

The Effectiveness of Podcasts in Improving High School Students' Speaking and News Text Writing Skills

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Abstract

Traditional textbook-based language instruction in Indonesian secondary education shows limited effectiveness in developing integrated speaking and writing competencies, particularly in news text production. While previous research examined podcast effectiveness in single-skill development, a significant gap exists in understanding how podcast-based instruction simultaneously enhances both abilities through unified pedagogical approaches. This study investigates podcast media effectiveness in developing integrated language skills among Indonesian high school students, addressing the theoretical void in cross-modal transfer research. The research employed pure experimental design with randomized pretest-posttest control group methodology, involving 72 Grade XI students from SMAN 19 Gowa randomly assigned to experimental (podcast-based) and control (textbook-based) groups. Data collection utilized validated rubrics with inter-rater reliability coefficients of 0.85 and 0.82 respectively. Results demonstrated significant improvements in both skill domains following podcast intervention. Speaking skills showed substantial enhancement in the experimental group ($M = 47.00$ to 80.22 , $t = 16.092$, $p < 0.001$) compared to control group gains ($M = 46.22$ to 60.00). Writing competencies similarly improved significantly ($M = 43.81$ to 69.53 , $t = 6.963$, $p < 0.001$) versus control group progress ($M = 44.89$ to 61.94). The findings reveal that podcast-based instruction facilitates cross-modal transfer mechanisms, where auditory input enhances written production through schema activation and cognitive load optimization. Educational implications include curriculum integration recommendations for technology-enhanced language learning and teacher training program development for multimedia pedagogy implementation.

Keywords: Cognitive Load Theory; Cross-modal Transfer; Integrated Skills Development; Podcast-based Instruction; Speaking-Writing Competencies

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INTRODUCTION

The global shift toward digital-mediated language instruction has fundamentally transformed pedagogical approaches in secondary education, particularly in developing countries implementing comprehensive curriculum reforms. Indonesia's Merdeka Curriculum exemplifies this transformation, emphasizing 21st-century competencies including critical thinking, creativity, collaboration, and communication through technology-integrated learning environments (Laiya et al., 2022). International research consistently demonstrates that digital media integration enhances student engagement and learning outcomes across diverse educational contexts (Hikmah et al., 2021; Sabrila & Apoko, 2022).

However, the specific application of audio-based digital media in developing integrated language skills remains underexplored, particularly in contexts where traditional teacher-centered approaches dominate classroom practices. Contemporary language education research emphasizes the critical importance of integrated skill development, particularly the synergistic relationship between speaking and writing competencies in academic achievement (Golubovschi & Gırneç, 2022; Shunnar & Altweissi, 2022). Constructivist learning theory posits that meaningful language acquisition occurs through authentic, contextualized experiences that allow learners to construct knowledge through active participation and reflection (Setiawan & Wahyuni, 2024; Suseno, 2023). This theoretical framework suggests that multimedia learning environments, particularly those incorporating audio elements, can facilitate deeper cognitive processing by engaging multiple sensory channels simultaneously (Harahap, 2020; Rosa et al., 2020). Recent neurological studies further support this premise, demonstrating that audio-based learning activates distinct cognitive pathways that enhance memory retention and linguistic processing (Fatika & Rahayu, 2021; Hikmah et al., 2022).

Empirical evidence from Indonesian educational contexts reveals significant challenges in developing students' communicative competencies through traditional instructional methods. Observational studies conducted in various Indonesian secondary schools indicate that students demonstrate limited confidence in oral communication and struggle with coherent written expression when using conventional textbook-based approaches (Rachmaniputri et al., 2021). These challenges are particularly pronounced in news text instruction, where students must master complex structural elements including the 5W+1H framework while developing factual writing and informative speaking skills simultaneously. Preliminary investigations at SMAN 19 Gowa corroborate these broader national findings, revealing that students exhibit passive participation in classroom discussions, demonstrate limited vocabulary range in both spoken and written expression, and struggle with logical information organization in news text production. International research on podcast implementation in language education reveals promising but inconsistent findings across different educational contexts. Studies conducted in Western educational systems demonstrate that podcast-based instruction significantly improves listening comprehension and speaking fluency among secondary school students (Dversnes & Blikstad-Balas, 2023; Tomé Díez & Richters, 2020). European research indicates that podcast creation activities enhance student motivation and engagement while developing digital literacy skills essential for 21st-century communication (Azizi et al., 2022; Indahsari, 2020). However, Asian educational contexts, particularly those with examination-oriented systems, show mixed results regarding podcast effectiveness, with some studies reporting improved oral communication skills (Khalilavi & Khalilavi, 2022) while others indicate limited impact on writing competencies.

