Effect of Podcast towards Improvement of Students' Listening Comprehension

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Abstract
The integration of technology into educational practices has gained increasing attention, particularly in the realm of language learning. Podcasts, as a versatile and accessible digital tool, have emerged as a promising medium for enhancing various language skills. Employing experimental research, this investigation aims to determine whether the use of podcasts can significantly enhance students' listening abilities compared to traditional methods among eleventh-grade students at SMAN 3 Siak Hulu. Sample of 52 students was selected, divided into an experimental group (n=26) and a control group (n=26). The experimental group received treatment through audio podcasts, while the control group did not. Data were collected through pre-tests and post-tests, with essay-based assessments administered to evaluate listening comprehension. The experimental group's mean scores increased from 54.77 (pre-test) to 66.15 (post-test), while the control group's scores decreased from 64.12 (pre-test) to 53.85 (post-test). Statistical analysis using an independent sample t-test in SPSS 26 revealed a significant difference between the groups, with a t-test value of 2.741 (p = 0.008) surpassing the t-table value of 2.008. These results indicate a significant improvement in the listening comprehension of students exposed to podcasts, supporting the effectiveness of this technology in enhancing language learning outcomes. In brief, the study provides compelling evidence that incorporating podcasts into the educational curriculum significantly improves listening comprehension among students, thereby highlighting the potential of this technology to enhance language learning outcomes effectively.

Keywords: English text, podcast, listening comprehension, improvement

INTRODUCTION

Within the Indonesian educational framework, particularly in 21st century, English is not just an optional subject but a core component for learners who use English as foreign language. Students as EFL learners are required to develop proficiency in the four fundamental language skills: writing, speaking, listening, and reading (Prayogo, 2022; Abbas & Fathira, 2022). These skills are viewed as interdependent and crucial for students' academic success and future career opportunities in an increasingly interconnected world (Waluyo & Panmei, 2021). The comprehensive approach to English language education reflects the broader objective of preparing students to engage in international discourse and to access a wealth of knowledge and opportunities available through English (Chen, 2024). Consequently, the integration of English language education into global curricula underscores its critical role in fostering a globally competent citizenry capable of navigating and contributing to an interconnected world.

Listening comprehension, despite its fundamental role in language acquisition, is a skill that is frequently undervalued in educational settings (Tran & Duong, 2020) . It is essential for understanding spoken language and for effective communication ; however, it often does not receive the focus it deserves (Kurniawan, 2019; Sinaga et al., 2024). Students struggle significantly with listening comprehension. A primary factor contributing to these difficulties is the dearth of diverse and efficacious instructional materials. This deficiency highlights the imperative need for a more robust emphasis on listening comprehension within educational paradigms and a concomitant expansion of the repertoire of available learning resources (Megasari, 2021).

The current educational approach relies heavily on the teacher's verbal explanations as the primary source of instruction. While teacher-led explanations are crucial, they alone do not suffice in fostering comprehensive listening skills (Latupono & Nikijuluw, 2022). This singular reliance on verbal instruction fails to expose students to the diverse auditory experiences necessary for developing strong listening abilities (Anderssen et al., 2019). Without access to a broader range of effective listening comprehension course design, such as in digital media or interactive tools use, this barrier deprives students of the opportunity to practice and refine their skills in a way that mimics real-world language use (Alharbi & Al-Ahdal, 2024). Consequently, the development of listening comprehension among these students is stunted, leading to difficulties in understanding spoken English, which further hinders their overall language proficiency.

