early stages of language acquisition. Parental encouragement helped learners develop the persistence required for sustained language practice, demonstrating the synergy between technology, support, and the learner's social environment (Amelia, 2024). Across all profiles, parental support emerged as a significant factor influencing the students' success.

Individual Learner Differences: Motivational and Challenges in Gamified Learning

A core feature of Duolingo is gamification an approach that taps into both intrinsic and extrinsic motivation. As noted by Devi (Devi, 2022), motivation is fostered when learners feel competent, autonomous, and related to others. The app's game-like elements, including rewards such as badges, points, and levels (Teske, 2017), provide external reinforcement that enhances engagement (Kang, 2025), which is critical for younger children. In fact, research by Maulya highlights that students in gamified

environments might focus on earning rewards rather than achieving mastery, which can negatively affect language retention in the long term. This finding underscores the need for a balanced approach, where both intrinsic and extrinsic motivations are carefully calibrated to encourage mastery (Ranti Maulya, 2023).

Despite the positive outcomes, several challenges emerged during the use of Duolingo. Young learners need consistent emotional support to overcome feelings of doubt or frustration, particularly in a gamified environment where rewards are immediate but challenges may seem insurmountable. The Duolingo gaming application practiced has its own value for the achievement of children, this Duolingo game focuses more on the achievement of new vocabulary (Ajisoko, 2020) and mastery of foreign languages for children, especially 6 years old (Ali, 2019). This activity trains the ability to think, listen, remember and translate words as well as children's language skills and problem solving in a fun and interactive way (Lotze, 2020). The case study of Duolingo's use with young learners illustrates both the strengths and limitations of gamified learning tools in early language education. The app's ability to adapt to individual learning paces and provide immediate feedback helps maintain motivation and engagement, especially when parental support is involved (Loewen, 2019). However, challenges such as the need for fluency in speaking and pronunciation, as well as the potential for rushed learning, suggest areas for improvement. To maximize the effectiveness of Duolingo and similar tools, it is essential to complement them with traditional teaching methods that focus on deeper learning, emotional support, and language fluency. Additionally, technological improvements, particularly in voice recognition and personalized feedback, would further enhance the app's utility for young learners (Komara, 2024).

3. METHODS

This study is designed to solve the classroom problem dealing with the use of assistive technology namely Duolingo in examining the impact on comprehensive language skills especially for young learners. This research employs qualitative research in early childhood education, focuses on how children interact with the app and how the app gives impacts to their language skill comprehensively through hands-on learning experiences. The case study approach involves several key steps designed to enhance those comprehensive skills. These steps include identifying a relevant problem, gathering data through observation and interaction, analyzing the findings to draw connections between theory and practice, and finally implementing solutions while encouraging hands-on engagement with language skills concepts (Creswell, 2014).

Identifying a relevant problem involves narrowing down a broad phenomenon to a specific question that can guide inquiry and data collection. including reviewing existing literature to ensure the problem is well-defined and contributes to the field's body of knowledge. Gathering data through observation and interaction means observing classroom interactions can provide insights into learning and teaching dynamics. Combining observation with interactive research methods, such as involving stakeholders in planning and executing observations, can enhance the validity and acceptance of findings. Analyzing findings means bridging between theoretical understanding and practical application. Ultimately, this study seeks to highlight how gamification elements within Duolingo can motivate learners and improve their engagement with the English language, thus supporting their overall language development.

4. RESULTS

Duolingo was first implemented to pupil of 6 years old in RA Al Hikmah Rejomulyo Kras. They were 5 pupils which were challenged to use this application. Basic English language skills have been learned during the class so this apps could be conducted well.



Figure 1. Learning Duolingo Independently

In achieving the learning habits independently, The Duolingo game begins with an introduction to the app for the children, supervised by their parents. Teachers gave instruction on what is being learned. This game consists of several parts, one part consists of many thematic units, one theme consists of four sessions. The target mastery of one theme this time is given a range of seven to fourteen days. Where children are expected to be able to pronounce, memorize and know the meaning of at least 5 words per day/session. Teachers monitored the final results of the child's game by linking accounts and following each other's accounts in the duolingo game. The target theme this time is about food, drinks, and pets. On the duolingo feature, when we have committed to choosing to study for 14 days, then when that day we haven't practiced/played/learned the next session to continue the target, a notification automatically appears on the cellphone to immediately do the game assignment. From the eighth day to the fourteenth day, the teacher tried to change the flow of the game where the children learn to play Duolingo independently without the supervision of their parents, and at the end of the session the children will be asked.

