

Improving Vocational High School Students' Listening Skills Through Wordwall Based Digital Game Based Learning

Meningkatkan Keterampilan Menyimak Siswa Sekolah Kejuruan Melalui Pembelajaran Berbasis Permainan Digital Dengan Platform Wordwall

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ABSTRACT

This study aimed to investigate the effect of Wordwall-Based Digital Game-Based Learning on students' listening skills and determine the extent of improvement after the treatment. The study employed a quantitative approach using a quasi-experimental one-group pre-test and post-test design. The participants consisted of 29 tenth-grade students at a vocational high school in Surabaya. Data were collected through listening tests administered before and after the implementation of Wordwall-based learning activities. The instrument was validated by experts and demonstrated high reliability with a Cronbach's Alpha coefficient of 0.873. The findings revealed that students' listening achievement improved significantly after the treatment. The average pre-test score was 57.41, while the post-test average increased to 77.07. The Wilcoxon Signed Rank Test showed a significance value of 0.001 ($p < 0.05$), indicating a statistically significant difference between pre-test and post-test scores. Furthermore, the N-Gain score of 0.4816 was categorized as moderate improvement. These results indicate that Wordwall-Based Digital Game-Based Learning effectively improves students' listening skills and enhances engagement during listening instruction.

Keywords: Wordwall, Digital Game-Based Learning, Listening Skills, EFL Students.

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh Wordwall-Based Digital Game-Based Learning terhadap keterampilan listening siswa serta mengetahui tingkat peningkatannya setelah diberikan perlakuan. Penelitian ini menggunakan pendekatan kuantitatif dengan desain quasi-experimental one-group pre-test and post-test. Subjek penelitian terdiri atas 29 siswa kelas X salah satu SMK di Surabaya. Data dikumpulkan melalui tes listening yang diberikan sebelum dan sesudah perlakuan. Instrumen penelitian telah divalidasi oleh ahli dan memiliki reliabilitas tinggi dengan nilai Cronbach's Alpha sebesar 0,873. Hasil penelitian menunjukkan bahwa kemampuan listening siswa meningkat secara signifikan setelah penerapan Wordwall-Based Digital Game-Based Learning. Nilai rata-rata pre-test sebesar 57,41 meningkat menjadi 77,07 pada post-test. Hasil uji Wilcoxon Signed Rank Test menunjukkan nilai signifikansi sebesar 0,001 ($p < 0,05$), yang berarti terdapat perbedaan signifikan antara nilai pre-test dan post-test. Selain itu, hasil analisis N-Gain sebesar 0,4816 termasuk dalam kategori sedang. Temuan ini menunjukkan bahwa Wordwall-Based Digital Game-Based Learning efektif dalam meningkatkan keterampilan listening siswa serta meningkatkan keterlibatan siswa selama proses pembelajaran.

Kata Kunci: Wordwall, Digital Game-Based Learning, Listening Skills, Siswa EFL.

1. Introduction

Listening is one of the four fundamental language skills that plays a crucial role in English language learning. As a receptive skill, listening serves as the primary source of language input

that enables learners to acquire vocabulary, pronunciation, grammar, and communicative competence. Through listening activities, students are exposed to authentic language use, allowing them to understand spoken messages and develop their overall language proficiency. According to Nation and Newton (2022), listening is essential because it provides learners with opportunities to process language input before producing language through speaking and writing. Therefore, listening competence is considered a foundation for successful language acquisition, particularly in English as a Foreign Language (EFL) contexts.

In Indonesian schools, listening is one of the English skills that students are expected to master. The national curriculum emphasizes the development of communicative competence, which requires students to understand spoken English in various contexts. However, despite its importance, listening remains one of the most challenging skills for EFL learners. Many students experience difficulties in identifying key information, understanding vocabulary in context, recognizing pronunciation, and interpreting the meaning of spoken texts. These difficulties often result in low listening achievement and reduced confidence during English learning activities. Several factors contribute to students' difficulties in listening comprehension. First, students frequently encounter unfamiliar vocabulary and expressions that hinder their understanding of spoken texts. Second, different accents, speech rates, and pronunciation patterns often make listening materials difficult to comprehend. Third, traditional listening instruction generally relies on audio recordings and worksheet-based exercises that provide limited interaction and engagement. As a result, students tend to become passive learners who only listen to audio materials without actively participating in the learning process. Consequently, listening lessons are often perceived as difficult, monotonous, and less enjoyable compared to other language skills.

