

CAPÍTULO 4

THE IMPACT OF THE TALKPAL AI APPLICATION ON ENGLISH SPEAKING PROFICIENCY

EL IMPACTO DE LA APLICACIÓN TALKPAL AI EN EL DOMINIO DEL INGLÉS

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Abstract

This study investigates the effectiveness of Talkpal AI in improving the English-speaking skills of students at a private academy. The research evaluates changes in fluency, pronunciation, and coherence and compares the AI tool with traditional speaking exercises. A mixed-method approach was used, combining quantitative analysis of pre-test and post-test results with qualitative feedback from students. The findings indicate that students using Talkpal AI demonstrated improvements in pronunciation and vocabulary acquisition. However, statistical analysis using an unpaired t-test found no significant differences between the experimental and control groups, suggesting that both learning methods contributed to speaking proficiency. Despite some limitations, including a small sample size and short duration, the study highlights the potential of AI tools in language learning. Future research should explore long-term effects and broader applications of AI in education.

Keywords: Artificial Intelligence; English proficiency; Language learning; Talkpal AI; Educational Technology

Resumen

Este estudio investiga la eficacia de la IA Talkpal para mejorar las destrezas orales en inglés de los alumnos de una academia privada. La investigación evalúa los cambios en la fluidez, la pronunciación y la coherencia, y compara la herramienta de IA con los ejercicios tradicionales de expresión oral. Se utilizó un método mixto que combinaba el análisis cuantitativo de los resultados de las pruebas previas y posteriores con los comentarios cualitativos de los alumnos. Los resultados indican que los alumnos que utilizaron Talkpal AI mejoraron en pronunciación y adquisición de

vocabulario. Sin embargo, el análisis estadístico mediante una prueba t no emparejada no encontró diferencias significativas entre los grupos experimental y de control, lo que sugiere que ambos métodos de aprendizaje contribuyeron a la competencia oral. A pesar de algunas limitaciones, como el pequeño tamaño de la muestra y la corta duración, el estudio pone de relieve el potencial de las herramientas de IA en el aprendizaje de idiomas. Futuras investigaciones deberían explorar los efectos a largo plazo y las aplicaciones más amplias de la IA en la educación.

Palabras clave: Inteligencia artificial; Dominio del inglés; Aprendizaje de idiomas; Talkpal AI; Tecnología educativa.

1. INTRODUCTION

In recent years, advancements in artificial intelligence (AI) have significantly influenced various sectors, including education. The integration of AI-driven applications in language learning has gained increasing attention as institutions seek innovative methods to enhance student engagement and proficiency. Among these technologies, AI-powered language learning tools such as Talkpal offer a promising approach to improving English-speaking skills through personalized feedback and interactive learning experiences. As global communication relies heavily on English proficiency, the potential of AI applications to facilitate language acquisition is a subject of considerable academic interest (Hidayatullah, 2024; Fadil, 2024).

Despite the growing incorporation of AI in educational contexts, its effectiveness in fostering language acquisition remains a topic of debate. Traditional pedagogical methods continue to dominate language instruction, with many educators hesitant to integrate AI-based tools into their curricula. Studies such as “The Impact of Talkpal.AI on English Speaking Proficiency: An Academic Inquiry” (Hidayatullah, 2024) have explored the role of AI in enhancing students' English-speaking abilities, providing valuable insights into its potential benefits. Additionally, research like “Integrating Artificial Intelligence in Redesigning Self-access Center (SAC)” (Fadil, 2024) highlights how AI applications support self-directed learning, enabling students to engage with educational resources independently and improve language proficiency. These studies emphasize the importance of incorporating AI in educational strategies to create more effective and personalized learning environments.

Beyond its immediate academic implications, this research aligns with broader educational and technological objectives. The study contributes to the discourse on AI integration in education, aligning with global initiatives such as the United Nations Sustainable Development Goals, particularly in promoting quality education and lifelong learning opportunities (United Nations, 2024). By examining the application of AI in language learning, this study underscores the necessity of adapting teaching methodologies to meet the evolving needs of students and educators.