This case study examines the effectiveness of Duolingo for six-year-old children in a language acquisition setting, focusing on specific learner outcomes, including achievements, challenges, and areas for improvement. Using data from a series of learner profiles, this analysis evaluates how Duolingo fosters language skills in young learners, considering factors such as motivation, parental involvement, and the app's adaptability to various learning paces. The learning profiles, as depicted in the images, offer valuable insights into the students' progress using Duolingo. The five children featured (Z, A, N, H, and A) were assessed based on their achievements, post-test results, and descriptions of their learning experiences. Each child engaged with the app in different ways, and the results reflect a diverse range of challenges and successes.

1. Z (Female, 6 years old, independent learning): Z demonstrated exceptional motivation and progress, exceeding the expected targets with a post-test score of 100. The involvement of parental support was crucial in her success, allowing her to reach higher levels independently, without further instruction, for fourteen consecutive days. This indicates a high degree of internal motivation, supported by external reinforcement, which aligns with Ryan and Deci's Self-Determination Theory

(2000). Z's ability to advance through the app autonomously also showcases Duolingo's ability to cater to individualized learning paces.

2. A (Female, 6 years old, independent learning): Like Z, A exceeded her learning targets, but with some notable differences. While she achieved a 100% result on her post-test, the data reveals that she often lacked self-confidence and felt doubtful during her sessions. This presents an interesting finding: despite exceeding the target, her emotional state may have impacted her learning experience. This highlights the need for emotional and psychological support in gamified learning environments, where external factors such as parental involvement can mitigate doubts and boost confidence. Furthermore, A's results align with the findings of Suryanto (2024), who highlighted that gamified learning could boost motivation but may not fully address self-doubt or emotional barriers to learning.
3. A (Female, 6 years old, independent learning): This profile represents a child who faced some initial difficulties, particularly with reading. Despite her struggles, she achieved the target with guidance and support from her parents. The app's adaptation to her needs, including its step-by-step progression, allowed her to overcome these difficulties. This is a key advantage of Duolingo, as it provides personalized learning paths that adjust to each learner's progress, enabling them to overcome challenges at their own pace. The profile also suggests that Duolingo can be a useful tool for children with different starting points in language proficiency, as long as they are provided with sufficient support.
4. N (Male, 6 years old, independent learning): N achieved the target, but his progress was hindered by a tendency to rush through sessions. This behavior resulted in errors, particularly in pronunciation and translation. N's case underscores the importance of attention to detail in language learning and highlights a potential limitation of gamified learning platforms: the risk of prioritizing speed over accuracy. As Daniswara et al. (2024) argue, while gamification increases engagement, it may inadvertently encourage learners to focus on quick rewards rather than deep learning and mastery.
5. H (Male, 6 years old, dependent learning): H's profile reflects a challenge in fluency, particularly in speaking and reading vocabulary. His difficulty in pronouncing words accurately led to lower results, as the app uses voice recognition to assess pronunciation. This issue emphasizes the need for further development in the app's voice recognition technology, as it may not always account for the nuances of young learners' speech. H's case illustrates the need for supplementary learning strategies that focus on oral language skills, particularly in cases where pronunciation is a barrier to success.

The integration of mobile applications in education, particularly for language learning, has transformed the way young learners acquire skills. One of the most popular tools for teaching English to young learners is Duolingo, which combines gamification with interactive learning.