The researchers' observations, in the context of SMAN 3 Siak Hulu, revealed that students' limited exposure to diverse listening materials has significantly impeded their vocabulary acquisition and pronunciation skills. This deficiency directly affects their ability to comprehend spoken English, as understanding the nuances of pronunciation is crucial for decoding audio input. The lack of varied listening practice prevents students from internalizing correct pronunciation patterns and expanding their vocabulary, both of which are essential for effective listening comprehension. As a result, students struggle to follow and understand English audio, which not only hampers their language development but also leads to broader challenges within the classroom. These challenges include reduced engagement, increased frustration, and a general reluctance to participate in listening activities, further exacerbating the learning difficulties they face. The absence of supportive learning media, therefore, creates a cycle where students' listening comprehension remains underdeveloped, limiting their overall proficiency in English.

Additionally, the classroom observations and student interactions revealed several critical issues hindering effective listening comprehension development, including low

motivation, limited vocabulary growth, and poor pronunciation skills. These challenges are interrelated, creating a negative feedback loop where students struggle to understand spoken English, leading to frustration and disengagement from learning activities. The lack of exposure to varied and effective listening practice further exacerbates these issues, as students miss crucial opportunities to acquire new vocabulary and improve pronunciation through consistent auditory exposure. One of the most pressing challenges identified is the absence of specialized learning media tailored to listening comprehension, which leaves students overly reliant on traditional teacher-led instruction. In other words, while such instruction is important, it is insufficient to meet the diverse learning needs of students, particularly those who benefit from multimodal resources like audio-visual materials.

Podcasts offer a viable alternative to traditional teaching methods (Panagiotidis, 2021), especially in the context of enhancing students' listening comprehension (Pratiwi et al., 2024). The necessity for innovative educational tools became evident during the COVID-19 pandemic, which accelerated the adoption of online learning modalities (Ayu & Pratiwi, 2021). Podcasts, in particular, gained traction as an effective medium due to their accessibility across a range of devices, including PCs, smartphones, and laptops (Ramirez, 2024). This versatility allows students to engage with language content in a more flexible and interactive manner, providing exposure to a variety of accents, vocabulary, and topics (Putri, 2024). Despite their growing popularity, podcasts remain underutilized in educational settings, especially in language learning (Basenko & Baskakova, 2021). However, their potential to enrich listening comprehension skills is significant, as they offer learners opportunities to practice and develop their listening abilities in ways that traditional classroom settings may not fully support (Khan & Khan, 2024). This underlines the importance of integrating podcasts into language curricula to better meet the evolving needs of students in a digital age.

English language learning, particularly listening comprehension, presents significant challenges for students at SMAN 3 Siak Hulu. The difficulty in mastering listening comprehension can be attributed to the ineffectiveness of the current learning media, which leads to a cascade of problems including poor comprehension of the subject matter, low motivation to learn, and stunted growth in vocabulary and pronunciation. The absence of diverse and engaging learning tools exacerbates these issues, making it difficult for students to develop the necessary listening skills required for proficiency in English (Rafiq, 2024). Recognizing these gaps, the researcher suggests that integrating podcasts—a versatile and increasingly popular digital medium—could effectively enhance the listening comprehension curriculum. Podcasts offer an accessible and engaging platform that could provide the necessary auditory input, helping students overcome the barriers of limited vocabulary and pronunciation while also boosting their motivation and overall engagement with the subject matter (Albar & Sari, 2021).

Focusing specifically on the application of podcasts as a learning medium for listening comprehension, this study is limited to students' use of podcasts accessed through various devices, including PCs, smartphones, and laptops. The scope of the study does not extend to other language skills or learning media but is concentrated solely on the impact of podcasts on listening comprehension. Therefore, the objective of this research is to investigate the effectiveness of podcasts as a tool to enhance listening comprehension among students at SMAN 3 Siak Hulu, specifically, to determine whether the integration of podcasts into the curriculum can lead to measurable improvements in students' listening skills.

By examining the impact of podcasts, the research seeks to provide insights into the potential of digital media to address the challenges associated with teaching and learning listening comprehension in an English as a Foreign Language (EFL) context. Hence, the research question posed was: "Did students who were instructed using podcast achieve higher scores in their English listening comprehension skill compared to students who did not receive podcast intervention at the first grade of SMA 3 Siak Hulu?" This investigation was conducted through a study entitled "The Effect of Podcast towards Improvement of Students' Listening Comprehension at SMAN 3 Siak Hulu".