The primary objective of this research is to assess the impact of the Talkpal AI application on students' English-speaking proficiency in a private academy setting. Specifically, it compares the outcomes of students using Talkpal with those following traditional language learning methods. The study aims to answer two key questions: How does the use of Talkpal AI affect learners' proficiency in speaking skills? What are the differences in English-speaking proficiency outcomes between students receiving traditional instruction and those utilizing Talkpal AI? By addressing these questions, this research provides data-driven insights to inform educators, researchers, and policymakers on the role of AI in language education.

Theoretical Framework

The integration of AI in language learning is grounded in several theoretical perspectives. The Sociocultural Theory (Vygotsky, 1978) emphasizes the role of social interaction and mediated learning, suggesting that AI tools can serve as digital mediators that facilitate scaffolding and learner development. Constructivist learning theories (Piaget, 1952) also support the use of AI applications, as they encourage active engagement and adaptive learning environments tailored to individual needs. Additionally, Cognitive Load Theory (Sweller, 1988) highlights the benefits of AI in reducing extraneous cognitive load by providing personalized feedback and structured learning pathways. These theories provide the foundation for understanding the pedagogical effectiveness of AI-based language learning applications like Talkpal.

Technology in Language Learning

Technology has transformed language learning by enhancing accessibility, engagement, and personalization. AI-driven applications such as Duolingo and Memrise employ gamification, spaced repetition, and adaptive learning to tailor instruction to individual progress (Oliveira et al., 2023; Kholis, 2021). These tools provide real-time feedback and allow learners to practice speaking and listening skills in interactive settings. Social media platforms and virtual reality simulations further support language acquisition by facilitating authentic communication experiences. The shift from traditional methods to interactive, technology-driven learning environments underscores the importance of integrating AI into language education.

Effectiveness of AI Applications in Language Learning

AI applications in language education provide personalized and adaptive learning experiences through data-driven instruction. Platforms such as Babbel and Google Assistant employ machine learning algorithms to assess learner performance, adjust content difficulty, and deliver targeted feedback (Son et al., 2023). Virtual language tutors and conversational AI agents enable learners to engage in simulated real-world conversations, fostering immersion and increasing fluency (Ayu et al., 2021). The ability of AI to analyze speech patterns, correct pronunciation, and offer immediate feedback demonstrates its growing role in enhancing speaking proficiency.

Furthermore, AI integration in education has expanded through digital learning platforms such as Google Classroom and Microsoft Teams, which facilitate collaboration and streamline instructional delivery (Haleem et al., 2022). These platforms support personalized learning, making educational resources more accessible to diverse learners.

Talkpal AI Application

Talkpal.AI has gained recognition as an innovative AI-powered language learning tool. According to Zou et al. (2023), Talkpal provides interactive, real-life conversational experiences that simulate native speaker interactions. The application employs natural language processing and machine learning to enhance comprehension and fluency by offering real-time feedback on pronunciation and grammar. In educational settings, Talkpal enables teachers to monitor student progress, customize lesson plans, and facilitate autonomous learning experiences. Despite its

advantages, the app's limited free version may pose accessibility challenges for some learners.

Features of Talkpal Relevant to English-Speaking Proficiency

Talkpal's key features include interactive speaking exercises, personalized lesson plans, and integrated speech recognition technology (Minasyan, 2024). By simulating real-world conversations, the AI tool helps learners practice pronunciation, intonation, and fluency. The system continuously adapts to user performance, offering targeted exercises that focus on areas for improvement. Regular feedback and performance tracking further enhance speaking proficiency, creating a supportive and structured learning environment (Dikaprio et al., 2024).