5. DISCUSSION

In populations unfamiliar with the use of app as a interactive learning tools, one of the applications offered by google on the play store that can be recommended for learning English in a fun and interactive way is Duolingo. Duolingo as a learning application for various foreign languages can be accessed by people of all ages. The interesting features

it offers include learning basic vocabulary in the language of your choice, presented in the form of fun games, achievement goals, daily learning commitments, vocabulary selection through pictures, (grammar), speech (speaking), listening to words (listening), word guessing, and proper pronunciation (spelling) (Govender, 2021). Childhood Education (ECE) is an important foundation in the physical and intellectual development of a child. During this period, children begin a rapid, accelerated brain development process that is highly responsive to various stimuli, especially during the golden age (Gafni, 2017). An essential factor in the success of Duolingo among young learners is the role of parental support (Nomoto, 2020).

While Duolingo is designed to be an autonomous learning tool, the involvement of parents in monitoring and encouraging children's progress played a crucial role in ensuring the desired outcomes. Both Z and A benefitted from the encouragement and supervision provided by their parents, which enabled them to stay on track and maintain motivation. For instance, Z's progress was attributed to strong parental guidance, which helped her build confidence and persist in her learning. Similarly, A's success, despite her doubts, was greatly enhanced by her parents' encouragement. These findings are consistent with the research by Pham (Pham, 2022), which indicates that parental involvement can significantly enhance the effectiveness of mobile learning apps, particularly for young children. However, it is important to note that while parental support is beneficial, it should not overshadow the child's ability to develop independent learning skills. For example, Z was able to progress autonomously after initial parental support, which is an ideal scenario. Therefore, a balanced approach is necessary one that allows children to feel supported while also encouraging independence in their learning process (Irwit Santi et al., 2023).

Intrinsic motivation is equally vital, as it sustains the learner's interest in the long run. Z's ability to continue progressing through Duolingo independently for 14 consecutive days, despite the lack of direct teacher involvement, highlights the app's potential to foster intrinsic motivation in young learners. Her enthusiasm for the app suggests that Duolingo successfully meets the need for competence (by rewarding progress) and autonomy (by allowing independent learning). Research by Suryanto (Suryanto, 2024) further supports these findings, demonstrating that the use of Duolingo positively impacted students' motivation to learn English. In the study, gamification was cited as a powerful motivator, particularly for students who enjoyed the challenge of progressing through levels. Z's case of achieving high success without parental supervision aligns with this research, indicating that when a learner is intrinsically motivated, gamification serves as an effective tool for maintaining interest and progression (Aleksandrowska, 2020).

However, motivation alone is not sufficient for holistic language development. A common critique of gamified applications is that they prioritize quick wins over deeper engagement with the material. For example, N's tendency to rush through sessions and focus on completing tasks quickly, rather than mastering content, suggests that gamified environments could sometimes lead to surface-level learning. Similarly, N's tendency to rush through lessons resulted in errors, which points to the potential downside of gamification, the focus on quick completion rather than mastery of the material. This is a critical consideration for educators who use gamified tools in the classroom, as it may lead to a superficial understanding of the language rather than deep learning. Furthermore,

the emotional aspect of learning, as seen in A's profile, indicates that motivation alone is not enough to guarantee success.

One of the primary issues highlighted in the data was the difficulty children faced in achieving fluency in pronunciation. For instance, H's struggles with the app's voice recognition feature show that Duolingo's current technology may not always accommodate the learning needs of young children, especially those who are still developing their speech skills. In this digital era, one important aspect of development is language mastery. the ability to speak English has become one of the supports in exploring technology (Bicknell, 2023). Introduction to English from an early age provides many benefits, such as stimulating the brain and enhancing critical thinking skills, broadening the horizons of everyday multilingualism, and adding to the linguistic knowledge as a foundation for further education. The approach to teaching English to young children needs to be done differently, where early childhood education is more focused on meaningful, enjoyable learning and playing, and aligned with their developmental stage. One of the fun approaches is through the use of mobile applications. The use of mobile applications for early childhood, such as smartphones and tablets, has become an inseparable part of daily life nowadays, but the challenge that must be considered is the duration of use and the content seen by the child must remain under parental supervision. With proper use, mobile devices can be an effective tool to support ECE learning, including the introduction of English. Through mobile applications, children can learn English in a fun and interactive way. They can learn vocabulary, pronunciation, and simple sentences through engaging animations, games, songs, and stories.

