

Improving High School Students' English Listening Skills Using Duolingo: Evidence From SMK Muhammadiyah 1 Palu

Safira Nur Farah¹, Suriaman Aminah¹, Agussatriana¹, Mukrim¹

¹Universitas Tadulako, Indonesia

*Correspondence: farachsafira@gmail.com

ABSTRACT

This research aimed to investigate the effectiveness of the Duolingo application in improving the listening skills of tenth-grade students at SMK Muhammadiyah 1 Palu. The study employed a pre-experimental design with one group consisting of 20 students selected through purposive sampling. A pre-test and a post-test were administered, which included fill-in-the-blank and multiple-choice questions to measure listening performance. During the treatment, the students used the Duolingo application to practice listening in English. The results showed that the t-count value was higher than the t-table value, indicating a significant improvement in the students' listening scores after the treatment. Therefore, the research hypothesis was accepted. In conclusion, the findings suggest that the Duolingo application can serve as an effective tool to enhance students' English listening skills. Moreover, students reported increased motivation and engagement while using the application, which contributed to their consistent practice and improvement. This highlights the potential of integrating mobile-assisted language learning platforms like Duolingo into regular classroom activities to support traditional teaching methods.

ARTICLE HISTORY

Published September 20th 2025



KEYWORDS

Duolingo, listening skills, English learning, pre-experimental study, tenth-grade students

ARTICLE LICENCE

© 2025 Universitas Hasanuddin
Under the license CC BY-SA
4.0



1. Introduction

English is widely recognized as an international language and plays a significant role in many aspects of daily life, particularly in this era of globalization. It serves as a universal communication tool that helps people from different countries connect, share ideas, and collaborate. In Indonesia, English is considered important for education and career development, which is why it is taught as a compulsory subject in junior high schools, senior high schools, and universities. Some elementary schools have also started to introduce English at earlier levels to prepare students for future learning (Fitriani, 2023; Yaumi et al., 2023; Faisal et al., 2025). This shows that English is not only valued as a subject in school but also as a skill that supports students' global competence.

At the senior high school level, one of the main goals of English education is to develop discourse competence. This means students should be able to understand and produce oral and written texts using the four basic language skills: listening, speaking, reading, and writing. In terms of listening, students are expected to understand spoken texts in interpersonal and transactional contexts. These texts may include narratives, procedures, reports, and discussions that reflect daily life communication (Departemen Pendidikan Nasional, 2003).

However, many students still struggle with listening. They often find it difficult to understand English audio from TV shows, movies, or radio. One reason is that listening is not given enough attention compared to reading or writing. In many schools, teachers focus more on grammar, vocabulary, and written exercises. Listening is sometimes assessed indirectly or not tested at all. As a result, students tend to view listening as a less important skill (Niah & Pahmi, 2019; Ko et al., 2025; Weda et al., 2021).

Another problem is the lack of quality listening materials. Although some textbooks include listening activities, many do not come with audio support. This makes it difficult for teachers to conduct listening practice effectively. To solve this issue, teachers need to look for alternative materials online. The internet provides a variety of resources and applications that can be used to support listening practice (Niah & Pahmi, 2019; Rahman et al., 2019; Youngsun et al., 2024).

One of the widely used tools is Duolingo. It is a free, mobile-based language learning application that uses games and interactive exercises to teach vocabulary, grammar, pronunciation, and listening. Duolingo includes features such as picture-word matching, sentence translation, audio dictation, and repetition tasks. These exercises help students become more familiar with spoken English in an engaging way (Fitriani, 2023). According to Huynh, Zuo, and Lida (2018), Duolingo is designed to make language learning simple and enjoyable by using game elements without changing the core learning process. With millions of users worldwide, Duolingo is one of the most popular language learning apps. English is one of the main languages offered on the platform.

