

# The Effectiveness of Dictogloss Technique with Text-To-Speech AI on The Listening Comprehension of the Eighth Grade Students at SMP PGRI 5 Denpasar

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## ABSTRACT

*This study aimed to find out whether students taught using the Dictogloss Technique with Text-to-Speech (TTS) AI achieved better listening comprehension than those taught using the Jumbled Sentence Technique without TTS AI. This study used a quasi-experimental design with a non-equivalent pretest-posttest control group design. The population consists of all eighth-grade students at SMP PGRI 5 Denpasar. The sample consisted of 62 eighth-grade students at SMP PGRI 5 Denpasar, namely class 8G as the experimental group with 33 students and class 8B as the control group with 29 students. The instrument used was a multiple-choice listening test. The data were collected through pre-test and post-test and analyzed using SPSS through normality test, homogeneity test, and hypothesis testing using Mann-Whitney U Test. The result showed that there was a significant difference between the two groups. The significance value was 0.019 (< 0.05). The mean score of the experimental group (93.57) was higher than the control group (86.20). This means that students in the experimental group got better results than the control group after the treatment. From this result, it can be seen that the use of Dictogloss Technique with Text-to-Speech AI gave better results compared to Jumbled Sentence Technique in learning listening. The findings of this study imply that the integration of Dictogloss Technique and Text-to-Speech AI can be considered as an effective alternative technique to improve students' listening comprehension and support more interactive listening activities in English classrooms.*

**Keywords:** Dictogloss Technique, Text-to-Speech AI, Listening Comprehension

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## INTRODUCTION

In education, English Language Teaching (ELT) is generally seen as a high priority. In the field of ELT, there are several types of ELT based on the teaching context, including TEFL, TESOL and TESL. In Indonesia, TEFL is considered as an essential part of education. TEFL refers to the teaching of English in countries where it is not the primary language of communication, typically for academic, professional, or travel purposes (Harmer, 2015). Although the three have different contexts, their main goal remains the same, which is to help learners master English effectively. Among the four main skills, listening actually plays an important role in the language acquisition process. Schools in Indonesia emphasize TEFL programs to improve students' English language skills, including listening, writing, reading and speaking.

Listening is an important aspect as well as four language skills like listening, writing and reading that must be mastered to communicate effectively in English. As well as conveyed by Hameed & Ali (2022), listening is important due to it influences speaking fluency, reading accuracy, and writing creativity. Listening enables students to observe English pronunciation patterns, thus assisting the students in word recognition while reading. Listening has a function as a basis for developing other language skills. Students can acquire vocabulary, grammar and pronunciation that are essential for effective communication through listening (Asmae & Sakale Sana, 2024).

Through listening, students naturally comprehend important elements of communication, such as words, sentence structure and speech patterns. Listening skills provide an understanding of language rhythms, pitch variations, and pronunciation that is difficult to acquire through textual learning. Gultom et al. (2023) said that good listening skills help to understand spoken language, including pronunciation, vocabulary and syntax. The researcher also stated that listening makes it easier to understand tone, pitch, and accent, which are crucial to understanding the intended message. Lyubov (2023) found that listening takes up about 45% of the total time to communicate, more than speaking (30%) and reading/writing (16% and 9%). Without effective listening, communication will not be achieved.

This study focused on listening comprehension because listening is the foundation of learning language. Renukadevi (2014) stated that listening is considered the most important language skill and is connected to speaking, reading, and writing. Human understand spoken language before producing it. This is because children hear language for months before speaking their first words (Asmae & Sakale Sana, 2024). Therefore, Sharofovna (2024) said that listening is the foundation for understanding vocabulary, pronunciation, and meaning. Another reason researcher chose listening was supported by the actual conditions found at SMP PGRI 5 Denpasar. Based on the interview with the english teacher, students face several difficulties during listening activities. The teacher said that students have limited vocabulary. It is difficult for students to distinguish words that sound the same. Also, students often have to listen to the audio several times to understand the content and identify the main ideas. These problems are related to the aspects of listening comprehension measured in this study such as discriminating sounds, understanding meaning, retaining information, and identifying important information.