The rapid development of educational technology has transformed teaching and learning practices in recent years. The integration of digital technologies into language learning has provided opportunities for teachers to create more interactive and engaging learning environments. Technology-assisted language learning enables students to access multimedia resources, receive immediate feedback, and participate actively in learning activities. Consequently, many educators have begun to explore innovative digital tools that can improve student engagement and learning outcomes.

One approach that has gained considerable attention in language education is Digital Game-Based Learning (DGBL). Digital Game-Based Learning refers to the integration of digital games into educational settings to support learning objectives. According to Prensky (2021), digital game-based learning combines educational content with game elements such as challenges, rewards, competition, and feedback, creating meaningful and enjoyable learning experiences. The implementation of game-based learning can increase students' motivation, engagement, and participation while reducing anxiety during the learning process. Furthermore, game-based learning encourages students to practice language skills repeatedly in an interactive environment, which contributes positively to language development.

The effectiveness of Digital Game-Based Learning has been supported by numerous studies. Previous research has shown that digital games can improve students' academic achievement, learning motivation, and classroom participation. In English language learning, game-based learning has been found to facilitate vocabulary acquisition, speaking performance, reading comprehension, and listening achievement. Through interactive activities and immediate feedback, students become more actively involved in learning tasks and demonstrate greater enthusiasm toward language learning.

One digital platform that supports game-based learning is Wordwall. Wordwall is an educational platform that enables teachers to create interactive learning activities through various game templates such as quizzes, matching exercises, random wheels, crossword puzzles, true-or-false games, and other engaging activities. Unlike traditional classroom exercises, Wordwall allows students to interact directly with learning materials through digital devices, making learning more enjoyable and student-centered. In addition, Wordwall provides instant

feedback that helps students identify their mistakes and improve their understanding immediately.

The use of Wordwall in English language teaching has increased significantly because of its accessibility, flexibility, and interactive features. Previous studies have reported positive impacts of Wordwall on students' motivation, engagement, and academic achievement. Students generally perceive Wordwall activities as enjoyable and challenging, which encourages them to participate actively in classroom learning. Furthermore, the gamification elements embedded in Wordwall create a positive learning atmosphere that supports meaningful learning experiences.

Despite the growing popularity of Wordwall in educational settings, studies investigating its implementation in listening instruction remain limited. Most previous studies have focused on vocabulary mastery, reading comprehension, speaking performance, or students' motivation. Only a few studies have examined the effectiveness of Wordwall-based Digital Game-Based Learning in improving listening skills, particularly among vocational high school students. In addition, limited research has measured the extent of listening improvement using N-Gain analysis to determine the effectiveness of game-based learning interventions.

Based on preliminary observations conducted at a vocational high school in Surabaya, many students experienced difficulties during listening activities. Students often struggled to understand spoken information, identify specific details, and answer listening comprehension questions correctly. Classroom observations also revealed that students tended to lose concentration during listening lessons because the instructional activities relied mainly on audio recordings and worksheet exercises. As a result, students showed low participation and limited enthusiasm during listening instruction.

Considering these problems, there is a need for an innovative instructional approach that can increase student engagement and improve listening achievement. Wordwall-Based Digital Game-Based Learning offers a potential solution because it combines listening practice with interactive and enjoyable game activities. Through quizzes, matching exercises, crosswords, and other game-based tasks, students can engage actively with listening materials while receiving immediate feedback on their performance.

This study offers novelty by integrating Wordwall-Based Digital Game-Based Learning into listening instruction at the vocational high school level and examining its effectiveness through both statistical significance testing and N-Gain analysis. Unlike previous studies that primarily focused on vocabulary or student motivation, this study specifically investigates listening skills and measures the extent of improvement achieved through the implementation of Wordwall-based learning activities.

Therefore, this study aims to investigate the effect of Wordwall-Based Digital Game-Based Learning on students' listening skills at a vocational high school. Specifically, the study seeks to determine whether the implementation of Wordwall can significantly improve students' listening achievement and to identify the extent of improvement after the treatment. The findings of this study are expected to contribute to the development of innovative English language teaching practices and provide empirical evidence regarding the effectiveness of digital game-based learning in listening instruction.

2. Methodology

This study employed a quantitative research approach using a quasi-experimental one-group pre-test and post-test design. The design was selected because the researcher intended to examine students' listening improvement before and after receiving the treatment. The participants consisted of 29 tenth-grade students at a vocational high school in Surabaya during the 2025/2026 academic year. The participants are selected through purposive sampling.