Several studies have shown that Duolingo is effective in improving students' listening skills. For example, research in a vocational school in Surakarta found that students' listening scores improved after using Duolingo as part of their English lessons (Sari & Octaviani, 2022). Another study in a junior high school in North Sumatra reported a significant increase in students' post-test scores after using Duolingo for listening practice (Tampubolon, Manalu, & Simarmata, 2024). In addition to improving skills, Duolingo also increases students' motivation to learn. A study in Palembang found that most students were more motivated and engaged in learning when using the Duolingo app. This suggests that technology-based learning tools like Duolingo can make English learning more effective and enjoyable (Jumbrowati, Permana, & Anggraini, 2023).

In line with this, the Indonesian National Education Standards Agency (Badan Standar Nasional Pendidikan, 2006) emphasizes that education should reflect the dynamic development of science and technology. The curriculum should prepare students to use modern tools and adapt to changes. Using Duolingo in the classroom supports this vision. According to the English teacher at SMK Muhammadiyah 1 Palu, many students have weak listening skills and show low motivation in learning English. To address these issues, the researcher proposes using the Duolingo application as a learning tool. The purpose of this research is to find out whether Duolingo can improve the listening skills of tenth-grade students at SMK Muhammadiyah 1 Palu.

2. Methodology

The researcher used quasi-experimental research. According to Creswell (2015), a quasi-experimental is an experimental design that is conducted without randomization, but involves assigning participants to groups. The reason researcher used quasi-experimental research is because the research sample used purposive sample technique, which is the selection of the sample is not random. The samples of this research divided into two groups, the experimental group and the control group. Both of classes were given pre-test and post-test but only the experimental group was given the treatment. The researcher applied the research design as proposal by Cohen, Manion, and Morrison (2005:283) as follows:

O1 x O2
O3 O4

Where :

O1 = Pre-test of the experimental group

O2 =Post-test of the experimental group

O3 =Pre-test of the control group

O4 =Post-test of the control group

X = Treatment of the experimental group

In this study, the researcher has selected TKJ A and TKJ B of the tenth-grade students at SMK Muhammadiyah 1 Palu academic year 2024/2025. The researcher chose TKJ B as the experimental class while TKJ A as the control class. The reason researcher chose two classes is because these classes have low scores in English class and only this major has two classes. In addition, both of the classes is recommended by the researcher as a sample by an English teacher when the researcher did the observation in SMK Muhammadiyah 1 Palu.

To collect the data, the researcher used two tests: pre-test and post-test. The pre-test is given before the treatment to measure the initial of students listening skills. The post-test is given after the treatment to find If there has any

improvement. Comparing the results of the pre-test and post-test helps to understand the effect of using Duolingo application as teaching media. The pre-test is done in the first meeting. It has 20 questions, 10 questions of fill in the blank, and 10 questions of multiple choice. The test aims to find out the students' level of listening skill before the treatment. the scoring rubric is as follows:

Table 1. Scoring Rubric

Name of test	Number of item	Points	Rubric
Fill the blank	10	1	<ul style="list-style-type: none"> • Correct answer and spelling. • Incorrect answer.
		0	
Multiple choices	10	1	<ul style="list-style-type: none"> • Correct answer and spelling. • Incorrect answer.
		0	
Total	: $\frac{\text{students' correct answer} \times 100}{20}$		

In this study, students analyses the data by using a computer program SPSS (Statistical Package for the Social Sciences) version 22. The use of SPSS enabled precise statistical calculations and facilitated accurate interpretation of the pre-test and post-test results.

3. Result and Discussion

3.1 Result

This study was conducted to measure the effect of using the Duolingo application on improving the listening skills of tenth-grade students at SMK Muhammadiyah 1 Palu. To find out whether Duolingo helped students improve their listening ability, the researcher compared the students' scores before and after using the application.