When practicing students' listening comprehension, teachers use some techniques during the learning process. According to Süleyman (2024), listening techniques in ELT classrooms can be divided into three main parts: bottom-up, top-down, and interactive. The Bottom-Up technique, developed by psychologist Eleanor J. Gibson, is a listening comprehension approach that processes sensory information as it is received. This technique focuses on processing information that enters the brain. Understanding starts with

the smallest sounds, like phonemes, which join together to make words, phrases, clauses, and sentences (Suparlan, 2022). Another technique used to train listening comprehension is Shadowing Technique. According to Sabirovich (2024), the shadowing technique, also known as shadow repeat or echo repeat, is a language learning technique where learners repeat spoken language right away, copying native speakers.

Other than the techniques already mentioned, one of the techniques that teachers can implement with students in practicing students' listening comprehension is the Dictogloss technique. The Dictogloss technique was introduced by Ruth Wanjryb in 1990 to teach grammar. According to Hinkel (2022) Dictogloss is a one of language teaching activity where the teacher reads a short text or plays a recording more than twice. While learners listen carefully, write words and phrases that have been recognized and heard, and then reconstruct the entire texts after listening.

The Dictogloss technique can be used by teachers to teach listening in the classroom and is certainly a simple one to do. Parc & Li (2023) stated that the Dictogloss technique consists of four stages. The first stage is preparation, second stage is dictation, third stage is reconstruction and fourth stage is the analysis and correction stage. A dictogloss can take as short as 5-10 minutes in the classroom and can be used as often as needed (Hinkel, 2022). When students work together, they are able to share ideas, point out errors, and deepen their understanding of language structures.

Several studies have shown the effectiveness of Dictogloss technique, especially in listening comprehension. According to Kurniawan & Meutia (2025), Dictogloss was effective as a technique in improving the students' understanding of short stories of Junior High School 20 Pekanbaru. Similarly, Suryadi et al. (2023) conducted a study at SMPN 1 Tinondo comparing the dictogloss technique against the conventional teaching technique. The most effective identified technique was Dictogloss. In line with these studies, Niswa et al. (2022) also reported that Dictogloss technique improved students' listening comprehension at MAN Pegasing.

Along with the development of technology in the field of education, particularly in audio technology, specifically text-to-speech (TTS), it has begun to enter the world of language learning. Text-to-speech (TTS) is a system that convert written text into spoken words. Liakin et al. (2017) said that text-to-speech (TTS) can actually be used as a teaching tool because it can provide a good basic understanding of speaking and help students understand spoken language more accurately. Krasnova & Bulgakova (2014) explained that speech technology, including text-to-speech (TTS), can be used in various ways in language learning, including training students' listening skills through audio-based activities. As a result, the use of AI-supported text-to-speech (TTS) is seen as having considerable potential to support listening instruction in English classes. However, despite all this potential, not much research has been done on using AI-generated text-to-speech (TTS) specifically to teach the Dictogloss technique, so this is an area of study that has yet to be explored.

Previous research has focused on examining the impacts of Dictogloss technique on language learning. The significant gaps are addressed by this study. In contrast to Kurniawan & Meutia (2025) which used the conventional researcher-read texts in Dictogloss, this study employs AI-generated text-to-speech (TTS) technology in the application of the Dictogloss technique. This ensures a more consistent pronunciation, reduces human bias, and gives more input to students to develop listening comprehension. Furthermore, Said et al. (2023) adopted Classroom Action Research (CAR) as a methodological design. This study fills in that gap through the use of a quasi-experimental design. The novelty of this research is

its integration of AI text-to-speech (TTS) technology and its methodological approach.

The identified research gaps require a study entitled “The Effectiveness of the Dictogloss Technique with Text-to-Speech AI on Eighth-Grade Students' Listening Comprehension at SMP PGRI 5 Denpasar” The results of this study are expected to enrich the literature on English language teaching, especially concerning how students' listening comprehension can be improved through the application of the Dictogloss technique.

The research question that can be formulated by the researcher is, “Do students taught using the Dictogloss technique with text-to-speech AI achieve better listening comprehension than those taught using the Jumbled Sentence technique without text-to-speech AI integration in eighth-grade students at SMP PGRI 5 Denpasar?”. The objective of this study is to determine whether students taught using the Dictogloss technique with Text-to-Speech AI achieve better listening comprehension than those taught using the Jumbled Sentence technique without Text-to-Speech AI integration in eighth-grade students at SMP PGRI 5 Denpasar.

