

KHAN ACADEMY KIDS APPLICATION IN ENGLISH YOUNG LEARNERS IN INDONESIA

Rahmatul Ukhra^{1)*}, Riska Marlisa Aini²⁾

¹⁾Universitas Almuslim, Bireun, Indonesia

²⁾Universitas Bina Bangsa Getsempena, Banda Aceh, Indonesia

*Email: ramaatulvera@gmail.com

Abstrak: Pemanfaatan teknologi dalam pembelajaran sangatlah penting untuk menunjang proses pembelajaran bahasa, khususnya bagi siswa usia sekolah dasar. Penelitian ini bertujuan untuk melihat kontribusi penggunaan perangkat digital dalam pendidikan bahasa inggris yang memberikan wawasan tentang efektivitas dan potensinya untuk penerapan yang lebih luas dalam lingkungan pendidikan. Penelitian ini menggunakan pendekatan campuran (kuantitatif dan kualitatif) untuk mengetahui pengaruh penggunaan aplikasi Khan Academy Kids terhadap pembelajaran bahasa inggris siswa di SDN 4 Peusangan Bireuen. Metode eksperimen yang digunakan juga didukung oleh hasil observasi dan wawancara. Data dikumpulkan melalui tahapan pre-test, mengajar siswa dalam tiga pertemuan dan melakukan post-test untuk mengetahui kemampuan siswa sebelum dan sesudah mengajar dengan menggunakan aplikasi Khan Academy Kids. Selanjutnya diamati aktivitas siswa dan mewawancarai sepuluh siswa untuk mengumpulkan informasi tentang wawasan mereka tentang pembelajaran dengan menggunakan aplikasi Khan Academy Kids. Data yang terkumpul secara kuantitatif dianalisis dengan menggunakan aplikasi SPSS, sedangkan data yang terkumpul secara kualitatif dianalisis dengan menggunakan prosedur analisis tematik. Hasil penelitian menunjukkan bahwa nilai siswa meningkat secara signifikan setelah diajar menggunakan aplikasi Khan Academy Kids (rata-rata pre-test adalah 63 dan rata-rata post-test adalah 78). Hal ini juga dibuktikan dengan hasil uji-t (skor $t=3,291$ (melampaui batas $-1,96$ dan $1,96$). Hasil observasi juga menunjukkan bahwa siswa antusias memberikan tanggapan dan menjawab pertanyaan selama kegiatan pembelajaran. Hasil wawancara juga menunjukkan bahwa siswa senang belajar bahasa inggris dengan menggunakan aplikasi Khan Academy Kids karena mereka dapat mendengarkan dan mengulang kata-katanya serta memuat gambar yang menarik dan berwarna.

Kata Kunci: Pembelajaran, Bahasa Inggris, Aplikasi Khan Academy Kids

Abstract: Using technology in learning is very important to support language learning process, especially for young primary school students. This study aims to see the contribution of the use of digital devices in English education that provides insight into its effectiveness and potential for wider application in educational environments. This study uses a mixed approach (quantitative and qualitative) to determine the effect of using the Khan Academy Kids application on students' English learning at SDN 4 Peusangan Bireuen. The experimental method used is also supported by the results of observations and interviews. Data were collected through pre-test stages, teaching students in three meetings and conducting a post-test to determine students' abilities before and after teaching using the Khan Academy Kids application. Furthermore, student activities were observed and ten students were interviewed to gather information about their insights into learning using the Khan Academy Kids application. Data

collected quantitatively were analyzed using the SPSS application, while data collected qualitatively were analyzed using thematic analysis procedures. The results showed that students' scores increased significantly after being taught using the Khan Academy Kids application (the average pre-test was 63 and the average post-test was 78). This is also proven by the results of the t-test (t score = 3.291 (exceeding the limits of -1.96 and 1.96). The results of the observation also showed that students were enthusiastic about providing responses and answering questions during learning activities. The results of the interview also showed that students enjoyed learning English using the Khan Academy Kids application because they could listen and repeat the words and it contained interesting and colorful images.