6. CONCLUSION

In conclusion, Duolingo offers significant potential as a tool for language learning, but its success depends on the balance of gamification with educational depth, technological support, and parental involvement. The data gathered in this case study underscores the importance of adapting educational tools to the unique needs of each learner, ensuring that children are not only engaged but also equipped with the skills they need for long-term language development. Duolingo serves as an effective tool for teaching English to young learners, particularly when combined with the right level of parental involvement. The app's gamified approach boosts motivation and engagement, encouraging children to persist in their language learning journey. However, while Duolingo excels in providing immediate feedback and supporting basic language skills, it faces challenges in areas such as pronunciation accuracy and reading fluency. These issues, along with the potential for rushed learning, suggest the need for a more balanced and comprehensive approach to language education.

The integration of Duolingo in early childhood education should therefore be part of a blended learning approach, combining the strengths of mobile apps with traditional methods that emphasize literacy, fluency, and emotional support. Furthermore, adjustments to the app's technology, particularly in terms of voice recognition and personalized feedback, would enhance its effectiveness for young learners. Overall, Duolingo has proven to be a powerful tool in the language learning process, but its full potential can only be realized when used as part of a holistic educational approach that considers the diverse needs and developmental stages of young learners.

REFERENCES

- Ajisoko, P. (2020). The use of duolingo apps to improve English vocabulary learning. *International Journal of Emerging Technologies in Learning*, 15(7), 149–155. <https://doi.org/10.3991/IJET.V15I07.13229>
- Aleksandrowska, O. (2020). The online language learning platform Duolingo: Users' opinions. *Neofilolog*, 1(55), 125–144. <https://doi.org/10.14746/n.2020.55.1.8>
- Ali, M. A. S. (2019). Vocabulary learning through duolingo mobile application: Teacher acceptance, preferred application features and problems. *International Journal of Recent Technology and Engineering*, 8(2), 79–85. <https://doi.org/10.35940/ijrte.B1017.0982S919>
- Amelia, M. (2024). DUOLINGO & English Vocabulary: How Students Acquire New Vocabulary by Playing the Game. *International Journal of English Language Teaching*, (Query date: 2025-02-01 17:18:59). <https://doi.org/10.37745/ijelt.13/vol12n418>
- Antunes, J. G. (2022). Usability Evaluation of Educational Serious Games. *Lecture Notes in Networks and Systems*, 468(Query date: 2025-02-01 17:08:33), 381–389. https://doi.org/10.1007/978-3-031-04826-5_38
- Bicknell, K. (2023). How Duolingo's AI Learns what you Need to Learn: The language-learning app tries to emulate a great human tutor. *IEEE Spectrum*, 60(3), 28–33. <https://doi.org/10.1109/MSPEC.2023.10061631>
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE.
- Daniswara, L., Sahuddin, S., Putera, L. J., & Saputra, A. (2024). Students' Perception of The Use of Duolingo for Learning English. *Jurnal Ilmiah Profesi Pendidikan*, 9(4), 2881–2890. <https://doi.org/10.29303/jipp.v9i4.2911>
- Devi, G. A. K. F. S. (2022). Children's Language Learning Vocabulary Through Mobile Applications: Duolingo. *Stilistika : Journal of Indonesian Language and Literature*, (Query date: 2025-02-01 17:18:59). <https://doi.org/10.24843/stil.2022.v01.i02.p08>
- Gafni, R. (2017). Learning foreign languages using mobile applications. *Journal of Information Technology Education: Research*, 16(1), 301–317. <https://doi.org/10.28945/3855>
- Govender, T. (2021). An analysis of game design elements used in digital game-based language learning. *Sustainability (Switzerland)*, 13(12). <https://doi.org/10.3390/su13126679>
- Hanur, B. S. (2019a). Children for Future: Gaining Our Children Success Through Smart School of Early Childhood Education. *Proceedings of Annual Conference for Muslim Scholars*, 3(1), 644–653. <https://doi.org/10.36835/ancoms.v3i1.277>
- Hanur, B. S. (2019b). MELAYANI DENGAN HATI: Menghapus Diskriminasi dan Segregasi antara Anak Reguler dengan Anak Berkebutuhan Khusus melalui Sekolah inklusif YBPK Kota Kediri | *Jurnal Al-Hikmah*. <https://www.jurnal.badrusholeh.ac.id/index.php/Al-Hikmah/article/view/70>
- Irwit Santi, L., Hilal, A., & -, R. (2023). Review of Duolingo Application in Learning English. *Channing: Journal of English Language Education and Literature*, 8(2), 56–63. <https://doi.org/10.30599/channing.v8i2.2079>