## **METHODS OF RESEARCH**

This research belongs to an experimental design. The researcher uses quasi-experimental research. According to Nichols & Edlund (2023), Quasi-experimental similar to randomized experiments in that they compare the results of one group receiving a treatment with the results of another group receiving a different treatment-or sometimes no treatment at all, such as a control group. The research took place at SMP PGRI 5 Denpasar, located in Denpasar, Bali, Indonesia. The research was conducted in the second semester of the 2025/2026 academic year, from March to April 2026. This study focused on all eighth-grade students at SMP PGRI 5 Denpasar in the 2025/2026 academic year. The study involved 62 eighth grade students from SMP PGRI 5 Denpasar, who are divided into two groups. The experimental group which is Class 8G consist of 33 students learning with the dictogloss technique, while the control group, which is Class 8B with 29 students, stucked to the conventional technique namely jumbled sentence technique. This research used convenience sampling to select participants from the target population. Convenience sampling means selecting people who are easily accessible and available when the researcher is collecting data (Pal et al., 2025). To get the data, the researcher used a listening comprehension test as the main instrument. The type of test used in this research is listening comprehension test in the form of multiple-choice questions. The test is divided into two types: pre-test and post-test. The data analysis in this study was done quantitatively to answer the research question and test the hypothesis. The primary data scores were analyzed using SPSS (Statistical Package for the Social Sciences).

## RESULT AND DISCUSSION

### Comparison of Pre-Test Scores Between Experimental and Control Group

**Table 1. Descriptive Statistics of Pre-Test Scores in Both Groups**

Group		N	Minimum	Maximum	Mean	Std. Deviation
Experimental	Pre Test	33	28.00	100.00	82.0606	15.62438
	Valid N (listwise)	33				
Control	Pre Test	29	28.00	100.00	82.6207	19.89331
	Valid N (listwise)	29				

The mean score of the experimental group was 82.06, while the control group was 82.62. From this result, it can be said that the experimental group and the control group had similar initial ability in listening comprehension before the treatment was given.

**Table 2. Mann-Whitney U Ranks for the Pre-Test**

Ranks				
	Group	N	Mean Rank	Sum of Ranks
Pretest	1.00	33	29.50	973.50
	2.00	29	33.78	979.50
	Total	62		

**Table 3. Results of the Mann-Whitney U Test for the Pre-Test**

	Pretest
Mann-Whitney U	412.500
Wilcoxon W	973.500
Z	-.937
Asymp. Sig. (2-tailed)	.349

The result of Mann-Whitney U Test showed that the significance value was 0.349, which was higher than 0.05. It means that there was no significant difference between the pre-test scores of the experimental group and the control group. Therefore, both groups were considered to have relatively equal ability before the treatment was conducted.

## Comparison of Post-Test Scores Between Experimental and Control Group

**Table 4. Descriptive Statistics of Post-Test Scores in Both Groups**

Group		N	Minimum	Maximum	Mean	Std. Deviation
Experimental	Post_Test	33	80.00	100.00	93.5758	5.91096
	Valid N (listwise)	33				
Control	Post_Test	29	44.00	100.00	86.2069	13.42008
	Valid N (listwise)	29				

Based on the result of descriptive statistics, the mean score of the experimental group was 93.58, while the mean score of the control group was 86.21. The highest score in both groups was 100. However, the minimum score in the experimental group was 80, which was higher than the control group with 44. This indicated that the scores in the experimental group were more consistent compared to the control group.

## Normality Test

**Table 5. Results of Normality Test**

	Group	Shapiro-Wilk		
		Statistic	df	Sig.
Pre_Test	Experimental	.850	33	.000
	Control	.811	29	.000
Post_Test	Experimental	.882	33	.002
	Control	.821	29	.000

Based on the Shapiro-Wilk test, the pre-test score of the experimental group showed a significance value of 0.000 with a Shapiro-Wilk statistic of 0.850. Meanwhile, the control group obtained a significance value of 0.000 with a Shapiro-Wilk statistic of 0.811. For the post-test data, the experimental group showed a significance value of 0.002 with a Shapiro-Wilk statistic of 0.882, while the control group obtained a significance value of 0.000 with a Shapiro-Wilk statistic of 0.821. Since all significance values were lower than 0.05, the data in both groups were considered not normally distributed.