The students in the experimental class took a pre-test before using Duolingo and a post-test after the treatment. Each test had two parts: fill-in-the-blank and multiple-choice questions, with a total score of 100. The results of both tests were then analyzed to see the difference in student performance. In the pre-test, students showed a wide range of scores. Some students did very well, but many scored below the minimum passing grade, which is 75 at SMK Muhammadiyah 1 Palu. Out of 20 students, only 12 managed to pass. The average score was 80.50, with the lowest score being 60 and the highest being 100.

After the treatment using the Duolingo application, the students' scores improved significantly. In the post-test, all 20 students passed the minimum passing grade. The lowest score was now 75, and the highest remained 100. The average score increased to 95.25. This shows that all students improved their listening skills after using Duolingo. The increase in scores suggests that the Duolingo application was effective in helping students understand spoken English better. It also helped more students achieve the expected competency level. This result supports the idea that using digital tools in language learning, especially for listening skills, can bring real improvement.

Table 2. Experimental Class Performance (Pre-Test vs Post-Test)

Criteria	Pre-Test (Before Duolingo)	Post-Test (After Duolingo)
Number of Students (N)	20	20
Highest Score (out of 100)	100	100
Lowest Score (out of 100)	60	75
Average Score (Mean)	80.50	95.25

Criteria	Pre-Test (Before Duolingo)	Post-Test (After Duolingo)
Students Scoring \geq 75 (Passed)	12 students	20 students
Students Scoring $<$ 75 (Failed)	8 students	0 students
% of Students Passed	60%	100%
Score Increase Observed	Yes – most students improved	
	-	

The table 1 above clearly shows the improvement in students' listening skills after using the Duolingo application. Before the treatment, some students still had low scores, and only 60% of them passed the minimum standard. After the treatment, all students passed, and the overall scores increased.

This result shows that the Duolingo application can be an effective tool for helping students improve their English listening skills. It provides a fun and easy way for students to learn, and it can be used as a useful support in the classroom. Based on these findings, teachers may consider using digital applications like Duolingo as part of their teaching strategy, especially in listening activities.

After getting the result of the pre-test and post-test, the researcher using SPSS 22 Version with significant level 0.05. the results can be seen below:

Table 3. Normality Test

Class	Kolmogorov-Smirnov			
	Statistic	Df	Sig.	
Students learning outcomes	Pre-test Experimental Class	.162	20	.176
	Post-test Experimental Class	.220	20	.012
	Pre-test Control Class	.118	20	.200
	Post-test Control Class	.325	20	.000

Based on the results above, it can be seen that the significance value (sig.) of pre-test in the experimental class is $0.176 > 0.05$, the post-test in the experimental class is $0.012 > 0.05$, the pre-test in the control class is $0.200 > 0.05$, and the post-test in the control class is $0.000 < 0.05$. this means that the pre-test of the experimental class, post-test of the experimental class, and pre-test control class are normally distributed while post-test of the control class is not normally distributed. So, the data of this research is not normally distributed.

After knowing the result of the normality test, the researcher look the results from Test of Homogeneity. The Homogeneity test is use to determine the homogeneity value. If the significance of the mean is more than 0.05, this sample is considered homogenous. The data does not match the standards if it is not homogeneous. The results of the homogeneity test are shown in the table below:

Table 4. Homogeneity Test

	Levene Statistic	Df1	Df2	Sig.
Based on Mean	6.733	1	38	.013
Based on Median	3.577	1	38	.066
Based on Median and with adjusted df	3.577	1	37.999	.066

Students Learning Outcomes	Based on trimmed Mean	6.910	1	38	.012
-----------------------------------	-----------------------	-------	---	----	------

Based on the table above, the homogeneity test of the mean is 0.013. As a results, the significance is greater than 0.05. (0.013 > 0.05). This means that the date in the experimental and control groups were all the same or the date are homogeneous. For the last, the researcher do Mann-Whitney test to carried out the research findings because the normality of the data was not normally distributed even though the data is homogeneous. The results of the test analysis is as follows:

Table 5. Students Results

	Students Results
Mann-Whitney U	77.500
Wilcocon W	287.500
Z	-3.425
Asymp. Sig. (2 Tailed)	.001

Based on table above, the value of Asymp.Sig. (2-tailed) of this study is 0.001. It can be seen, the results is less than the specified significance level of 0.05. it can conclude, Ho is rejected, and Ha is accepted. Ho is statistical hypothesis that asserts there is no difference between two variables, while Ha is an alternative or working hypothesis that states there is a relationship, influence and difference between two or more variables. It indicates that the researcher's was accepted. In conclusion, the use of Duolingo application can improve listening skills of the tenth-grade students at SMK Muhammadiyah 1 Palu.