METHOD

This study investigated the effectiveness of using podcasts to improve listening comprehension skills among senior high school students in Indonesia. The research employs a quantitative approach with a quasi-experimental design to establish a causal link between an intervention and its effect (Rogers & Revesz, 2020). This design involved administering a pre-test to both the experimental and control groups to measure their baseline listening comprehension abilities. Subsequently, the experimental group received treatment in the form of podcast-based learning activities, while the control group continued with conventional classroom instruction. Finally, a post-test was administered to both groups to assess any improvements in listening comprehension.

The population for this research consisted of all students enrolled in the second grade (XI) at SMAN 3 Siak Hulu, Indonesia (n = 176). A random sampling technique was employed to select two classes (XI5 and XI6) as the research sample (n = 52). Class XI5 (n = 26) was designated as the experimental group, while class XI6 (n = 26) served as the control group.

The primary instrument used to collect data is a listening comprehension test. This test was administered during the pre-test and post-test phases. The pre-test questions focused on general listening comprehension skills, while the post-test questions targeted the specific content covered in the podcast-based learning activities for the experimental group. The researcher developed essay-type questions based on pre-selected podcast episodes from the "Belajar Bahasa Inggris (Listening skills)" channel. The pre-test utilized questions from different podcasts compared to the ones used in the treatment and post-test phases.

Data analysis for this research focused on determining the significance of differences between pre-test and post-test scores using SPSS v26. Descriptive statistics were employed to characterize the data, including mean, standard deviation, and frequency distributions. The data was checked to see if it followed a normal pattern. Because it was not absolute to confirm if the data varied equally, a test for equal variance was not done. Subsequently, an independent samples t-test was utilized to compare mean scores between experimental and control groups, followed by hypothesis testing to determine the effectiveness of the Podcast intervention in enhancing students' listening comprehension. For an enhanced clarity regarding the study's structure, the following framework outlines the research design employed.
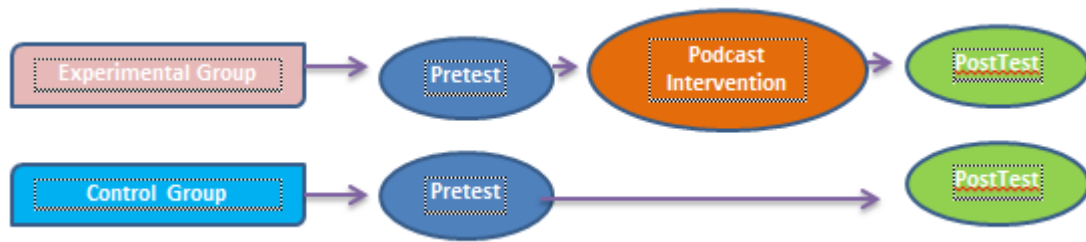
Figure 1: Research Design Framework

The figure shows the following stages: Pre-Test (Experimental & Control Groups), Treatment (Podcast-Based Learning - Experimental Group Only), Post-Test (Experimental & Control Groups)]. This research design framework illustrates the sequential steps involved in the study. Both the experimental and control groups completed a pre-test to establish their baseline listening comprehension levels. Following the pre-test, the experimental group received treatment using podcast-based learning activities, whereas the control group continued with their regular curriculum. Finally, a post-test was administered to both groups to assess any changes in listening comprehension abilities. By comparing the pre-test and post-test scores within each group and between the groups, the effectiveness of the podcast intervention was then determined.

FINDING AND DISCUSSION
Findings
This study aimed to assess the effectiveness of podcast in on students' listening comprehension skills by addressing the central research question: "Did podcast intervention significantly improve students' listening comprehension abilities?" The results indicate that the intervention of pod cast had a significant impact on enhancing students' listening comprehension skills. This section summarizes the findings derived from the data analysis in response to the research question. To answer the question, the results of the data analysis obtained from Table 1.