English-Speaking Proficiency

English proficiency is a critical skill in globalized education and professional environments. Fitriani (2022) highlights the significance of English fluency for academic and career advancement, emphasizing the role of technology in improving language skills. AI-driven platforms enable learners to develop confidence and accuracy through immersive, interactive experiences. These tools replicate real-life conversations, promoting continuous practice and reinforcing essential linguistic competencies.

Factors Contributing to Speaking Proficiency

Speaking proficiency is influenced by fluency, accuracy, and comprehensibility. Fluency refers to the ability to communicate without hesitation, while accuracy involves the correct use of grammar and vocabulary (Marfuah et al., 2020). Comprehensibility is determined by

pronunciation clarity and coherence in speech delivery. AI-based learning applications provide structured practice to enhance these aspects, supporting language learners in achieving higher proficiency levels.

Assessment Methods in Language Proficiency Evaluations

Standardized assessments such as TOEFL and IELTS evaluate speaking proficiency based on fluency, coherence, and grammatical accuracy (Bakri, 2023). AI-driven speech assessment tools complement these evaluations by providing real-time feedback and tracking learner progress. Direct assessments, including oral interviews and structured speaking exercises, further validate AI's role in language proficiency development.

2. CONCLUSION

Recent research underscores the effectiveness of AI applications like Talkpal in improving English-speaking proficiency. Hidayatullah (2024) examines the impact of Talkpal.AI on university students, demonstrating its role in enhancing fluency and intelligibility. Similarly, Fadil (2024) highlights the integration of AI in Self-Access Centers, emphasizing its contribution to autonomous learning. These studies support the incorporation of AI in language education, providing insights into effective pedagogical strategies. This research extends previous findings by analyzing Talkpal's impact on academy students, contributing to the ongoing exploration of AI in language learning.

3. METHODOLOGY

This section explains how the study was conducted, detailing the research setting, participants, approach, data collection techniques, data analysis

procedures, and ethical considerations. The methodology is described in sufficient detail to allow other researchers to replicate the study or use it as a basis for future research. New methods and protocols are explained thoroughly, while established methods are briefly described with appropriate citations.

Research Setting

The study was conducted as a natural experiment at **English Culture House**, an English language academy located in Loja, Ecuador. The academy offers English courses for learners at various proficiency levels, including B1 (intermediate) level students, who were the focus of this research. The study took place in a classroom setting, where students were enrolled in regular English-speaking courses. The research involved two groups: a treatment group that integrated the **Talkpal AI** application into their regular learning process and a control group that continued with traditional methods of instruction. The study was conducted over one month, with both groups maintaining their regular class schedules. The experimental group had access to the Talkpal.AI application during class and at home, enabling a flexible and self-regulated learning experience. This setting allowed for a natural comparison between the two groups without disrupting their academic activities.

Research Participants

The participants in this study were four students enrolled in B1-level English courses at English Culture House, aged between 14 and 16 years. A purposive sampling technique was used to select participants who met the criteria of being enrolled in a B1-level English course and having sufficient time to participate in the study. The participants were divided into two

groups: a control group (Classroom 1) that continued with traditional classroom instruction and an experimental group (Classroom 2) that integrated the Talkpal.AI application into their learning process. The selection of participants was based on recommendations from the institution's authorities, ensuring that both groups had similar academic backgrounds and proficiency levels. This approach facilitated a meaningful comparison between the two groups, with the only difference being the use of the Talkpal.AI application.

Research Approach and Research Design/Type

The study employed a mixed-methods approach, combining quantitative and qualitative research methods. The quantitative component involved pre-test and post-test assessments to measure changes in students' speaking skills, including pronunciation, fluency, completeness, and accuracy. The qualitative component involved open-ended surveys administered to gather students' perceptions of the Talkpal.AI application and its impact on their learning. The research design was a natural experiment, where the researcher observed a naturally occurring phenomenon that divided participants into treatment and control groups based on availability and study requirements (Leatherdale, 2019). This design allowed for an exploration of the relationship between the use of artificial intelligence tools (Talkpal AI) and changes in speaking skills. The study is descriptive in nature, aiming to explain the observed outcomes.