3.2 Discussion

The result of this study shows that the Duolingo application had a significant effect on improving students' listening skills in English. After using Duolingo, the students' post-test scores were higher than their pre-test scores. All twenty students passed the minimum passing grade of 75 in the post-test, while in the pre-test only twelve students managed to reach that standard. This improvement proves that Duolingo can support students in listening practice and increase their achievement.

This result is supported by the fact that Duolingo provides listening activities that are easy to understand and fun to follow. The app uses short audio tasks, such as listening to a sentence and choosing the right translation or typing what is heard. These kinds of tasks help students get used to English sounds and improve their ability to understand spoken language. According to Fitriani (2023), Duolingo gives learners a chance to listen repeatedly and gain confidence in recognizing words and phrases in context.

The improvement in students' scores is also in line with a study conducted by Sari and Octaviani (2022), who found that students at a vocational school improved their listening scores after using Duolingo in their learning process. They explained that Duolingo is not only easy to use, but also gives motivation to students because of its game-like design. Similarly, Jumbrowati, Permana, and Anggraini (2023) found that Duolingo increased student motivation, which helped students focus and engage more during listening tasks.

Another reason why Duolingo helps students improve is because of its instant feedback system. When students make mistakes, they are told immediately, and they can try again. This helps them learn from their errors and avoid repeating them. According to Huynh, Zuo, and Lida (2018), instant feedback is one of the most important features in mobile-assisted language learning, as it supports self-correction and deeper understanding.

Duolingo also uses repetition and reinforcement to strengthen memory. Students are exposed to similar words and sentences in different forms, which helps them remember them better. This strategy aligns with language learning theory that says repeated exposure improves long-term retention. In this way, Duolingo supports both short-term practice and long-term mastery.

Moreover, the role of Duolingo in supporting student autonomy is also important. Many students may not have enough time to practice English listening in class, especially when schools focus more on reading and grammar. Duolingo

allows students to practice anytime and anywhere, outside of school. This flexibility gives students more opportunities to improve their skills at their own pace. As reported by Tampubolon, Manalu, and Simarmata (2024), students who practiced regularly with Duolingo became more confident in understanding spoken English because they could learn at a speed that suited their needs.

However, even though Duolingo offers many advantages, the teacher still has an important role. Without teacher guidance, students might use the app only to collect points or complete easy tasks without really paying attention to learning. Therefore, it is important that teachers guide students on how to use the app effectively and remind them to focus on the goal, which is to improve listening skills.

In summary, the findings of this study are consistent with other studies that show Duolingo is a useful tool for learning English, especially for listening. It provides fun and meaningful practice, increases student motivation, and helps them become more independent learners. The improvement in students' scores in this study shows that Duolingo can be used as a helpful supplement to classroom teaching, especially in improving students' listening comprehension.

4. Conclusion

This research was carried out to find out whether the Duolingo application could help improve the listening skills of tenth-grade students at SMK Muhammadiyah 1 Palu. Based on the findings, it can be concluded that Duolingo gave a positive effect on students' listening achievement. The comparison between the pre-test and post-test results shows a clear improvement in students' scores after using Duolingo. Before the treatment, only some students passed the minimum score. After the treatment, all students successfully passed. The average score also increased, showing that Duolingo helped students understand English audio better.