Keywords: Learning, English, Khan Academy Kids Application

A. INTRODUCTION

The integration of technology in education has profoundly reshaped traditional teaching methodologies, providing innovative avenues for enhancing the learning experience. This shift is particularly significant in language acquisition, where digital tools can offer interactive and engaging methods that cater to diverse learning styles. For young primary school students, the use of educational technology is not merely a trend but a necessity that addresses their varying needs and enhances their overall academic performance.

Language acquisition at an early age is critical for cognitive development and academic success. Early exposure to language learning activities influences a child's proficiency and ease of learning new languages in the future. Traditional classroom settings, however, often face limitations in addressing the individual needs of students. This has led educators to seek alternative methods, with educational applications emerging as effective tools. These tools provide interactive content that can adapt to the learning pace and style of each student, thereby offering a personalized learning experience.

The proliferation of digital technology has introduced numerous tools designed to enhance language learning. Educational applications, such as Khan Academy Kids, offer comprehensive learning experiences that integrate lessons and activities aimed at developing literacy, numeracy, and critical thinking skills. Research in early childhood education supports the use of such applications, emphasizing their role in engaging young learners through interactive visuals and adaptive learning paths.

The effectiveness of educational technology in language learning is well-documented. For instance, Chowdhury et al. (2024) demonstrated that educational

applications significantly improve vocabulary acquisition among young learners. Similarly, Redjeki and Muhajir (2021) found that interactive multimedia applications enhance students' listening and speaking skills. These studies highlight the potential of digital tools in providing an enriched language learning experience.

Interactive and multimedia learning environments are particularly effective for young learners. Zhang et al. (2024) noted that gamified learning environments increase student motivation and engagement. Castillo-Cuesta (2020) emphasized the importance of multimedia elements in supporting language learning, finding that students show improved retention and comprehension when exposed to visual and auditory stimuli. This aligns with Tobias et al. (2014) Cognitive Theory of Multimedia Learning, which posits that well-designed multimedia instruction can enhance learning by leveraging both visual and auditory channels. Furthermore, the integration of interactive applications in early childhood education supports not only language development but also critical thinking and problem-solving skills. Mardiah (2020) observed that interactive applications provide a conducive environment for language development, fostering critical thinking and problem-solving abilities. The interactivity of these applications makes learning more engaging and less intimidating for young children. The playful and exploratory nature of these tools reduces the pressure typically associated with traditional learning methods, making children more willing to take risks and try new things (Ahmad et al., 2016). This safe and supportive environment is essential for developing confidence in their abilities, which is a crucial aspect of both language development and cognitive growth.

Khan Academy Kids is an innovative educational application designed to provide a comprehensive learning experience for young children. It incorporates a variety of lessons and activities aimed at developing fundamental skills in literacy, numeracy, and critical thinking. The application's design is based on extensive research in early childhood education, ensuring that it meets the developmental needs of young learners. It integrates engaging visuals, interactive elements, and adaptive learning paths that cater to individual learning styles.

Research indicates that well-designed educational applications can significantly enhance the language learning process. Ahmad et al. (2016) and Shamsudin et al., (2019) demonstrated that e-learning principles, when effectively applied, can improve

learning outcomes. This is particularly relevant in the context of language learning, where interactive and multimedia elements can provide a more engaging and effective learning experience. The interactive and multimedia elements provided by educational applications make the language learning process more engaging and accessible. These tools can offer a more immersive experience, where learners can practice listening, speaking, reading, and writing skills in an integrated manner.

Studies also proved that interactive digital media plays a crucial role in children's cognitive development. Chen et al. (2020) highlighted the importance of interactive digital media in supporting children's learning and cognitive development. Interactive digital media encourages children to be active participants in their learning process (Zhang et al. 2024). This active engagement is critical for cognitive development, as it promotes deeper processing of information and helps children to develop skills such as attention, memory, and reasoning. Sari and Lestari (2020) and Yurtseven Avcı et al. (2020) further emphasized that apps designed with educational principles can support learning better than those that are purely entertainment-based. Their research highlights a crucial distinction between apps that are designed with educational principles in mind and those that are primarily entertainment-based. The key takeaway is that apps that incorporate sound educational strategies are far more effective in promoting meaningful learning experiences than those that focus solely on entertainment.