Data Collection Sources and Techniques

Data were collected using two primary sources: oral assessments and surveys. The oral assessments were conducted before and after the intervention to measure speaking abilities, including pronunciation,

fluency, completeness, and accuracy. These assessments were evaluated using the Talkpal AI application's pronunciation tool, which provided detailed performance analysis (Minasyan, 2024). The surveys were administered after the intervention and included open-ended questions to capture students' perceptions of the application and its impact on their learning. These techniques ensured a comprehensive evaluation of both the quantitative and qualitative aspects of the study.

Data Analysis

The data were analyzed using both descriptive and inferential statistics. Descriptive statistics were used to summarize the results of the pre- and post-tests, providing an overview of participants' speaking proficiency before and after the intervention. An independent t-test was conducted to compare the performance of the experimental and control groups, assessing whether there were statistically significant differences in speaking performance (Bevans, 2023). Qualitative data from the surveys were analyzed using narrative summaries, which included key insights and notable quotes from participants. All statistical analyses were performed using Jamovi, a statistical software program that facilitated the t-test and organized the results.

4. RESULTS

This section presents the results of the study in a logical and ordered manner, providing a concrete description and interpretation of the findings. The results are divided into two main subsections: Data of the Participants and Survey Results. Tables and interpretations are included to support the findings, ensuring that data is not duplicated in the text and visuals.

Data of the Participants

Table 1 shows the list of four participants selected through purposive sampling. Their names have been kept as acronyms to maintain confidentiality, along with their respective levels. All participants were at the B1 proficiency level.

Table 1.

List of selected participants

No	Name of the students	Level
1	Ju	B1
2	An	B1
3	Ca	B1
4	Da	B1

Pre-test and Post-test Results

The pre-test and post-test results are summarized in **Table 2** and **Table 3**, respectively. These tables display the scores for accuracy, fluency, completeness, and overall performance for each student.

Table 2.

General scores result from the Pre-test

Students	Accuracy	Fluency	Completeness	Overall score
Ju	87	97	90	91
An	76	90	75	80
Ca	81	96	81	86
Da	83	96	80	86

Table 3.

General scores result from Post-test

Students	Accuracy	Fluency	Completeness	Overall score
Ju	92	99	92	94
An	81	90	82	84
Ca	89	98	87	91
Da	94	100	95	96

Analysis of Pre-test and Post-test Results

The analysis of the pre-test and post-test results reveals the following:

- **Student Ju:** Demonstrated excellent performance in the pre-test, particularly in fluency (97) and completeness (90), with an overall score of 91. In the post-test, Ju improved in accuracy (92) and fluency (99), achieving an overall score of 94.
- **Student An:** Showed good fluency (90) in the pre-test but struggled with accuracy (76) and completeness (75), resulting in an overall score of 80. In the post-test, An's accuracy and completeness improved slightly, though fluency remained the same, leading to an overall score of 84.
- **Student Ca:** Performed well in fluency (96) and completeness (81) in the pre-test, with an overall score of 86. In the post-test, Ca improved in accuracy (89) and completeness (87), achieving an overall score of 91.
- **Student Da:** Achieved strong fluency (96) and accuracy (83) in the pre-test, with an overall score of 86. In the post-test, Da showed significant improvement in accuracy (94) and completeness (95), achieving an overall score of 96.

Overall, all students demonstrated improvement from the pre-test to the post-test, with Ju and Da showing the most significant progress. However,

some students, like An, showed only moderate improvement, suggesting that while the intervention positively impacted speaking skills, the degree of improvement varied.