The instrument uses in this study is a listening comprehension test consisting of 20 multiple-choice questions. The instrument is validated by two expert validators. Reliability testing using Cronbach's Alpha yield a coefficient of 0.873, indicating high reliability.

The research procedure consisted of three stages. First, students complete a pre-test to measure their initial listening ability. Second, students participate in listening instruction using Wordwall-based Digital Game-Based Learning for two meetings. The learning activities include quizzes, matching games, crossword puzzles, true-false exercises, and spin-the-wheel activities integrated with listening materials. Finally, students complete a post-test to measure their listening achievement after the treatment.

Data were analyzed using descriptive and inferential statistics. The Shapiro-Wilk test is used to examine normality. Because the data are not normally distributed, the Wilcoxon Signed Rank Test is used to test the research hypothesis. In addition, N-Gain analysis is employed to determine the extent of improvement.

3. Literature Review

Listening Skills in EFL Learning

Listening is a fundamental language skill that enables learners to understand spoken messages and acquire linguistic knowledge. In EFL contexts, listening serves as the primary source of language input that supports the development of vocabulary, pronunciation, and communicative competence. According to Nation and Newton (2022), listening comprehension involves recognizing sounds, understanding vocabulary, interpreting meaning, and identifying both explicit and implicit information from spoken texts.

Despite its importance, listening remains one of the most challenging skills for EFL learners. Students frequently experience difficulties in understanding spoken English because of unfamiliar vocabulary, different accents, rapid speech delivery, and limited exposure to authentic listening materials. These challenges often result in low listening achievement and reduced participation during classroom activities.

Several studies have reported that students' listening performance can be improved through interactive learning environments that encourage active engagement and repeated listening practice. Therefore, teachers are required to employ innovative instructional approaches that make listening activities more meaningful and motivating for learners.

Digital Game-Based Learning in Language Education

Digital Game-Based Learning (DGBL) has emerged as an innovative approach that integrates educational content with game elements to enhance learning experiences. According to Prensky (2021), DGBL combines learning objectives with game mechanics such as rewards, competition, feedback, and challenges to increase learner engagement and motivation.

Previous studies have demonstrated the effectiveness of game-based learning in language education. Aliakbari and Maadikhah (2024) found that digital game-based learning significantly improved students' vocabulary achievement and classroom participation. Similarly, Vnucko and Klimova (2023) reported that game-based learning environments positively influenced language acquisition by increasing motivation, engagement, and learner autonomy. In addition, digital games provide opportunities for repeated practice and immediate feedback, both of which are important factors in language learning. Through interactive activities, students actively participate in learning tasks rather than passively receiving information from teachers. Consequently, Digital Game-Based Learning has become one of the most promising approaches for technology-enhanced language learning.

Wordwall as a Digital Learning Platform

Wordwall is an educational platform designed to support interactive and game-based learning activities. The platform provides various templates, including quizzes, matching

exercises, crosswords, true-or-false games, and random wheel activities that can be adapted to different learning objectives.

Several researchers have investigated the implementation of Wordwall in English language teaching. Febriani et al. (2023) reported that digital learning applications can enhance students' language achievement by creating interactive learning experiences. Similarly, studies on Wordwall have indicated that students become more motivated and actively involved during classroom instruction when game-based activities are incorporated into learning.

Although previous studies have shown positive effects of Wordwall on students' motivation, vocabulary mastery, and learning engagement, limited research has specifically examined its implementation in listening instruction. Most studies have focused on vocabulary acquisition, reading comprehension, or general English achievement rather than listening skills. Furthermore, research involving vocational high school students remains relatively scarce.

Therefore, this study addresses the existing research gap by investigating the effect of Wordwall-Based Digital Game-Based Learning on students' listening skills at the vocational high school level. Unlike previous studies that primarily focused on vocabulary or learning motivation, this study specifically examines listening achievement and measures the extent of improvement using N-Gain analysis. This aspect constitutes the novelty of the present study and contributes to the growing body of research on Digital Game-Based Learning in EFL contexts.

3. Result And Discussion

Result

This study aimed to investigate the effect of Wordwall-Based Digital Game-Based Learning on students' listening skills. The data were obtained from pre-test and post-test scores administered before and after the treatment.

The descriptive statistics showed that students' listening achievement improved after the implementation of Wordwall-Based Digital Game-Based Learning. The mean score of the pre-test was 57.41, indicating that many students experienced difficulties in comprehending spoken English materials. After the treatment, the mean score increased to 77.07, demonstrating a substantial improvement in students' listening performance.