Table 1. The Score of Pre-Test's Descriptive Statistic

Class	N	Mean Score	Maximum Score	Minimum Score
Experiment	26	54,77	73	29
Control	26	63,38	77	50

Table 1 presents a comparative analysis of the pre-test scores between the experimental and control classes. In the experimental class, which consisted of 26 students, the mean score was 54.77, with a maximum score of 73 and a minimum score of 29. In contrast, the control class, also comprising 26 students, had a higher mean score of 63.38, with the maximum score reaching 77 and the minimum score recorded at 50. These results indicate that, the control class performed better overall in listening comprehension compared to the experimental class.
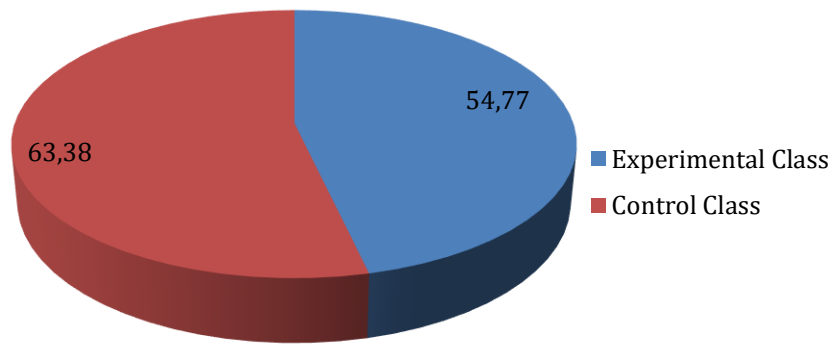
Figure 1. The Pre-test Score Result of Control and Experimental Class

In addition, the pie chart illustrates the comparative mean scores between the control class and the experimental class. The control class, represented in blue, has a mean score of 63.38, which is higher than the experimental class, represented in red, with a mean score of 54.77. This indicates that, on average, students in the control class performed better than those in the experimental class. After collecting comparative data between the experimental and control groups from the pre-test, additional analysis was performed to assess the homogeneity (which is not absolute) and normality of the pre-test data. For normally distributed and homogeneous data, parametric tests were utilized. However, if the data were found to be non-normal or inhomogeneous, non-parametric tests, specifically the U-Mann Whitney test, were applied. The subsequent step involved conducting the pre-test to evaluate the data's normality.

Table 2. Result of Normality Testing in Experimental Class and Control Class for Pre-Test

Class	Asym p.sig. (2-tailed)	a (significant level)	Distribution
Experimental	0.638	0.05	Normal
Control	0.246	0.05	Normal

Table 2 presents the results of the normality testing for the pre-test data in both the experimental and control classes. The Asymptotic Significance (2-tailed) values for the experimental and control classes are 0.638 and 0.246, respectively. Given that both values are greater than the significance level of 0.05, the data for both classes are considered normally distributed. Therefore, these results confirm that the pre-test data for both the experimental and control groups exhibit normal distribution, allowing for the appropriate application of parametric tests in subsequent analyses. Since the homogeneity test is not an absolute requirement, the analysis proceeded with a t-test.

Table 3. Pre-Test's T-test Result

Data	Asym p.sig. (2-tailed)	a (significant level)	Hypothesis	Distribution
Pre-Test (t-test)	0.003	0.05	Rejected Ho	Significant Difference

From the Table 3, a two-tailed independent samples t-test was conducted to assess pre-intervention differences between an experimental and control group. The analysis compared pre-test scores between the groups. A statistically significant difference ($p < 0.05$) was found, indicating that the groups were not equivalent at baseline. It can be noticed that both the experimental and control groups do exhibit a significant difference in their ability in their listening comprehension skill. After obtaining this data, the data gotten from the post-test were as follows.