Comparison Between Treatment and Control Groups

Pre-test		
Group 1 (Treatment)	Group 2 (Control)	Difference
86	91	-5
86	80	6
Mean 86	Mean 85.50	0.50
SD 0.00	SD 7.78	
P value 0.9358		
T-test value 0.0909	Degrees of freedom: 2	

Post-test		
Group 1 (Treatment)	Group 2 (Control)	Difference
91	94	-3
96	84	12
Mean 93.50	Mean 89	4.50
SD 3.54	SD 7.07	
P Value 0.5053		
T-test value 0.8050		
Degrees of freedom: 2		

The results indicate that while the treatment group showed improvement, the control group also demonstrated gains. In the pre-test, the treatment

group had a mean score of 86, compared to the control group's mean of 85.50, with no significant difference ($p\text{-value} = 0.9358$). In the post-test, the treatment group achieved a mean score of 93.50, while the control group scored 89, resulting in a mean difference of 4.50. However, the T-test value of 0.8050 and $p\text{-value}$ of 0.5053 suggest that the difference between the groups was not statistically significant. These findings highlight that while the treatment group showed positive results, the overall analysis indicates the need for further refinement and investigation to better understand the intervention's impact.

Survey Results

The survey results provide qualitative insights into the participants' experiences with the Talkpal.AI application. Below are the key findings:

1. First Impression of Talkpal AI:

Participant 1 found the app useful for practicing speaking and learning new vocabulary.

Participant 2 described the app as original and innovative.

2. Interface Usability:

Both participants agreed that the interface was intuitive and easy to access.

3. Improvements in Speaking Skills:

Participant 1 noted that the app helped with vocabulary acquisition and pronunciation.

Participant 2 appreciated the app's ability to simulate real conversations.

4. Noticed Improvements:

Participant 1 highlighted improvements in practicing unfamiliar words and pronunciation.

Participant 2 observed better speaking skills and corrected pronunciation errors.

5. Satisfaction with Talkpal AI:

Participant 1 expressed high satisfaction, describing the app as very helpful.

Participant 2 was satisfied but suggested potential improvements in some features.

Overall, the survey results indicate that Talkpal.AI was well-received by participants, with both noting its effectiveness in improving speaking skills. However, the feedback also suggests areas for further enhancement to maximize its potential as a learning tool.

6. DISCUSSION

This section discusses the findings of the study in the context of previous research, highlighting similarities, differences, and implications. The discussion is structured to address the study's main objective—evaluating the effectiveness of the Talkpal.AI application in improving English-speaking skills compared to traditional methods—while also considering the broader implications of AI tools in language learning.

Comparison and Contrast with Previous Studies

The findings of this study align with and contribute to the growing body of research on the effectiveness of AI tools in language learning. Recent studies, such as those by Hidayatullah (2024) and Fadil (2024), have demonstrated the potential of AI applications like Talkpal AI to enhance English-speaking proficiency. Hidayatullah's research, which focused on university students, highlighted the app's ability to improve fluency and intelligibility, similar to the improvements observed in this study. The participants in our study showed notable progress in fluency and accuracy, particularly in the experimental group that used Talkpal.AI. This consistency in findings underscores the reliability of AI tools in supporting language acquisition.

Similarly, Fadil's (2024) exploration of AI-integrated Self-Access Centers (SAC) emphasized the role of AI in promoting autonomous learning, a finding echoed in our study. Participants reported that Talkpal AI was intuitive and accessible, enabling them to practice independently and at their own pace. This aligns with Fadil's conclusion that AI tools can foster self-directed learning and continuous improvement.

However, there are some differences in the outcomes of this study compared to previous research. While Hidayatullah's study reported significant improvements in fluency and intelligibility, our study found that improvements varied among participants. For instance, while students like Ju and Da showed significant progress, others like An demonstrated only moderate improvement. This variability suggests that the effectiveness of AI tools may depend on individual learning styles and engagement levels, a factor that warrants further investigation.