## Homogeneity Test

**Table 6. Results of Homogeneity Test**

		Levene Statistic	df1	df2	Sig.
<u>Pre_Test</u>	Based on Mean	2.306	1	60	.134
	Based on Median	1.058	1	60	.308
	Based on Median and with adjusted df	1.058	1	53.065	.308
	Based on trimmed mean	2.030	1	60	.159
Post_Test	Based on Mean	12.360	1	60	.001
	Based on Median	6.016	1	60	.017
	Based on Median and with adjusted df	6.016	1	38.160	.019
	Based on trimmed mean	9.361	1	60	.003

Based on Levene's Test Based on Mean, the pre-test data showed a Levene statistic value of 2.306 with a significance value of 0.134. Since the significance value was higher than 0.05, the variance of the pre-test scores between the experimental and control groups was homogeneous. Meanwhile, based on Levene's Test Based on Mean, the post-test data showed a Levene statistic value of 12.360 with a significance value of 0.001. Since the significance value was lower than 0.05, the variance of the post-test scores between the experimental and control groups was not homogeneous.

Based on the results of the normality and homogeneity tests, the assumptions for parametric statistical analysis were not fulfilled. The normality test showed that all data were not normally distributed, and the homogeneity test showed that the post-test variance between the experimental and control groups was not homogeneous. For that reason, this study used a non-parametric statistical test, namely Mann-Whitney U Test.

## Hypothesis Testing

**Table 7. Ranks of Mann-Whitney U Test of Post-Test**

Group		N	Mean Rank	Sum of Ranks
Post_Test	Experimental	33	36.44	1202.50
	Control	29	25.88	750.50
Total		62		

Based on the result of Mann-Whitney U Test, the experimental group obtained a mean rank of 36.44 with the sum of ranks 1202.50, while the control group obtained a mean rank of 25.88 with the sum of ranks 750.50. The higher mean rank in the experimental group indicates that students in the experimental group achieved better post-test scores than those in the control group.

**Table 8. Result of Mann-Whitney U Test of Post-Test**

	Post Test
Mann-Whitney U	315.500
Wilcoxon W	750.500
Z	-2.348
Asymp. Sig. (2-tailed)	.019

The result of Mann-Whitney U Test showed a Mann-Whitney U value of 315.500, a Z value of -2.336, and an Asymp. Sig. (2-tailed) value of 0.019. The significance value of 0.019 was lower than the significance level of 0.05 ( $0.019 < 0.05$ ). Therefore, the null hypothesis ( $H_0$ ) was rejected and the alternative hypothesis ( $H_1$ ) was accepted. This result indicates that there was a significant difference in listening comprehension between students taught using Dictogloss Technique with Text-to-Speech AI and those taught using Jumbled Sentence Technique. Since the experimental group obtained a higher mean rank (36.44) than the control group (25.88), it means that students taught using Dictogloss Technique with Text-to-Speech AI achieved better listening comprehension.

The findings of this study show that the use of Dictogloss Technique with Text-to-Speech AI gave a positive effect on students' listening comprehension. This finding also answers the objective of this study, which was to determine whether students taught using Dictogloss Technique with Text-to-Speech AI achieved better listening comprehension than those taught using Jumbled Sentence Technique without Text-to-Speech AI integration in eighth-grade students at SMP PGRI 5 Denpasar. This can be seen from the better achievement of the experimental group compared to the control group, supported by the result of hypothesis testing.

The findings of this study are in line with several previous studies which found that Dictogloss Technique was effective in teaching listening comprehension. For example, Said et al. (2023) found that students' performance became better after using Dictogloss. This happen because students were involved in group discussion and reconstruction activities. In this study, students also did similar activities, so it helped them understand the listening text better. Gea et al. (2022) also found that Dictogloss gave a positive effect on students' listening comprehension. This happened because students became more focused while listening and paid more attention to important information from the audio. Niswa et al. (2022) also found Dictogloss help students understand listening materials through discussion and reconstruction. This happened because students compared their notes and discussed the information together before reconstructing the text.

In addition, the findings of this study showed that the strongest effect was found in the discriminating sounds aspect. This happened because during the warm-up and dictation stages, students were trained to listen carefully to English pronunciation, sound differences, stress, and intonation. Students listened to the Text-to-Speech AI audio several times, so they became more familiar with how English words sounded. Nation & Newton (2009) stated that repeated listening activities can help learners recognize sounds and spoken language patterns more effectively. The clear pronunciation from the Text-to-Speech AI also helped students distinguish similar sounds more accurately. As a result, students became better at recognizing

English sounds and understanding spoken English more clearly.