Prior to hypothesis testing, a normality test was conducted using the Shapiro–Wilk test. The analysis revealed that the data were not normally distributed ($p < 0.05$). Therefore, the Wilcoxon Signed Rank Test was employed to determine whether there was a significant difference between the pre-test and post-test scores.

The Wilcoxon Signed Rank Test produced a significance value of 0.001. Since the significance value was lower than 0.05, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_1) was accepted. This result indicates that Wordwall-Based Digital Game-Based Learning significantly affected students' listening skills.

To determine the extent of students' improvement, an N-Gain analysis was conducted. The analysis yielded an N-Gain score of 0.4816, which falls within the moderate category.

The N-Gain result demonstrates that students experienced a moderate level of improvement after receiving the treatment. Although the improvement was not categorized as high, the findings suggest that Wordwall-Based Digital Game-Based Learning contributed positively to students' listening development.

Discussion

The findings of this study revealed that Wordwall-Based Digital Game-Based Learning significantly improved students' listening skills. The significant difference between the pre-test and post-test scores indicates that students benefited from the integration of game-based learning activities in listening instruction.

One possible explanation for this improvement is the interactive nature of Wordwall. Unlike traditional listening instruction, which often relies on audio recordings and worksheets,

Wordwall provides students with engaging learning experiences through quizzes, matching exercises, true-or-false games, and other interactive activities. These features encourage students to actively participate in listening tasks and maintain their attention throughout the learning process.

The findings support the principles of Digital Game-Based Learning proposed by Prensky (2021), who argues that game elements such as competition, rewards, and immediate feedback can increase learner motivation and engagement. During the implementation of Wordwall activities, students appeared more enthusiastic and willing to participate compared to conventional listening lessons. Increased participation may have contributed to better listening performance because students were more actively involved in processing spoken information.

The improvement in listening achievement may also be explained through repeated exposure to listening materials. Wordwall activities required students to listen carefully and respond to questions multiple times. Repeated listening practice helps learners identify key information, understand vocabulary in context, and develop listening comprehension strategies. Consequently, students became more familiar with spoken English and demonstrated better performance in the post-test.

The findings are consistent with previous studies on Digital Game-Based Learning. Vnucko and Klimova (2023) reported that game-based learning environments positively influence language learning outcomes by increasing learner motivation and engagement. Similarly, Aliakbari and Maadikhah (2024) found that digital game-based learning significantly improved students' achievement through interactive learning experiences. Although these studies focused on different language skills, their findings support the present study by demonstrating the positive impact of game-based learning on language acquisition.

Furthermore, the moderate N-Gain score obtained in this study indicates that Wordwall contributed meaningfully to students' listening development. The moderate improvement may be influenced by several factors, including the relatively short duration of the treatment, students' initial listening proficiency, and differences in individual learning abilities. Nevertheless, the significant improvement observed in the post-test results suggests that Wordwall can serve as an effective supplementary medium for listening instruction.

Another important finding is that Wordwall appeared to reduce students' anxiety during listening activities. Many students perceive listening exercises as difficult because they must understand spoken information within a limited time. However, the game-based format provided a more enjoyable and less intimidating learning atmosphere. As a result, students were more confident when completing listening tasks and were more willing to participate in classroom activities.

Overall, the findings suggest that Wordwall-Based Digital Game-Based Learning provides an effective learning environment that combines technology, interaction, and active participation. The platform not only improves students' listening achievement but also enhances motivation and engagement during English learning. Therefore, Wordwall can be considered a valuable instructional tool for supporting listening instruction in vocational high school contexts.

4. Kesimpulan

This study investigated the effect of Wordwall-Based Digital Game-Based Learning on students' listening skills. The findings revealed a significant improvement in students' listening achievement after the implementation of Wordwall-based learning activities. The Wilcoxon Signed Rank Test produced a significance value of 0.001 ($p < 0.05$), indicating that the treatment significantly affected students' listening performance.

In addition, the N-Gain score of 0.4816 indicated a moderate level of improvement. Therefore, Wordwall-Based Digital Game-Based Learning can be considered an effective instructional medium for improving students' listening skills.

Future research is recommended to involve larger samples, longer treatment periods, and additional variables such as student motivation and engagement to provide more comprehensive findings regarding the effectiveness of Digital Game-Based Learning in English language teaching.

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