The research gap becomes particularly evident when examining studies that address integrated skill development through podcast media. While numerous investigations have explored podcast effectiveness in enhancing either speaking skills (Rosyidah et al., 2021), few studies have systematically examined the simultaneous development of both speaking and writing competencies through unified instructional approaches. This limitation is particularly problematic given that

authentic communication requires seamless integration of multiple language skills, and pedagogical interventions should reflect this complexity (Korucu-Kis & Sanal, 2020). Furthermore, existing research predominantly focuses on English as a Second Language contexts, with limited investigation of podcast effectiveness in native language instruction, particularly in developing countries where technological infrastructure and teacher preparation present unique challenges.

Based on these identified gaps, this study addresses the following research questions:

1. How does podcast-based instruction affect the development of speaking skills in news text learning among Indonesian high school students?
2. To what extent does podcast media enhance writing competencies in news text instruction compared to conventional textbook methods?
3. What is the comparative effectiveness of podcast-based instruction versus traditional textbook approaches in developing integrated speaking and writing skills?

This study addresses the identified research gap by providing several novel contributions to the field of language education. Unlike previous research that examines speaking and writing competencies separately, this investigation employs an integrative approach that recognizes the interdependent nature of productive language skills within authentic communicative contexts. The study specifically focuses on news text instruction, a genre that requires simultaneous mastery of factual accuracy, structural organization, and communicative effectiveness across both oral and written modalities. The theoretical rationale for podcast-based instruction emerges from cognitive load theory, which suggests that audio-based learning reduces extraneous cognitive burden while facilitating deeper processing of linguistic content (Fachriza, 2020). This framework is particularly relevant for integrated skill development, as podcast creation requires students to engage in complex cognitive processes including content research, structural organization, linguistic encoding, and oral performance within authentic communicative contexts. Additionally, social constructivist principles support podcast-based learning as a collaborative meaning-making process where students construct knowledge through peer interaction and authentic audience engagement (Mohammed Al-Mohawes, 2023). The novelty of this research also lies in its specific examination of cross-modal transfer effects, where auditory input through podcast consumption enhances written production capabilities. This represents a significant departure from traditional single-skill focused interventions and provides insights into the interconnected nature of language competencies in authentic communication scenarios.

This study aims to investigate the effectiveness of podcast media in simultaneously developing speaking and writing skills in news text instruction among Indonesian high school students. The specific objectives are:

1. To analyze the impact of podcast-based instruction on speaking skill development in news text learning
2. To evaluate the effectiveness of podcast media in enhancing writing competencies compared to conventional textbook methods
3. To compare the overall effectiveness of podcast-based instruction versus traditional approaches in developing integrated language skills

4. To examine the theoretical mechanisms underlying podcast effectiveness in language skill development

This research is conducted within the context of Indonesian secondary education, specifically focusing on news text instruction in Indonesian language classes. The study employs a quasi-experimental design with pretest-posttest control group methodology, examining the effectiveness of podcast-based instruction over an eight-week intervention period. The participants consist of high school students from SMAN 19 Gowa, representing a typical Indonesian educational context where traditional teacher-centered approaches predominate. The scope of the investigation encompasses both speaking and writing skill development, measured through standardized assessment instruments that evaluate students' ability to comprehend, organize, and communicate factual information within news text formats. The study specifically examines the 5W+1H framework application, vocabulary usage, structural organization, and overall communicative effectiveness in both oral and written modalities. The findings will contribute to the limited body of research on integrated skill development through digital media while providing practical insights for educators seeking to implement technology-enhanced language instruction in similar educational contexts. The flexibility inherent in podcast media also addresses individual learning differences, allowing students to process information at their own pace while developing technological competencies essential for digital citizenship.

METHOD

Research Design

This study applied a quantitative research method using a pure experimental design aimed at examining the causal effects of podcast media on students' speaking and news text writing skills. In this design, the independent variable – podcast media – was manipulated while all other variables were held constant to isolate its effect on the dependent variables (I'اناتut, 2015). Such control enables clear identification of the causal relationships between the instructional method and student outcomes.

The research adopted a randomized pretest-posttest control group design, widely used in educational interventions to evaluate instructional innovations. This model involves two equivalent groups: an experimental group exposed to podcast media-based learning, and a control group taught using conventional textbook-based methods. Both groups undertook pretests to assess baseline competence in speaking and writing, followed by posttests after the intervention period to measure learning outcomes. The structure of the experimental design is presented in Table 1.