Table 4. The Score of Post-Test's Descriptive Statistic

Class	N	Average Score	Maximum Score	Minimum Score
Experimental	26	66.15	90	48
Control	26	53.08	82	16

The results of the post-test, as summarized in Table 4, reveal a distinct difference in performance between the experimental group, which received the podcast intervention, and the control group, which did not receive any treatment. The experimental group, consisting of 26 participants, achieved an average score of 66.15, with the highest score being 90 and the lowest 48. In contrast, the control group, also comprising 26 participants, had a lower average score of 53.08, with a maximum score of 82 and a minimum score of 16. These results suggest that the podcast intervention may have contributed to the higher performance observed in the experimental group, as indicated by both the higher average and minimum scores compared to the control group.
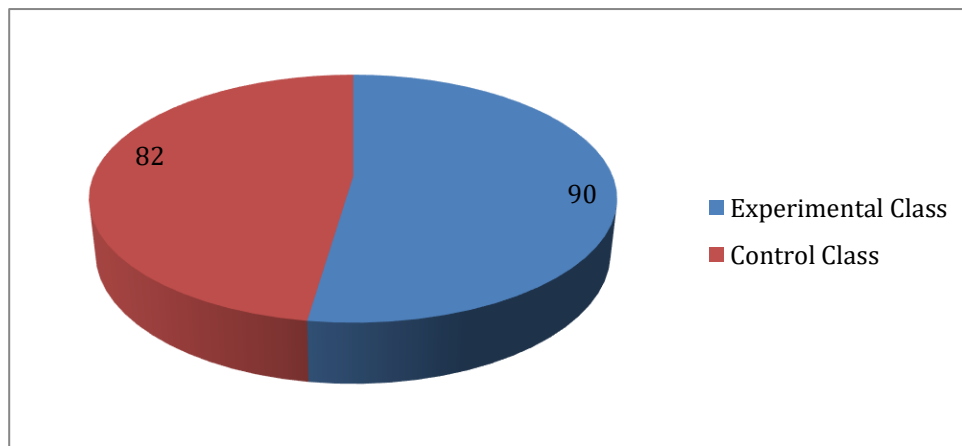

Figure 2. The Post-test Score Result of Control and Experimental Class

Furthermore, the pie chart illustrates the maximum scores achieved by the experimental and control classes in the post-test. The experimental class, which received the podcast intervention, attained the highest score of 90, as indicated by the blue segment of the chart. In contrast, the control class, which did not receive any treatment, reached a lower maximum score of 82, represented by the red segment. The clear disparity between the two groups suggests that the podcast intervention may have positively influenced the performance of the experimental class, enabling them to achieve a higher peak score compared to the control class.

Additionally, students' listening comprehension abilities were evaluated based on four criteria: content prediction, listening for gist through audio podcast, detailed

listening, and inference of meaning. A comparative analysis of listening comprehension scores between the experimental and control groups is presented in the following table.

Table 5. Listening Comprehension's Indicator on Post-Test

No	Indicator	Experimental Class	Control Class
		Frequency	Frequency
1	Content Prediction	54	27
2	Listening for gist through audio podcasts	65	49
3	Detailed Listening	75	65
4	Inference of Meaning	86	77