Additionally, the qualitative feedback from participants in this study highlighted the app's potential but also pointed to areas for improvement, such as enhancing certain features to better support learning. This contrasts with some previous studies that primarily focused on the positive outcomes of AI tools without addressing potential limitations. By incorporating both quantitative and qualitative data, this study provides a more nuanced understanding of the benefits and challenges of integrating AI into language learning.

Overall, the findings of this study are consistent with the broader literature on AI in education, reinforcing the potential of tools like Talkpal AI to enhance speaking skills. However, the variability in outcomes and the need for further refinement of AI tools suggest that future research should explore individual differences and long-term impacts to fully understand their effectiveness.

Scope and Limitations

While this study provides valuable insights into the effectiveness of Talkpal.AI, it is important to acknowledge its limitations. First, the small sample size of four participants limits the generalizability of the findings. A larger and more diverse population would provide a more comprehensive understanding of the app's impact across different contexts and proficiency levels. Additionally, a larger sample would allow for more robust statistical analysis, potentially revealing patterns that were not evident in this study.

Another limitation is the reliance on internet connectivity, which was affected by frequent power outages during the study period. Although the institution had a generator to mitigate this issue, it highlights a practical challenge in implementing AI tools in regions with unstable infrastructure.

This limitation underscores the need for offline capabilities or alternative solutions to ensure consistent access to AI-based learning tools.

The study's duration of one month, while sufficient to observe initial improvements, may not capture the long-term effects of using Talkpal.AI. Extending the study period would provide deeper insights into the sustainability of the observed improvements and the potential for continued growth in speaking proficiency.

Finally, the study focused solely on speaking skills, leaving other language skills such as listening, reading, and writing unexplored. Future research could expand the scope to examine the impact of AI tools on these areas, providing a more holistic understanding of their role in language learning.

Despite these limitations, the study offers important contributions to the field of AI in education. It highlights the potential of Talkpal AI to enhance speaking skills while also identifying areas for improvement, both in the app itself and in the design of future studies. By addressing these limitations, researchers can further refine AI tools and develop strategies to maximize their effectiveness in diverse educational contexts.

7. CONCLUSIONS

Based on the results of this study, it can be concluded that the use of Talkpal AI has shown positive effects on the English-speaking proficiency of language learners, particularly in the areas of fluency, pronunciation, and vocabulary acquisition. While all participants in the treatment group exhibited improvements in their speaking skills from the pre-test to the post-test, the degree of improvement varied between individuals. Students

such as Ju and Da demonstrated significant progress, particularly in fluency and accuracy, while others like A showed moderate improvement.

The results of the unpaired t-test showed that, although the treatment group showed an improvement in scores, there were no statistically significant differences between the treatment and control groups in the pre-post-test phases. This suggests that while Talkpal AI may offer some benefit, the observed improvements may be due to other factors, such as continued practice or support from a control group. Therefore, further research is needed to determine the specific impact of AI tools in language learning and to refine the methods for measuring their effectiveness.

The qualitative feedback from participants also provides valuable insights into the user experience with Talkpal AI. The app was perceived as accessible, intuitive, and helpful in improving both vocabulary and pronunciation. Participants expressed satisfaction with the application's ability to simulate real conversations and improve speaking skills, although one participant mentioned the potential for further feature enhancements. These perceptions align with the growing body of research suggesting that AI tools can support language learners by providing consistent, personalized practice opportunities.

Despite the promising results, the study has several limitations that should be addressed in future research. The small sample size and short duration of the study are notable limitations that may have influenced the outcomes. Additionally, external factors such as power cuts, which affect internet access for participants, must be considered when interpreting the findings. Expanding the study to include a larger population and a longer intervention period, with better access to AI features, could provide more robust conclusions.

In summary, this study suggests that Talkpal AI holds potential as a tool for improving English-speaking skills, though its full impact may require more time and a larger, more diverse group of participants to assess its effectiveness more conclusively. Further studies should explore the specific aspects of AI integration in language learning and how to optimize these tools to maximize their benefits for learners.

