



The Effect of Using Spotify as a Digital Audio Storytelling on Listening Comprehension for Senior High School Students

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ABSTRACT

This study was conducted to investigate the effect of Spotify as a digital audio storytelling tool on high school students' listening comprehension and to identify which aspect of listening comprehension showed the most significant improvement following the implementation of Spotify. This study employed quantitative approach through an experimental method. The specific experimental design used was a pre-experimental design involving pre-test and post-test on a single group. Conducted in a high school with 34 tenth-grade students, this study had five sessions: a preliminary test, three sessions of intervention, and a final test. The researchers used tests to collect data, which was then analyzed using a Paired Sample t-Test, followed by an effect size calculation to determine the impact. The results showed significant improvement in students' listening comprehension scores ($p < .001$) as well as a moderate effect size ($d = 0.60$). Additionally, the results indicated that the details aspect improved by a mean gain of 5.29, while the main ideas aspect improved by 2.71 and the inferences aspect by 1.88. Therefore, Spotify had a beneficial effect on students' listening comprehension when used as a digital audio storytelling medium, with the detail's aspect showing the greatest improvement.

Keywords: spotify, digital audio storytelling, listening comprehension

INTRODUCTION

Listening comprehension is one of important skill which always used to interact in everyday life, as well as being the most basic part of the communication flow (Nor & Hair, 2023). Comprehension is the primary focus that is caught by the listener (Rost, 2011), which means that listening comprehension will greatly affect the response that will be spoken by someone. Since listening comprehension indispensable for interpreting or summarizing the knowledge heard (Ningrum, 2022), certainly this is very crucial in two-way communication that requires input and output. In giving output, a person needs to process the information obtained. The goal is to arrive at an understanding in the form of an interpretation or summary of the

input information provided. This process is the basic ability that must be owned and used wherever one is, especially in the academic sphere. It is very necessary for learners to have good listening comprehension, because they will later process, interpret, summarize or even retell the information or knowledge they hear.

Listening comprehension among high school students is very necessary. Based on the latest curriculum from the government, high school students' listening skills are more emphasized in the ability to understand and interpret information received for various situations and purposes. This aims to improve students' abilities comprehensively and to equip students when

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entering the lecture level or work environment. Listening learning process in reality, students and teachers cannot be separated from the challenges faced in the classroom. The challenges faced can vary and come from anywhere. From a student perspective, there are three top challenges faced by students when learning listening comprehension, which are the teaching methods and techniques used by teachers that are less interesting, problems with the media used in listening comprehension learning, and the lack of tools and resources for listening comprehension learning activities (Ummah et al., 2012). While the teacher also conveyed some challenges in teaching listening, including the lack of learning media in the classroom, managing students and the allocation of teaching time in the classroom, as well as the lack of complete teaching materials books and facilities provided by schools for teaching English listening (Imaduddin, 2019). These challenges indicate that listening comprehension learning needs attention in terms of materials, media, and learning methods. The variety and use of media that is fewer interesting causes listening learning to be less than optimal and unrelate with students' attitude in this era who are up to date with technology. For this reason, innovation is needed in listening learning to make it more interesting and fresher.

Teachers are required to be creative in providing material resources. Teachers must utilize the internet as a support in combining digital media with listening comprehension learning. In this modern era, teenagers mostly always interact with the internet so the selection of digital media will be very effective and fun for students (Maramis et al., 2022). Digital storytelling can be said to be effective in attracting children's attention by listening to certain topics and enhancing their concentration on what they hear because of the storyline (Demirbas & Sahin, 2022). In addition, for some people who struggle with conventional reading and text comprehension, digital audio storytelling offers an opportunity to improve

listening comprehension in an interesting and pleasant way (Nor & Hair, 2023). Stories that have a fun plot will make students try to follow the storyline so that they will really understand the contents of the story.

One of the digital audio storytelling applications that can be used is Spotify. Spotify has become a popular platform for using audio storytelling, which provides a new method for listeners to interact with stories through the voice channel, which can improve listening comprehension (Nor & Hair, 2023). Students will not be unfamiliar with the application. Not only music, the Spotify application also provides audio storytelling that can be accessed anywhere and anytime. It will also make listening material more varied because of the very large selection of stories.