Table 5 presents the listening comprehension performance on the post-test. Students in the experimental class, who received podcast intervention, consistently scored higher than those in the control class, which did not receive any treatment. For Content Prediction, the experimental class achieved an average score of 54, while the control class scored 27. For Listening for gist through audio podcasts, the experimental class achieved an average score of 65, while the control class scored 49. For Detailed Listening, the experimental class achieved an average score of 75, while the control class scored 65. For Inference of Meaning, the experimental class achieved an average score of 86, while the control class scored 77. These findings suggest that the podcast intervention may have been effective in enhancing students' listening comprehension skills. In conclusion, the results imply that the podcast intervention was successful in enhancing the listening comprehension skills of the students in the experimental class. This finding aligns with the idea that exposure to podcasts can improve a listener's ability to anticipate content, grasp the overall meaning, understand specific details, and infer meaning from context.
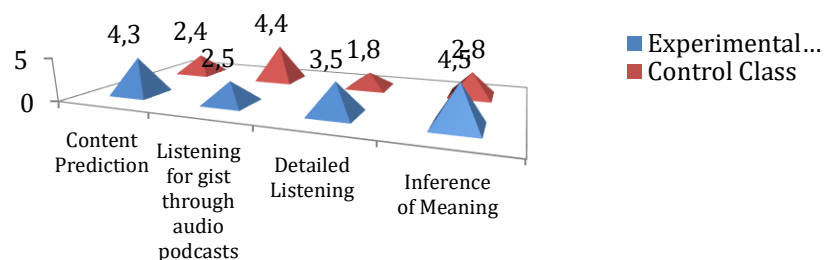

Figure 3. Listening Comprehension Ability Indicators on Post Test

The chart presents a visual comparison of the listening comprehension performance between an experimental class and a control class across four key indicators: Content Prediction, Listening for Gist through Audio Podcasts, Detailed Listening, and Inference of Meaning. The y-axis represents the frequency of scores within each indicator. The experimental class demonstrated a higher frequency of scores in the upper ranges for all indicators except for Detailed Listening, where both groups showed a similar frequency. Notably, the experimental class exhibited a particularly strong performance in Content Prediction and Inference of Meaning, with significantly higher frequencies compared to the control class.

In contrast, the control class displayed a higher concentration of scores in the lower ranges for all indicators, indicating a lower level of proficiency in these listening comprehension skills. In conclusion, the chart suggests that the experimental class, which likely received some form of intervention or instruction, outperformed the control class in most aspects of listening comprehension. This visual representation highlights the potential effectiveness of the intervention in enhancing students' listening abilities. Once the data was collected, tests were performed to determine if it followed a normal pattern and if the groups in the data had similar spreads. The results of the normality test can be found in Table 6.

Table 6. Result of Normality Testing in Experimental and Control Class for Post-Test

Class	Asymp.Sig.(2-tailed)	a (Significance level)	Distribution
Experiment	0.200	0.05	Normal
Control	0.200	0.05	Normal

Table 6 presents the outcomes of normality testing conducted on the post-test scores of both the experimental and control groups. The Shapiro-Wilk test, indicated by the asymptotic significance (2-tailed) value, was employed to assess normality. With a significance level (α) set at 0.05, neither the experimental nor the control group exhibited a significant departure from normality, as both groups yielded p-values greater than the alpha level. Consequently, it can be concluded that the post-test scores in both groups were normally distributed. After obtaining the results of the normality test for both classes, the researcher did not proceed to assess homogeneity since the test is not an absolute, therefore, the subsequent analysis was conducted which was hypothesis testing, as the following:

H_1: There is no significant effect of podcast intervention on students' listening comprehension.

H_0: There is significant effect of podcast intervention on students' listening comprehension.

A hypothesis was formulated to investigate the differential impact of pod cast intervention and conventional media use on undergraduate students' listening comprehension abilities. The efficacy of pod cast intervention in enhancing listening comprehension skills compared to the conventional approach was determined. The findings of this comparative analysis are presented in Table 7.