These findings underscore the potential of educational game applications in providing a meaningful and effective language learning experience for young students. Therefore, this study focuses on the impact of using educational game namely the Khan Academy Kids application on the language learning outcomes of primary school students at SDN 4 Peusangan Bireuen. It is an educational app designed for young children, typically aged 2 to 8, to support their learning in various subjects, including reading, writing, math, and social-emotional development.

The app is part of the broader Khan Academy platform, known for its free educational resources. The integration of technology in education, particularly through educational applications like Khan Academy Kids, holds significant promise for enhancing language learning among young primary school students. The benefits of interactive and multimedia learning environments are well-supported by research,

indicating improved student engagement, motivation, and learning outcomes. This study aims to contribute to the growing body of evidence supporting the use of digital tools in language education, providing insights into their effectiveness and potential for broader application in educational settings.

B. RESEARCH METHOD

This study investigated the impact of the Khan Academy Kids application on the language learning of 37 sixth-grade students from SDN 4 Peusangan Bireuen, selected through purposive sampling. This sampling method was chosen to ensure the participants could provide meaningful responses and effectively engage with the educational technology. Purposive sampling is a common strategy in educational research, enhancing the validity of findings by selecting participants who possess relevant characteristics (Cresswell, 2014).

A pre-experimental design was employed, involving pre-tests and post-tests conducted over four meetings to measure students' language improvement. Initially, a pre-test assessed the students' baseline language abilities. Following this, three teaching sessions using the Khan Academy Kids application were conducted, focusing on activities such as listening exercises, vocabulary building, and pronunciation practice. A post-test was then administered to evaluate improvements in language proficiency. Pre-experimental designs are valuable for preliminary investigations into educational interventions' effects, providing foundational evidence of their impact (Clark & Creswell, 2008; Sugiono, 2016).

Qualitative data were collected through classroom observations and student interviews. Observations revealed high levels of student engagement and participation, with students actively responding to questions and completing tasks enthusiastically. Interviews with ten students provided deeper insights into their perceptions of the application, highlighting engaging features and overall learning experiences. Classroom observations capture real-time data on student engagement, while interviews provide in-depth personal insights, enriching the overall understanding of the intervention's effectiveness (Levitt et al., 2018). The data collected quantitatively was analyzed using the SPSS application, while the data collected qualitatively was analyzed using thematic analysis procedures.

C. RESULT AND DISCUSSION

Result

The effectiveness of educational interventions can often be measured by analyzing changes in student performance before and after the implementation of the intervention. This study aimed to evaluate the impact of the Khan Academy Kids Game Application on enhancing English language proficiency among primary school students at SDN 4 Peusangan Bireuen. By employing a pretest-posttest design, the study sought to quantify improvements in students' English skills resulting from their engagement with the application. The result of the test is presented as follows.

Table 1. Descriptive Statistic of the Students' Scores

	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation
Pretest	34	25	25	50	1200	35.29	6.686
Posttest	34	25	55	80	2369	69.68	7.066
Valid N (Listwise)	34						

In this study, the t-test was used to determine if the increase in English proficiency scores from pretest to posttest was significant, thereby assessing the effectiveness of the Khan Academy Kids Game Application. The result of the t-test is presented as follows.

Table 2. The t-Test Result

	Paired Differences							t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df			
				Lower	Upper					
Pair 1 Pretest - Posttest	-34.382	9.105	1.562	-37.559	-31.205	22.018	33	.000		

Based on the results of the experimental study evaluating the use of the Khan Academy Kids Game Application to improve English proficiency among students at SDN 4 Peusangan Bireuen, it reveals a significant improvement in students' English proficiency as measured by the pretest and posttest scores. The average score on the pretest was 35.29, whereas the average score on the posttest increased to 69.68. This represents a notable enhancement in students' performance following the intervention.