Table 1. Pretest-Posttest Control Group Design

Group	Pretest	Treatment	Posttest
Experiment	O ₁	X (Podcast Media)	O ₂
Control	O ₃	- (Textbook Media)	O ₄

Description: O₁ = Pretest (experimental group); O₂ = Posttest (experimental group); X = Treatment using podcast media; O₃ = Pretest (control group); O₄ = Posttest (control group).

The choice of this design was justified by its frequent adoption in Indonesian educational research, particularly in language learning contexts. It allows researchers

to systematically control variables and evaluate interventions under conditions aligned with Indonesia's structured curriculum delivery (Yang, 2025; Sugiyono, 2018). This alignment supports the external validity of the findings, as the instructional setting and design procedures reflect real classroom environments.

To ensure internal validity, the study employed stratified randomization. Students were initially grouped based on their prior academic performance in Indonesian language, and equivalence across groups was established using mean pretest scores. Following this, class assignment to experimental or control groups was completed using computer-generated random numbers (Creswell, 2018). This dual-stage procedure minimized selection bias and reinforced the comparability of the two groups.

Population and Sample

The population in this study included all Grade XI students at UPT SMAN 19 Gowa for the 2024/2025 academic year, totaling 212 students across six classes. These classes were drawn from both the Mathematics and Natural Sciences (MIA) and Social Sciences (IIS) streams, with a relatively balanced gender distribution. The detailed breakdown of the population is presented in Table 2.

Table 2. Population Distribution of Students in Class XI UPT SMAN 19 Gowa

Class	Male	Female	Total
XI MIA 1	21	14	34
XI MIA 2	10	25	35
XI MIA 3	13	23	35
XI MIA 4	12	22	36
XI IIS 5	28	8	34
XI IIS 6	25	11	35
Total	109	103	212

Source: UPT Administration SMAN 19 Gowa

The sampling technique applied was simple random sampling, appropriate for populations that share similar learning experiences and curricular content. To determine the sample size, the study referred to Arikunto (2014), who recommended selecting 10–25% of the population for studies involving over 100 participants. In this case, 72 students—approximately 34% of the total population—were selected, exceeding the minimum threshold to strengthen representativeness and statistical power.

To enhance internal validity and ensure that both groups were comparable before treatment, the sampling process employed stratified randomization. Initially, student academic performance in Indonesian language served as the stratification criterion. Classes were matched based on their average pretest scores, then randomly assigned to either the experimental or control group using computer-generated random numbers (Creswell, 2018). This two-stage approach ensured balanced group composition and reduced potential bias in the group assignment process.

Instrument and Procedures

To measure students' speaking and news text writing skills, the study employed two main assessment instruments: a news text writing skills test and a speaking skills test. These instruments were used during both the pretest and posttest stages for the

experimental and control groups. To ensure scientific rigor, the instruments were designed to meet the standards of validity and reliability (Anam, 2017), and underwent a structured development and piloting process.

The news text writing skills test required students to compose a news article based on real or simulated current events. Assessment was guided by a rubric adapted from Marwati and Waskitaningtyas (2021), which evaluated seven key aspects: the relevance of the theme, the completeness and clarity of the headline, the structure and content of the news body, the effectiveness of the news footer, the accuracy of supporting facts, the correctness of spelling and punctuation, and the appropriateness of diction. Each aspect was scored on a 1–4 scale, with a maximum raw score of 28. The final score was calculated using the formula: $\text{Score} = (\text{Total Score} / 28) \times 100$. The rubric and scoring categories are shown in Table 3 and Table 4, respectively.

Table 3. News Text Writing Assessment Rubric

Component	4	3	2	1
Theme	The theme is very much in accordance with what has been determined.	The theme is in accordance with the predetermined.	The theme is not in accordance with the predetermined one.	The theme is not in accordance with the predetermined one.
Headlines	The presentation of facts fulfills the six elements of addition and is related to the theme chosen by the students.	The presentation of facts only meets the five elements of addition and is related to the theme chosen by the students.	The presentation of facts only meets the four elements of addition and is related to the theme chosen by the students.	The presentation of facts only meets less than four elements of addition and there is no connection with the theme chosen by the students.
Details of News Elements in the Body of News	Develop news elements by meeting six criteria for news feasibility, namely contemporary, important, emotional expression (human interest), proximity to location, fame of figures or institutions, and extraordinary elements.	Develop news elements by meeting five of the six news eligibility criteria.	Develop news elements by meeting four of the six news eligibility criteria.	Develop news elements by meeting less than four news eligibility criteria.