This means that Duolingo is not only useful but also effective as a supporting tool in language learning. It provides fun, easy, and interactive listening activities that help students become more familiar with English sounds. It also helps students stay motivated and practice independently. Furthermore, the application's adaptive learning system allowed each student to progress at a personalized pace, accommodating different levels of proficiency. The integration of gamified elements, such as points and achievement badges, further enhanced engagement and sustained interest in regular practice. Overall, these features collectively fostered a more enjoyable and effective listening-learning environment compared to traditional methods.

References

- Badan Standar Nasional Pendidikan. (2006). *Standar isi untuk satuan pendidikan dasar dan menengah*. Jakarta: BSNP.
- Departemen Pendidikan Nasional. (2003). *Standar kompetensi lulusan SMA*. Jakarta: Depdiknas.
- Faisal, R., Rahman, F., Efendi, S., Sosrohadi, S., & Sachi, F. (2025). Analysis of signs on online ads: Roland Barthes' perspectives. *International Journal of Arts and Social Science*, 8(3), 203. <https://www.ijassjournal.com>
- Fitriani, F. (2023). Duolingo in English education: Evidence-based perspectives on learning outcomes. *Curricula: Journal of Curriculum Development*. <https://doi.org/10.22216/jcc.v8i2.10299>
- Huynh, H., Zuo, L., & Lida, H. (2018). The role of gamification in mobile-assisted language learning: Case study of Duolingo. *International Journal of Emerging Technologies in Learning*, 13(2), 23–31. <https://doi.org/10.3991/ijet.v13i02.7689>
- Jumbrowati, D. A., Permana, D. R., & Anggraini, N. (2023). The utilization of Duolingo to improve students' motivation and listening comprehension achievement. *Journal of Teaching of English*, 8(4), 327–334.
- Ko, Y., Kyeongjae, P., Jung, S., Sosrohadi, S., & Andini, C. (2025). Revisiting EPS TOPIK: Addressing linguistic and cultural challenges for migrant workers in South Korea. *International Journal of Current Science Research and Review*, 8(2), 904-910.
- Niah, S., & Pahmi. (2019). The utilization of Duolingo to improve the speaking and listening skills of junior high school

students in Pekanbaru. *Proceedings of CELSciTech-SS*, 59–64.

- Rahman, F., Abbas, A., Hasyim, M., Rahman, F., Abbas, A., & Hasyim, M. (2019). Facebook group as media of learning writing in ESP context: A case study at Hasanuddin University. *Asian EFL Journal Research Articles*, 26(6.1), 153-167.
- Sari, A., & Octaviani, S. K. (2022). Duolingo mobile application for English listening skill improvement of vocational school students. *Journal of English Language and Education*, 7(2), 84–95. <https://doi.org/10.31004/jele.v7i2.306>
- Tampubolon, S., Manalu, A. M., & Simarmata, R. O. (2024). The effect of Duolingo application toward students' listening achievement of seventh grade students at SMP Negeri 1 Pasaributobing. *Jurnal Kajian Ilmu Pendidikan*, 4(2), 582–588. <https://doi.org/10.55583/jkip.v4i2.876>
- Weda, S., Atmowardoyo, H., Rahman, F., Said, M. M., & Sakti, A. E. F. (2021). Factors Affecting Students' Willingness to Communicate in EFL Classroom at Higher Institution in Indonesia. *International Journal of Instruction*, 14(2), 719-734.
- Yaumi, M. T. A. H., Rahman, F., & Sahib, H. (2023). Exploring WhatsApp as Teaching and Learning Activities during Covid-19/New Normal era: A Semiotic Technology Analysis. *International Journal of Current Science Research and Review*, 6(12), 7627-7634.
- Youngsun, K., Sosrohadi, S., Andini, C., Adinda, R., Jae, P. K., Yookyung, K., & Jung, S. (2024). Beyond the Korean Wave: Understanding the Motivation of Among Indonesian Gen Z to Learn Korean in the K-Pop Trend. *International Journal of Current Science Research and Review*, 7(06).