The paired samples test results indicate that the improvement is statistically significant. The mean difference between the pretest and posttest scores is -34.382, with a p-value of .000. This p-value is well below the conventional threshold of 0.05, confirming that the observed improvement is not due to chance.

The standard deviations of the pretest (6.686) and posttest (7.066) scores are relatively similar, suggesting that the improvement in English proficiency is consistent across the student group. The narrow confidence interval for the mean difference, ranging from -37.559 to -31.205, further supports the reliability of the observed effect.

Discussion

The findings from this study provide compelling evidence for the effectiveness of the Khan Academy Kids application in enhancing language learning among sixth-grade students at SDN 4 Peusangan Bireuen. The discussion delves into the implications of these findings, relating them to existing literature and considering their broader significance for educational practice.

The substantial increase in post-test scores, from an average of 63 to 78, indicates that the Khan Academy Kids application significantly enhanced the students' language abilities. This improvement is statistically supported by the t-test results, which confirm the effectiveness of the intervention. These results align with previous research that has demonstrated the benefits of technology-enhanced learning in improving academic performance. For instance, Prasetyo (2022) found that educational technology applications positively affect student reading outcomes, a finding mirrored in this study's language learning context.

The interactive and multimedia-rich environment provided by the Khan Academy Kids application likely played a crucial role in facilitating this improvement. The application's design, which incorporates auditory, visual, and kinesthetic elements, caters to diverse learning styles, making language learning more accessible and engaging for young students. This multi-sensory approach is supported by educational theories such as the Dual Coding Theory, which posits that information is better retained when presented through both verbal and visual means (Désiron et al., 2024; Simanjuntak & Marpaung, 2024; Vu et al., 2022). Significant gains in test scores observed in this study suggest that the Khan Academy Kids application effectively leverages these principles to enhance language learning.

The Khan Academy Kids application employs an interactive and multimedia-rich design that caters to diverse learning styles. This approach is supported by educational theories such as Dual Coding Theory, which posits that information is more effectively processed and retained when presented through both verbal and visual means (Vu et al., 2022). The application integrates auditory, visual, and kinesthetic elements, providing a multi-sensory learning experience that enhances engagement and comprehension. Zheng et al. (2024) highlight that educational technology tools offering interactive content and multimedia features can significantly improve learning outcomes by accommodating various learning preferences and fostering deeper cognitive processing.

The classroom observations revealed that the students were highly engaged and actively participated in the learning process when using the Khan Academy Kids application. This high level of engagement is critical for effective learning, as it fosters a deeper connection with the material and encourages active rather than passive learning. Studies have shown that student engagement is a key predictor of academic success, particularly in language learning (Sengsouliya et al., 2020). When students are actively involved in their learning, they are more likely to interact with the content, ask questions, and seek out additional information. This active involvement not only helps students to understand and retain material more effectively but also encourages critical thinking and problem-solving skills.

The interactive nature of the application, with its immediate feedback and engaging activities, likely contributed to maintaining the students' interest and motivation. This aligns with the findings of Liao et al. (2024) and Zhang et al. (2024) who emphasized the importance of interactive and playful elements in educational apps to enhance learning outcomes. Playful elements, such as gamification and rewards, further enhance motivation by providing immediate gratification and a sense of achievement. These features tap into intrinsic motivators, making students more likely to persist in their learning tasks and overcome challenges (Chou, 2014; Gamlo, 2019). The combination of interactivity and playfulness not only makes the learning process more enjoyable but also fosters a positive attitude towards learning, which is essential for long-term academic success. The positive classroom dynamics observed in this study suggest that digital tools like the Khan Academy Kids application can create a

more stimulating and participatory learning environment, which is essential for young learners.

The interviews with students provided valuable qualitative insights into their experiences with the Khan Academy Kids application. The majority of students reported enjoying the use of the application, particularly appreciating its interactive features and engaging content. They highlighted the audio prompts and visual aids as particularly helpful in improving their pronunciation and vocabulary. These findings resonate with previous research emphasizing the importance of engaging and interactive elements in educational technology (Hasibullah, 2023; Rahimi & Katal, 2013).