The first step of dictogloss is the warm-up stage. This stage influences one of the aspects of listening comprehension, which is discriminating sounds. Gilbert (2012) explained that pronunciation practice helped students recognize differences in sounds, stress, rhythm, and spoken words, so it could influence one of the aspect of students' listening comprehension, which is ability in discriminating sounds. this was also supported by Kissling (2018) who explained that pronunciation instruction can improve learners' ability to identify and discriminate difficult L2 sounds during listening activities. Similar like Gilakjani & Ahmadi (2011), who explained that pronunciation practice and vocabulary introduction before listening activities helped students recognize English sounds and spoken words more easily. The researchers also stated that students who were familiar with pronunciation patterns could distinguish spoken sounds better during listening activities.

The second stage is dictation stage. Dictation involves repeated listening activities. During the dictation stage, students listened the audio three times. This activity influence students' ability to retaining information because students needed to remember the important information they heard before writing it down. This was in line with the study conducted by Said et al. (2023) who said that the use of Dictogloss technique could improve students' listening ability because the students were involved in repeated listening. Brown (2007) explained that repeated listening helped students understand spoken input step by step. This was also supported by Niswa et al. (2022), who stated that the students became more active in remembering important information after listening to the audio and discussing the result together with their friends.

The third stage is reconstruction stage. This activity helped students in identifying important information because they needed to choose which information was important and which one was not before rewriting the text together with their group. This was supported by Goh (2000) who explained that discussion after listening helps learners verify understanding, clarify confusion, and focus on key information from spoken texts. Similarly, Alzubi et al. (2024) explained that discussion with group members helped students identify the information better because the students could share ideas and learn together during the learning process. Said et al. (2023) also explained that through discussion activity, students could share ideas, fix incorrect information, and help each other understand the listening text before making the complete text.

The fourth stage is analysis and correction stage. This activity influence students' ability in understanding meaning because students could identify the differences between their reconstruction text and the original text. Kurniawan & Meutia (2025) explained that during the analysis and correction stage, students compare their reconstructed texts, discuss language choices, and identify errors together. This was also supported by Endriati et al. (2024), who found that students' listening comprehension improved after students discussed and evaluated their reconstruction results during Dictogloss activities.

Another factor that supports the result is the use of Text-to-Speech AI as learning media. The use of this technology gave students more consistent audio input, so they could hear the pronunciation more clearly. As a result, the listening text became easier to understand because students did not need to guess the sounds they heard. Amin (2024) found that the students gave positive responses toward the use of AI Text-to-Speech application in learning pronunciation. The researcher explained that AI Text-to-Speech applications provided pronunciation models that could be listened to repeatedly by students during the learning process. Yuliani & Sopian (2025) also explained that AI-based Text-to-Speech technology could

help students in listening learning because the technology produced clear and easy-to-understand speech. The researchers also explained that the audio produced by AI-based Text-to-Speech could be replayed repeatedly during the learning process.

Based on these findings, it can be interpreted that Dictogloss Technique with Text-to-Speech AI was more effective than the teacher's conventional technique, namely Jumbled Sentence Technique, in teaching listening comprehension. Although those previous studies and this study showed similar positive results, this study has a different point in the use of Text-to-Speech AI as supporting media in implementing Dictogloss. In this study, Text-to-Speech AI was used to support listening activities, which became one of the differences from previous studies that mostly used teacher's voice or conventional audio. Based on those previous studies, it can be seen that the result of this study supports previous findings that students taught using Dictogloss Technique achieved better listening comprehension than those taught using conventional technique.

Even though the findings showed positive results, this study still had some limitations. The treatment was only conducted in two meetings, which not be enough to show the long-term effect of the technique. In addition, the number of participants was limited and only involved students from one school. Because of that, the findings of this study may not represent students in different contexts. Another limitation is that the students only experienced the technique in a short time, so students may not fully adapt to the Dictogloss activities. Therefore, the result might be different if the treatment was conducted for a longer period.

## CONCLUSION

Based on the findings and discussion of the study, it can be concluded that students taught by using Dictogloss Technique with Text-to-Speech AI got better listening comprehension achievement than students taught by using Jumbled Sentence Technique without Text-to-Speech AI. The result of hypothesis testing showed that there was a significant difference between the experimental group and the control group ( $\text{Sig.} = 0.019 < 0.05$ ). In addition, the mean score of the experimental group (93.58) was higher than the control group (87.44). Therefore, the alternative hypothesis was accepted. It means that Dictogloss Technique with Text-to-Speech AI was more effective than Jumbled Sentence Technique in teaching listening comprehension to eighth-grade students at SMP PGRI 5 Denpasar.

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