Previous, Nuriana et al. (2024) conducted an investigation on the implementation of the Spotify application that was specific to the Easy Stories in English content on Spotify by experimenting with two groups (control group and treatment group) and then comparing the pre-test and post-test scores of the two groups. They found that Easy Stories in English from the Spotify app had a significant impact on students' listening comprehension. Izzah et al. (2023) also conducted a study that focused on using the Spotify application to improve listening comprehension by specializing in Listening Time Podcast content Spotify used pre-experimental, pre-test post-test. They found that Spotify positively impacted on enhancing college learners' listening comprehension. However, it is slightly different from the research by Sihombing and Simanjuntak (2023) found that there was no significant difference of control and treatment group of using digital audio podcasts Spotify to improve EFL students' listening proficiency. They mentioned that the treatment group data was normally distributed, while the control group was not. In addition, they had limitations in the small sample and lack of random assignment.

Therefore, the researchers conducted a study on the effect of using Spotify for digital audio



storytelling on high school students' listening comprehension, who require diverse listening materials that integrate the latest technology. This study was conducted to address gaps in previous research, as many earlier studies focused on video-based digital storytelling for listening skills. For example, studies by Yuanisa (2022) and Yunita (2022) did not specifically address the use of digital audio storytelling for listening comprehension. Furthermore, research utilizing Spotify as a digital audio platform has largely focused on the use of podcasts and songs, while the use of specific narrative stories as an audio medium to improve listening comprehension remains relatively rare. Based on this gap, this study attempts to answer two main questions: *"Is there any significant effect of using Spotify as digital audio storytelling on listening comprehension for senior high school students?"* and *"Which aspect of listening comprehension is most improved by the use of Spotify as digital audio storytelling among senior high school students?"* Thus, this study aims to investigate the effect of Spotify as digital audio storytelling on listening comprehension for senior high school students and to determine which aspect of listening comprehension is most improved by the use of Spotify as a digital audio storytelling medium among high school students.

METHOD

The researchers used a quantitative approach, employed experimental method and specifically used pre-experimental on one-group pre-test and post-test design. Cohen et al. (2017) explain that this design allows researchers to observe changes that occur after an intervention is implemented, which makes it suitable for investigating the impact of a particular teaching method or media. In this study, students took a pre-test to assess their initial listening comprehension skills, then participated in an intervention involving the use of Spotify for digital audio storytelling, and finally took a test to assess their skills after intervention. The difference between the two scores was used to determine the effect of intervention and to identify

improvements in the aspects of listening comprehension under study.

The population consist all tenth-grade students in a secondary high school located in Gresik with 351 students. These students are generally between 15 and 16 years old and have received basic English instruction as part of the national curriculum. In this study, the researchers used class X.7 as a pilot test class consisting of 31 students to test the validity and reliability of the research instruments before using them in the sample class.

The researchers then used class X.4 as the sample class in this study, involving 34 students who received listening treatment using Spotify as digital audio storytelling. The sample is selected using a purposive sampling technique, which allows the researchers to intentionally choose participants based on the study's objectives and practical considerations (Cohen et al., 2017). In this case, one class of tenth-grade students is selected as the research sample based on the recommendation of the English teacher, considering the schedule availability and students' readiness for the treatment using Spotify-based audio storytelling.

The instrument used to collect data was a test consisting of 25 multiple-choice questions, which measured students' listening comprehension of the main idea, details information, and inferences. The data collected through a pre-test, three meetings of intervention, and administering a post-test. All data obtained then was processed utilizing SPSS 26. The analysis process included descriptive statistics to provide a general overview of student learning outcomes, a test of normality to determine data distribution, a hypothesis test used Paired Sample t-Test to identify the significant of a treatment effect, an effect size calculation to determine the extent of the impact of using Spotify on students' listening comprehension skills and an analysis of listening comprehension aspects improvement to determine which aspect of listening comprehension showed the greatest improvement.

RESULT

1. Descriptive Statistics

The results included descriptive statistics to provide a general overview of student learning outcomes, a test of normality to determine data distribution, a hypothesis test to identify the presence of a treatment effect, an effect size calculation to determine the extent of the impact of using Spotify on students' listening comprehension and an analysis of listening comprehension aspects improvement to determine which aspect of listening comprehension showed the greatest improvement.

Table-1
Result of Descriptive Statistics

Statistics	Pretest	Post-test
Mean	34.35	44.00
Median	32	40
Std. Deviation	16.27	15.97
Minimum	12	16
Maximum	72	84
Range	60	68

Table 1 shows that the descriptive statistics indicate an improvement in students' listening comprehension skills following the intervention using Spotify as a digital audio storytelling tool. The mean score raised from 34.35 to 44.00, indicating an improvement in students' skills after participating in the instruction. An improvement was also observed in median, up from 32 to 40. Additionally, both the minimum and maximum scores increased. Although the score range shifted from 60 to 68, the relatively similar standardized deviations of 16.274 and 15.970 indicate that the variation in student ability remains quite diverse.