The students' positive feedback about the application's engaging and colorful visuals underscores the role of aesthetics in educational tools. Visual appeal can significantly influence students' motivation and willingness to engage with learning materials. The colorful and animated features of the Khan Academy Kids application likely made the learning experience more enjoyable and less intimidating, encouraging students to participate actively. The influence of visual appeal on student engagement and motivation is well-supported by educational research. Studies emphasize that visually stimulating materials can enhance the learning experience, particularly for young learners. For example, Highsmith (2021) and Mayer (2017) highlight the importance of visual elements in educational content, explaining that these elements engage both visual and verbal processing channels, which improves understanding and retention. This concept is rooted in Dual Coding Theory, which suggests that information is more effectively remembered when it is presented through multiple sensory modalities (Paivio & Clark, 2006). The colorful and animated features of the Khan Academy Kids application likely leverage these principles, making the learning process more engaging and accessible for students.

Additionally, research indicates that aesthetically pleasing designs in educational tools can positively influence students' emotional states, which are crucial for maintaining motivation and active participation. Brom et al. (2018) and David and Glore (2010) found that visually appealing interfaces in educational software reduce cognitive load and make learning more enjoyable, encouraging students to engage more deeply with the material. In the case of Khan Academy Kids, the use of vibrant colors and dynamic animations likely helped create a welcoming and less intimidating learning

environment, which is especially important for younger learners. These findings suggest that the application's engaging visuals not only captured students' attention but also fostered a positive emotional response, motivating them to participate actively and enhancing their overall learning experience.

Furthermore, the immediate feedback provided by the application was noted by students as a valuable feature. This aligns with the findings of Martin et al., (2012) which highlighted the importance of timely feedback in supporting student learning and helping them understand their mistakes. Immediate feedback allows students to correct errors and reinforces learning, which is particularly beneficial in language acquisition, where continuous practice and correction are crucial (Wihastyanang et al., 2020). It can boost a student's confidence by providing reassurance that they are on the right track . When students see their progress and understand where they need to improve, they are more likely to feel motivated and engaged in their learning (Leibold & Schwarz, 2015). This is particularly important in language learning, where students may struggle with the nuances of a new language.

D. CONCLUSSION AND SUGGESTION

Conclusion

The findings of this study contribute to the broader conversation about the integration of technology in education, particularly in the context of language learning for young students. The significant improvement in language proficiency observed in the students, along with their high levels of engagement and positive feedback, underscores the transformative potential of digital tools like the Khan Academy Kids application. This aligns with the journal's theme of exploring innovative educational practices that leverage technology to enhance learning outcomes. By providing a multi-sensory and interactive learning environment, educational applications can cater to diverse learning styles, making education more inclusive and effective. These findings suggest that educators should consider incorporating such digital tools into their teaching strategies to maximize student engagement and improve academic performance.

The study also opens up several avenues for future research. While the immediate benefits of the Khan Academy Kids application are evident, long-term studies are needed to assess the sustained impact of such interventions on language

learning. Additionally, research should explore the combination of multiple digital tools and traditional teaching methods to create a more comprehensive and effective learning experience. Questions remain about how these tools can be adapted to different educational contexts and age groups to ensure their broader applicability. By addressing these questions, future research can provide deeper insights into the optimal integration of technology in education, ultimately contributing to the development of more effective and engaging learning environments for students worldwide.

Suggestion

Educators are encouraged to integrate the Khan Academy Kids application into regular teaching practices to enhance language learning outcomes, as its interactive, multimedia-rich content and immediate feedback have proven effective in improving students' language abilities. By incorporating the app into classroom activities as a supplementary tool, teachers can reinforce language concepts, provide additional practice, and create a more personalized learning experience tailored to individual student needs. Monitoring student progress within the app allows educators to adjust activities and address diverse learning abilities, while maintaining high levels of engagement through goal-setting, challenges, and celebrating achievements helps keep students motivated. To optimize the use of this and similar educational technologies, ongoing professional development is essential, equipping teachers with the skills to effectively integrate digital tools into the curriculum. Furthermore, continued research and evaluation are recommended to explore the long-term impact of educational apps on language learning and their effectiveness across various educational contexts.