- Kang, S. (2025). The impact of gamified language learning apps on EFL learners' motivation for spoken English development: A case of Duolingo. *SHS Web of Conferences*, 222. <https://doi.org/10.1051/shsconf/202522201015>
- Komara, C. (2024). Duolingo's technology acceptance model in Indonesian context. *AIP Conference Proceedings*, 3148(1). <https://doi.org/10.1063/5.0246863>
- Loewen, S. (2019). Mobile-assisted language learning: A Duolingo case study. *ReCALL*, 31(3), 293–311. <https://doi.org/10.1017/S0958344019000065>
- Lotze, N. (2020). Duolingo: Motivating students via m-homework. *TESOL Journal*, 11(1). <https://doi.org/10.1002/tesj.459>
- Ma, Y. (2024). AI-empowered applications effects on EFL learners' engagement in the classroom and academic procrastination. *BMC Psychology*, 12(1). <https://doi.org/10.1186/s40359-024-02248-w>
- Neuschafer, T. (2024). DUOLINGO AND SUPPORTING TEACHER ASSESSMENT. *Journal of Educators Online*, 21(2). <https://doi.org/10.9743/JEO.2024.21.2.10>
- Nomoto, T. (2020). Meeting the 2020 duolingo challenge on a shoestring. *Proceedings of the Annual Meeting of the Association for Computational Linguistics*, (Query date: 2025-02-01 17:08:33), 129–133. <https://doi.org/10.18653/v1/2020.ngt-1.14>
- Pham, A. T. V. (2022). Developing the habit of learning English using Duolingo application. *ACM International Conference Proceeding Series*, (Query date: 2025-02-01 17:08:33), 131–136. <https://doi.org/10.1145/3568739.3568763>
- Ranti Maulya. (2023). Increasing Student's Motivation in Learning English Using Duolingo. *Jurnal Bima : Pusat Publikasi Ilmu Pendidikan Bahasa Dan Sastra*, 1(3), 200–206. <https://doi.org/10.61132/bima.v1i3.116>
- Sakina, R., & Astuti, R. S. (2024). Using Duolingo Application In Learning Vocabulary: A Descriptive Qualitative Study At The Fifth Grade Of An Elementary School In Sumedang. *Biormatika : Jurnal Ilmiah Fakultas Keguruan Dan Ilmu Pendidikan*, 10(2), 131–145. <https://doi.org/10.35569/biormatika.v10i2.2091>
- Santi, L. I., Hilal, A., & Rismiyanto. (2023). Review of Duolingo Application in Learning English. *Channing: Journal of English Language Education and Literature*, (Query date: 2025-02-01 17:18:59). <https://doi.org/10.30599/channing.v8i2.2079>
- Sari, M. K., Hadina, N., & Rahmanda, N. (2022). DUOLINGGO AS AN ATTRACTIVE APPLICATION TO UPGRADE STUDENT'S MOTIVATION IN LEARNING ENGLISH INDEPENDENTLY. *Menara Ilmu*, 16(1). <https://doi.org/10.31869/mi.v16i1.3249>
- Suryanto, B. T. (2024). The Impact of Using DUOLINGO Application on Students' English Learning Motivation. *International Journal of English Education and Linguistics (IJoEEL)*, 6(2), 200–211. <https://doi.org/10.33650/ijoeel.v6i2.9700>
- Teske, K. (2017). Duolingo. *CALICO Journal*, 34(3), 393–401. <https://doi.org/10.1558/cj.32509>