2. Normality Test

Normality test was conducted to determine whether the research data followed a normal

distribution before further statistical analysis was performed. This test is important because the results will determine the appropriate type of statistical test to use in the study. Since the sample size in this study was only 34 students ($N < 50$), the researchers used the Shapiro-Wilk test as the basis for interpreting the normality of the data.

Table-2
Result of Normality Test

	Shapiro-Wilk		
	Statistic	df	Sig.
Pre-Test	.940	34	.060
Post-Test	.947	34	.099
Difference Score (Diff)	.969	34	.431

Table 2 shows that all three significance values are above 0.05 ($p > 0.05$). Therefore, these results imply that the all three scores were normally distributed. Since the assumption has been met, the study can proceed using parametric statistical tests to test the research hypotheses.

3. Hypothesis Testing

Since the data were normally distributed, this study used a Paired Sample t-test to reveal if there was a change in students' scores after attending the intervention

Table-3
Result of Paired Sample t-Test

Mean	Std. Deviation	SEM	t	df	Sig. (2-tailed)
-9.647	8.478	1.454	-6.635	33	.000

Table 3 shows that a t-value of -6.635 was obtained with a significance level (Sig. 2-tailed) of 0.000. Since the significance level is less than 0.05 ($p < 0.05$), there is a significant difference between the students' pre-test and post-test scores. Additionally, the mean difference of -9.647 indicates that students' post-test scores are higher than their pre-test scores. Thus, it



can be concluded that the use of Spotify as a digital audio storytelling medium has a significant effect on students' listening comprehension. Therefore, the alternative hypothesis (H_i) is accepted and the null hypothesis (H_o) is rejected.

4. Effect Size

The effect size was calculated using mean score of pre-test and post-test, and pooled standard deviation. Based on these calculations, an effect size of 0.60 was obtained. According to the interpretation of Cohen's d, this value belongs to the moderate effect category.

5. Analysis of Listening Comprehension Aspects Improvement

The researchers compared the mean score of the both tests for each aspect of listening comprehension, which are main idea, details, and inferences, to answer the second research question regarding which aspect of listening comprehension showed the greatest improvement following the use of Spotify as digital audio storytelling. This analysis aims to provide a more detailed picture of which aspect of listening comprehension improved the most after the intervention was implemented.

Table-4
Improvement of Listening Comprehension Aspects

Aspect	Mean Pre	Mean Post	Mean Gain
Main Idea	1.88	4.59	2.71
Details	20.59	25.88	5.29
Inferences	11.76	13.65	1.88

Based on Table 4, all aspects of listening comprehension showed improvement after the implementation of Spotify as a digital audio storytelling tool. Among these three aspects, details showed the highest improvement with a mean gain of 5.29, indicating that this aspect improved the most following the intervention. Furthermore, the main idea aspect improved by 2.71, while the

inferences aspect improved by 1.88. These findings indicate that the use of Spotify as a digital audio storytelling contributes positively to all aspects of listening comprehension measured in this study. However, the greatest impact is observed in students' ability to identify detailed information from the audio they listened to. Meanwhile, the ability to understand the main idea and make inferences also improved, although not as significantly as the improvement in the detail's aspect. Therefore, it can be concluded that the aspect of listening comprehension that showed the greatest improvement after using Spotify as a digital audio storytelling tool is details.

DISCUSSION

There was an improvement in students' listening comprehension after applying Spotify in the learning process. This improvement was evident in the students' average scores, which went from 34.35 to 44.00. The Paired T-Test also showed value of 0.000, indicating a positive impact between the results of intervention. Based on these findings, the use of Spotify in listening instruction can help students better understand audio material. However, this improvement was not uniform across all students. On the post-test found that some students scored lower than in the first test, while others maintained the same score. Nevertheless, overall, the majority of students saw an increase in their scores. Supported by test results indicating a significant difference between the two tests, this suggests that the use of Spotify as a medium for digital audio stories generally has a positive impact on students' listening comprehension.

The effect size calculation using Cohen's d also showed 0.60, that belongs to moderate effect. This value indicates that the impact of using Spotify is not only statistically significant but also quite meaningful in educational practice. In other words, using Spotify as a digital medium for audio storytelling has a positive impact on improving students' listening comprehension.