E. REFERENCES

- Ahmad, S., Phil, M., & Malik, M. (2016). Play and Cognitive Development: Formal Operational Perspective of Piaget's. *Journal of Education and Practice*, 7(28), 72–79. www.iiste.org
- Brom, C., Starkova, T., & D'Mello, S. K. (2018). How Effective is Emotional Design? A Meta-Analysis on Facial Anthropomorphisms and Pleasant Colors During Multimedia Learning. *Educational Research Review*, 25, 100–119.
- Castillo-Cuesta, L. (2020). Using Digital Games for Enhancing EFL Grammar and Vocabulary in Higher Education. *International Journal of Emerging Technologies in Learning*, 15(20), 116–129. <https://doi.org/10.3991/ijet.v15i20.16159>
- Chen, C.-H., Shih, C.-C., & Law, V. (2020). The Effects of Competition in Digital Game-Based Learning (DGBL): A Meta-Analysis. *Educational Technology*

- Research and Development*, 68(4), 1855–1873.
- Chou, M. (2014). Assessing English Vocabulary and Enhancing Young English as a Foreign Language (EFL) Learners' Motivation Through Games, Songs, and Stories. *Education 3-13*, 42(3), 284–297.
- Chowdhury, M., Dixon, L. Q., Kuo, L.-J., Donaldson, J. P., Eslami, Z., Viruru, R., & Luo, W. (2024). Digital Game-Based Language Learning for Vocabulary Development. *Computers and Education Open*, 6, 100160.
- Clark, V. L. P., & Creswell, J. W. (2008). *The Mixed Methods Reader*. Sage.
- Cresswell, T. (2014). *Place: an Introduction*. John Wiley & Sons.
- David, A., & Glore, P. (2010). The Impact of Design and Aesthetics on Usability, Credibility, And Learning in an Online Environment. *Online Journal of Distance Learning Administration*, 13(4), 43–50.
- Désiron, J. C., Schmitz, M.-L., & Petko, D. (2024). Teachers as Creators of Digital Multimedia Learning Materials: Are they Aligned with Multimedia Learning Principles. *Technology, Knowledge and Learning*, 1–17.
- Gamlo, N. (2019). The Impact of Mobile Game-Based Language Learning Apps on EFL Learners' Motivation. *English Language Teaching*, 12(4), 49–56.
- Hasibullah, M. U. (2023). Learning Innovation Using Wordwall website Application. *INCARE, International Journal of Educational Resources*, 4(3), 238–246.
- Highsmith, L. (2021). *Making Training Memorable: Assessing the Impact Of Animated Video on Learner Satisfaction, Engagement and Knowledge Retention*.
- Leibold, N., & Schwarz, L. (2015). The Art of Giving Online Feedback. *Journal of Effective Teaching*, 15(1), 34–46.
<http://ezproxy.ace.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,uid&db=eric&AN=EJ1060438&site=eds-live&scope=site>
- Levitt, H. M., Bamberg, M., Creswell, J. W., Frost, D. M., Josselson, R., & Suárez-Orozco, C. (2018). Journal Article Reporting Standards for Qualitative Primary, Qualitative Meta-Analytic, and Mixed Methods Research in Psychology: The APA Publications and Communications Board Task Force Report. *American Psychologist*, 73(1), 26.
- Liao, C. H. D., Wu, W. C. V., Gunawan, V., & Chang, T. C. (2024). Using an Augmented-Reality Game-Based Application to Enhance Language Learning and Motivation of Elementary School EFL students: A comparative study in Rural and Urban Areas. *The Asia-Pacific Education Researcher*, 33(2), 307–319.
- Mardiah, H. (2020). The Use of E-Learning to Teach English in the Time of the Covid-19 Pandemic. *English Teaching and Linguistics Journal (ETLiJ)*, 1(2), 49–55.
<https://doi.org/10.30596/etlij.v1i2.4894>
- Martin, F., Parker, M. A., & Deale, D. F. (2012). Examining interactivity in synchronous virtual classrooms. *International Review of Research in Open and Distance Learning*, 13(3), 228–261. <https://doi.org/10.19173/irrodl.v13i3.1174>
- Mayer, R. E. (2017). Using Multimedia for E-Learning. *Journal of Computer Assisted Learning*, 33(5), 403–423.