8. REFERENCES

1. Ayu, M., & Pratiwi, Z. F. (2021). The Implementation of Online Learning in English Language Teaching during Pandemic: The Teachers Voice. *Journal of Research on Language Education (JoRLE)*, 2(2), 93–99. <https://ejurnal.teknokrat.ac.id/index.php/JoRLE/index>
2. Bakri, H. (2023). EVALUATING AND TESTING ENGLISH LANGUAGE SKILLS: BENCHMARKING THE TOEFL AND IELTS TESTS. <https://doi.org/bflt.journals.ekb.eg>
3. Bevans, R. (2023, January 31). An Introduction to t Tests | Definitions, Formula and Examples. <https://www.scribbr.com/statistics/t-test/>.
4. Dikaprio, V., & Dahlan Diem, C. (2024). How Effective is Talkpal.ai in Enhancing English Proficiency? Insights from an Experimental Study. *Language, Technology, and Social Media*, 2(1), 48–59. <https://doi.org/10.70211/ltsm.v2i1.48>
5. Hidayatullah, E. (2024). The Impact of Talkpal.AI on English Speaking Proficiency: An Academic Inquiry. *Journal of Insan Mulia Education*, 2(1), 19–25. <https://doi.org/10.59923/joinme.v2i1.98>
6. Fadil, M. (2024). Integrating Artificial Intelligence in Redesigning Self-Access Center (SAC) for Language Learning. State Islamic University of Prof. K.H. Saifuddin Zuhri Purwokerto. <https://doi.org/10.24090/celti.2024.1003>
7. Fitriani, R. (2022). The Development of English Speaking Proficiency to Increase Students' Communication Skill in A Business and Technology College. *KOMVERSAL*, 4(2), 90–112. <https://doi.org/10.38204/komversal.v4i2.1041>
8. Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A

- review. *Sustainable Operations and Computers*, 3, 275–285. <https://doi.org/10.1016/j.susoc.2022.05.004>
9. Kholis, A. (2021). Elsa Speak App: Automatic Speech Recognition (ASR) for Supplementing English Pronunciation Skills. *Pedagogy : Journal of English Language Teaching*, 9(1), 01. <https://doi.org/10.32332/joelt.v9i1.2723>
10. Leatherdale, S. T. (2019). Natural experiment methodology for research: a review of how different methods can support real-world research. *International Journal of Social Research Methodology*, 22(1), 19–35. <https://doi.org/10.1080/13645579.2018.1488449>
11. Marfuah, J., & Patmasari, A. (2020). The Effect of Using Drama Technique towards the Students' Speaking Accuracy, Fluency, and Comprehensibility. *ELS Journal on Interdisciplinary Studies on Humanities*, 3(1), 97–109. <https://doi.org/10.34050/els>
12. Minasyan, A. (2024). Overview of Talkpal AI application. <https://10web.io/Ai-Tools/Talkpal/>.
13. Oliveira, W., Hamari, J., Shi, L., Toda, A. M., Rodrigues, L., Palomino, P. T., & Isotani, S. (2023). Tailored gamification in education: A literature review and future agenda. *Education and Information Technologies*, 28(1), 373–406. <https://doi.org/10.1007/s10639-022-11122-4>
14. Son, J.-B., Ružić, N. K., & Philpott, A. (2023). Artificial intelligence technologies and applications for language learning and teaching. *Journal of China Computer-Assisted Language Learning*. <https://doi.org/10.1515/jccall-2023-0015>
15. United Nations. (2024). THE 17 GOALS. <https://Sdgs.Un.Org/Goals>.
16. Zou, B., Guan, X., Shao, Y., & Chen, P. (2023). Supporting Speaking Practice by Social Network-Based Interaction in Artificial

Intelligence (AI)-Assisted Language Learning. Sustainability
(Switzerland), 15(4). <https://doi.org/10.3390/su15042872>