These positive effects can be explained by the characteristics and features of Spotify. Spotify

provides easy access to a wide variety of audio content with diverse vocabulary, accents, and contexts that can enrich students' listening experiences (Iddiyaturrohman et al., 2022). Additionally, the playback control feature allows students to pause and replay audio as needed, giving them more opportunities to understand information they did not grasp during the first playback. Through audio storytelling, students not only listen to the audio to answer questions but also understand the plot, the relationships between events, and the main ideas of the audio they are listening to. These conditions allow students to gain a better understanding of the audio content, which contributes to improving their listening comprehension.

The findings align with Robin (2008), who explains that digital storytelling can increase student engagement in learning because it combines elements of technology, audio, and storytelling into a single engaging medium. Additionally, Rintaningrum (2023) explains that the use of digital media in English language class can create more interactive learning environment, making students more active and better able to understand the material being studied.

The results of this research are also aligned with Akdamar and Sütçü (2021), which explains that digital storytelling helps students understand spoken information more effectively because they gain a clear context of the story during listening activities. Digital stories make it easier for students to follow the flow of information, understand story details, and grasp the main ideas from the audio they listen to. This is relevant to the results of this study, in which the use of audio storytelling through Spotify helped most students focus better and more easily understand the content of the audio during the listening learning process, resulting in an increase in students' after intervention scores compared to their preliminary scores.

The findings from this study are also supported by Nuriana et al. (2024), which found that "Easy Stories in English" podcast on the Spotify app has a good effect on students' listening comprehension. That study showed that story-

based audio helps students understand listening content more easily because they can follow the story's context in a coherent and more engaging manner compared to standard listening audio. This relates to the results of this study, storytelling audio through Spotify helped most students stay more focused and understand the audio content more easily during the listening learning process.

Besides an overall improvement in listening comprehension skills, an analysis of each aspect of listening comprehension also yielded interesting results. The analysis of mean gains showed that the "details" aspect saw the greatest improvement compared to the other aspects. The "details" aspect improved by 5.29 points, which was higher than the "main ideas" aspect (2.71 points) and the "inference" aspect (1.88 points). This finding suggests that using Spotify for digital audio storytelling significantly helps students identify detailed information within the audio, such as characters, setting, sequence of events, and other factual details. This is likely because the stories presented through audio have a coherent plot and clear context, making it easier for students to follow the narrative and grasp the important details conveyed.

Theoretically, using Spotify for digital audio storytelling can help students comprehend the information they hear better. Spotify allows students to gain repeated exposure to English audio through its replay feature, while presenting the material in the form of a story provides contextual support that helps students understand the information gradually (Ummah et al., 2021). When students listen to stories, they can predict information, understand the relationships between events, and grasp the overall meaning of the material they hear (Nor & Hair, 2023). These conditions are likely one of the factors causing most students to experience an increase in their post-test scores. Additionally, repeated audio exposure helps students more familiar with vocabulary, pronunciation, and intonation, allowing their listening comprehension skills to develop gradually.



The study has several limitations that should be considered when interpreting the results. First, the study was conducted on only one group; therefore, the results may not necessarily be generalizable to a broader population, and the improvement in student learning outcomes cannot be fully attributed solely to the use of Spotify as a digital audio storytelling. There is a possibility that other factors also influenced the research results, such as students' learning motivation, prior learning experiences, or the intensity of listening practice during the learning process. Second, the relatively short duration of the study, only five sessions means that the long-term effects of using audio storytelling media cannot yet be fully understood. Third, the research instruments were only multiple-choice, which allowed students to guess the answers. However, to address this, the researchers provided 25 questions to minimize the possibility of students guessing.

CONCLUSION

Based on the results, the use of Spotify as a digital audio storytelling was found to have an impact on students' listening comprehension. This change was evident in the increase in students' average scores following the intervention, from 34.35 to 44.00. The results of paired sample t-test showed 0.000, well below the 0.05 threshold, proving that the difference in scores before and after the intervention was not occurring by chance. Furthermore, an effect size of 0.60 indicates that the resulting effect was moderate. Thus, the use of Spotify in listening instruction made a significant contribution to improving students' listening comprehension.

In addition to improving overall listening comprehension skills, the use of Spotify as a digital audio storytelling also had different effects on each aspect of listening comprehension. The research results showed that the details aspect experienced the highest improvement compared to the main ideas and inferences aspects. Story-based audio helps students follow the flow of information, understand the context of the story, and identify

detailed information more easily. Overall, the use of Spotify creates a more engaging, contextual, and interactive listening learning experience. Therefore, Spotify can be used as an alternative medium for English language learning, particularly in listening comprehension activities.

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