- Paivio, A., & Clark, J. M. (2006). Dual Coding Theory and Education. *Pathways to Literacy Achievement for High Poverty Children, 1*, 149–210.
- Prasetyo, D. E. (2022). The Digital Game for The Learning of Reading Skill. *PAROLE: Journal of Linguistics and Education, 12*(1), 50–59.
- Rahimi, M., & Katal, M. (2013). The Impact of Metacognitive Instruction on EFL Learners' Listening Comprehension and Oral Language Proficiency. *The Journal of Teaching Skills (JTLS), 5*(2), 69–90.
- Redjeki, I. S., & Muhajir, R. (2021). Gamification in EFL Classroom to Support Teaching and Learning in 21st Century. *JEES (Journal of English Educators Society), 6*(1), 68–78. <https://doi.org/10.21070/jees.v6i1.882>
- Sari, H. P., & Lestari, W. D. (2020). Designing Superlary Game to Learn Vocabulary of Tenth Grade Students. *EDUCATIO: Journal of Education, 5*(2), 159–168.
- Sengsouliya, S., Soukhavong, S., Silavong, N., Sengsouliya, S., & Littlepage, F. (2020). An Investigation on Predictors of Student Academic Engagement. *European Journal of Education Studies, 6*(10), 125.
- Shamsudin, H., Hashim, H., & Yunus, M. (2019). *Integration of Asynchronous and Synchronous Gameplay to Improve Pupils' Vocabulary*. 3101–3106. <https://doi.org/10.4236/ce.2019.1012234>
- Simanjuntak, V. H. M., & Marpaung, F. D. N. (2024). Picture Story Media to Improve Reading Ability in 2nd Grade Students at SD Gajah Mada. *Edelweiss: Journal Of Innovation In Educational Research, 2*(2).
- Sugiono, S. (2016). *Metode Penelitian Kuantitatif, Kualitatif, dan R & D*. Bandung: Alfabeta.
- Tobias, S., Fletcher, J. D., Bediou, B., Wind, A. P., & Chen, F. (2014). Multimedia Learning with Computer Games. In *The Cambridge Handbook of Multimedia Learning, Second Edition* (pp. 762–784). Cambridge University Press. <https://doi.org/https://doi.org/10.1017/CBO9781139547369.037>
- Vu, N. N., Hung, B. P., Van, N. T. T., & Lien, N. T. H. (2022). Theoretical and Instructional Aspects of Using Multimedia Resources in Language Education: A Cognitive View. *Multimedia Technologies in the Internet of Things Environment, 2*, 165–194.
- Wihastyanang, W. D., Kusumaningrum, S. R., Latief, M. A., & Cahyono, B. Y. (2020). Impacts of Providing Online Teacher and Peer Feedback on Students' Writing Performance. *Turkish Online Journal of Distance Education, 21*(2), 178–189. <https://doi.org/10.17718/TOJDE.728157>
- Yurtseven Avci, Z., O'Dwyer, L. M., & Lawson, J. (2020). Designing Effective Professional Development for Technology Integration in Schools. *Journal of Computer Assisted Learning, 36*(2), 160–177.
- Zhang, R., Zou, D., & Cheng, G. (2024). Self-Regulated Digital Game-Based Vocabulary Learning: Motivation, Application of Self-Regulated Learning Strategies, EFL Vocabulary Knowledge Development, and Their Interplay. *Computer Assisted Language Learning, 1*–43.

Zheng, Y., Zhang, J., Li, Y., Wu, X., Ding, R., Luo, X., Liu, P., & Huang, J. (2024). Effects of Digital Game-Based Learning on Students' Digital Etiquette Literacy, Learning Motivations, And Engagement. *Heliyon*, *10*(1), 1-18.