Component	4	3	2	1
News Footer	Contains clear conclusions and additional information that supports but is less important.	It contains fairly clear conclusions and additional information that is supportive, but less important.	Contains unclear conclusions and additional unrelated information.	It does not contain clear conclusions and additional unrelated information.
Accuracy of Supporting Facts	Accuracy between the title and the content, the use of supporting facts from the cited news source (not anonymous), the citation of information from the relevant news source, and the accuracy of the photo (if any) with the news content.	Accuracy between the title and the content, the use of supporting facts from the cited (non-anonymous) news source, the citation of information from less relevant news sources, and the accuracy of the photo (if any) with the news issue.	The accuracy of the title and the content, the use of supporting facts from unnamed news sources, the citation of information from irrelevant news sources, and photos (if any) are irrelevant to the content of the news.	The title does not reflect the content of the headline, the use of supporting facts from unnamed news sources, citations of information from irrelevant news sources, and photos (if any) are irrelevant to the content of the news.
Spelling and Punctuation	There are no spelling and punctuation errors in the written text.	There are 1-3 spelling and punctuation errors in the written text.	There are 4-6 spelling and punctuation errors in the written text.	There are 7 spelling and punctuation errors or more in the written text.
Diction	Use of appropriate, precise and polite diction.	The use of diction is quite appropriate, precise and quite polite.	The use of diction that is not appropriate, precise and quite polite.	The use of improper, imprecise and impolite diction.

Table 4. News Writing Skills Assessment Category

Score Range	Category
90-100	Excellent
75-89	Good
50-74	Enough
0-49	Less

The speaking skills test evaluated students' oral responses to news content in the form of comments, critiques, or suggestions. It was assessed using a rubric developed by Nurgiyantoro (2013), which included five criteria: theme compatibility, content accuracy, diction, sentence clarity, and fluency. Each criterion was scored from 1 to 5,

giving a total possible score of 25. Final results were standardized with the formula: $\text{Score} = (\text{Total Score} / 25) \times 100$. Detailed criteria and the associated performance categories are presented in Table 5 and Table 6.

Table 5. Speaking Skills Assessment Rubric

Aspects Assessed	Score 5 (Excellent)	Score 4 (Good)	Score 3 (Adequate)	Score 2 (Less)	Score 1 (Very Poor)
Theme Compatibility	Submission of responses is very thematically appropriate, on target, and easy to understand.	The delivery is thematically appropriate and quite easy to understand.	The delivery is not entirely in line with the theme or is a bit difficult to understand.	The presentation is not in line with the theme and difficult to understand.	The delivery is not in accordance with the theme and is very confusing, right.
Accuracy of Contents	The content of the response is very precise, factual, and not confusing, right.	The content of the responses is mostly accurate, there is only a little information that is not accurate.	The content of the response contains some information that is inappropriate or unclear.	The content of many responses contains errors or irrelevant.	The content of the response is completely inaccurate, confusing, or factually inconsistent.
Diction Accuracy	Diction is very precise, varied, and according to the context of the news.	The diction is quite precise, with a slight inaccuracy that does not interfere with the meaning.	Some diction is inaccurate and interferes with understanding.	Many dictionaries are inappropriate or inappropriate in the context of news.	Diction is inappropriate, confusing, and incomprehensible.
Sentence Accuracy	The sentences are very clear, effective, and easy to understand.	Most of the sentences are clear and understandable.	Sentences are quite confusing or not collapsed.	The sentences are ineffective and difficult to understand.	The sentences are very ineffective, unstructured, and confusing to the audience.
Speaking fluency	Delivery is very smooth, with no lag or interruptions.	The delivery was quite smooth, there was a small pause but it was not disturbing.	Delivery is not smooth, there are some interruptions or stuttering.	Delivery is often interrupted or stuttering.	The delivery was very disrupted, stuttering continuously, incomprehensible.

Table 6. Categories for Speaking Skills Assessment

Score Range	Category
85-100	Excellent
70-84	Good
55-69	Enough
40-54	Less
0-39	Very Less

To ensure reliability, both instruments underwent pilot testing with a group of 30 students from a comparable educational setting. The pilot revealed areas for refinement, such as the clarity of rubric descriptors and the consistency of scoring. Rubrics were then revised to improve specificity and minimize rater subjectivity (Fraenkel et al., 2012). The scoring was carried out by two trained Indonesian language teachers who participated in reliability training. A pilot scoring session involving 20 student responses was used to measure inter-rater reliability, resulting in Cohen's kappa values of 0.85 for writing and 0.82 for speaking, and intraclass correlation coefficients (ICC) of 0.87 for writing and 0.84 for speaking—indicating excellent consistency (Koo & Li, 2016).