Table 7. Result of Students' Listening Comprehension Achievement through t-test for Experimental Class and Control Class

Data	t observed	t table	Conclusion
Post-Test	2.907	2.306	t observed > t table
			H1 is accepted

Table 7 presents the outcomes of a t-test conducted to compare the listening comprehension achievement of experimental and control groups post-intervention. The calculated t-value of 2.907 exceeded the critical t-value of 2.306 at the designated alpha level. Consequently, the null hypothesis was rejected in favor of the alternative hypothesis, indicating a statistically significant difference in listening comprehension between the two groups

Discussion

Several factors could contribute to the observed difference in listening comprehension between the experimental and control groups. One plausible explanation is that the micro-learning method employed in the experimental group effectively enhanced students' ability to process auditory information, resulting in improved comprehension which aligns with previous research suggesting that micro learning strategies can be beneficial for developing language skills (Fauziah et al., 2023; Ghafar & Technical, 2023). Micro-learning emphasizes delivering content in small, manageable chunks, which aligns well with how the brain processes and retains auditory stimuli. This approach allows students to focus on specific elements of listening tasks without feeling overwhelmed, enabling gradual improvement. Furthermore, the interactive nature of micro-learning activities may have played a significant role in engaging students and fostering active participation. Engagement in such tasks is critical for developing cognitive listening skills, as it encourages learners to actively decode and interpret information. Additionally, the use of authentic materials in the experimental group might have contributed to bridging the gap between theoretical knowledge and practical listening skills. Exposure to real-life language use enhances the ability to predict and infer meanings, which are essential skills for effective listening comprehension. The findings align with previous studies suggesting that micro-learning is particularly effective in enhancing learning outcomes in language acquisition contexts (Kukulska-Hulme & Traxler, 2015).

In contrast, the control group relied on traditional methods, which may not have been as effective in fostering listening comprehension. Traditional approaches often emphasize rote learning and passive reception of information, which might not cater to the needs of auditory processing. Consequently, learners in the control group may have struggled to retain and apply listening strategies during assessments. Another potential factor is the pacing of instruction. Traditional methods often present information in larger, less digestible chunks, which can overwhelm students and hinder retention. The experimental group's structured and incremental delivery of content might have facilitated better cognitive processing and retention of auditory input. Moreover, the integration of multimedia tools in micro-learning likely provided multimodal input, reinforcing comprehension through visual and auditory stimuli. This multimodal

approach supports dual coding theory, which posits that combining verbal and visual input enhances learning effectiveness (Clark & Paivio, 1991). Ultimately, the results of this study suggest that adopting innovative methods, such as micro-learning, can address limitations in traditional teaching approaches and significantly improve listening comprehension in language learners.

Moreover, the interactive and engaging nature of micro learning activities may have fostered deeper cognitive engagement with the learning material, resulting in enhanced memory and retention of listening content. This finding is consistent with studies emphasizing the importance of active learning for improving language proficiency (Ariyani, 2019). It is also possible that the experimental group's exposure to a variety of authentic listening materials through micro learning contributed to their improved performance. This aligns with research highlighting the role of authentic language input in developing listening comprehension skills (Hamouda, 2016). Nonetheless, regarding to the limited gathered data which was solely employed in one particular school, exploration for long-term impact of the use of pod cast on listening skill could be probably under taken across different students' population within differ educational level and contexts to gain more in-depth information of its effectiveness.

CONCLUSION

Based on the research question, "Did students who were instructed using podcast achieve higher scores in their English listening comprehension skill compared to students who did not receive podcast intervention at the first grade of SMA 3 Siak Hulu?".The present study demonstrated the use of podcast significantly proven to be effective in improving listening comprehension skills among senior high school of the first grade students of SMA 3 Siak Hulu, particularly in content prediction, listening for gist, detailed listening, and inference of meaning. This finding align with previous research by Yazmin & Clara (2024) who emphasized the potential of podcasts as a dynamic educational tool, particularly in the realm of language acquisition listening comprehension. The successful use of podcasts in this study highlights their potential as a valuable educational tool as well for enhancing listening comprehension. As such, educators should consider incorporating podcasts into their teaching strategies to offer students more dynamic and interactive learning experiences. By adopting and adapting podcast-based methods, educators can address the challenges identified in traditional listening comprehension instruction and better support students' language learning needs.

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