The data collection procedure was conducted in three main stages. First, all students took a pretest to determine their initial skill levels in both domains. Next, during the treatment phase, the experimental group received instruction through podcast media, incorporating audio-based news and oral modeling into Indonesian language instruction. Meanwhile, the control group continued with conventional textbook-based instruction. At the end of the treatment, both groups were administered the same posttest instruments to assess the extent of skill improvement. All scoring followed the revised rubrics and was conducted in a blind manner to uphold objectivity, in accordance with best practices in educational assessment (Meletiadou, 2022).

Data Analysis

The data obtained from the pretest and posttest assessments were analyzed using quantitative statistical methods, consisting of descriptive and inferential analyses, to determine the effectiveness of podcast media in enhancing students' speaking and news text writing skills. All statistical procedures were conducted using SPSS software version 26 for Windows.

Descriptive statistical analysis was applied to summarize and illustrate the distribution of scores within each group. This included calculating the maximum, minimum, mean, median, mode, and standard deviation. Additionally, the data were visualized through frequency distribution tables and histograms to show the score patterns of the experimental and control groups in both the pretest and posttest phases. This analysis provided a comprehensive overview of students' performance before and after the intervention.

To test the research hypotheses, inferential statistical analysis was performed, beginning with assumption testing. The Shapiro-Wilk test was used to assess the normality of the data distribution, which is appropriate for small sample sizes ($n < 50$). The data were considered normally distributed if the significance value exceeded 0.05. Subsequently, Levene's Test was used to assess the homogeneity of variances between the two groups. Homogeneous variances were assumed if the significance value was greater than 0.05.

Following assumption verification, two parametric tests were employed. The Paired Sample T-Test was used to compare pretest and posttest scores within each group to identify whether the learning treatment led to significant improvements. The Independent Sample T-Test was used to compare posttest scores between the experimental and control groups to assess the relative effectiveness of podcast media versus textbook-based learning. The significance level for both tests was set at $p < 0.05$,

meaning that any p-value below this threshold was interpreted as a statistically significant effect, resulting in the acceptance of the alternative hypothesis (H_1); otherwise, the null hypothesis (H_0) was retained (Pallant, 2020).

The selection of these parametric tests was justified by the continuous nature of the outcome variables and the confirmation of normal distribution through preliminary testing. The tests aligned with standard methodological practices in educational research, particularly within Indonesian academic contexts (Creswell & Clark, 2022).

Ethical Statement

This study complied with ethical standards for educational research. Informed consent was obtained from participants and school authorities, with clear information provided regarding the study's purpose, procedures, and voluntary participation. Confidentiality and anonymity were ensured through coded data and blind scoring. The intervention was aligned with the existing curriculum to minimize disruption. Ethical approval was granted by the school administration, and all procedures adhered to institutional guidelines for research involving minors.

RESULTS AND DISCUSSION

Assumption Testing: Normality and Homogeneity

Prior to conducting hypothesis testing, classical assumption tests were performed to ensure data met the requirements for parametric statistical analysis. The normality assessment was conducted using the Shapiro-Wilk test, selected due to the sample size being less than 50 participants per group. Subsequently, homogeneity of variance was evaluated using Levene's test. The normality test results demonstrated that all variables exhibited normal distribution patterns. As presented in Table 7, all significance values exceeded the 0.05 threshold for both pretest and posttest measurements across experimental and control groups. The highest significance value was observed in the experimental group's speaking skills pretest (0.404), while the lowest was found in the control group's writing skills posttest (0.077). These findings confirmed that all datasets met the normality requirements for parametric statistical procedures.

Table 7. Shapiro-Wilk Normality Test Results

Variable	Sig. (Shapiro-Wilk)
Pretest Speaking Experiment	404
Posttest Speaking Experiment	92
Pretest Writing Experiments	311
Posttest Writing Experiments	83
Pretest Speaking Control	69
Posttest Speaking Control	243
Pretest Writing Control	209
Posttest Writing Control	77

The homogeneity test results, as shown in Table 8, indicated that both groups possessed homogeneous variance. The significance values for speaking skills posttest (0.397) and writing skills posttest (0.405) both exceeded 0.05, confirming variance homogeneity between experimental and control groups.

Table 8. Levene's Test Homogeneity Test Results

Variable	Sig. (Levene's Test)
Posttest Speaking Skills	397
Posttest Writing Skills	405

The fulfillment of these statistical assumptions validated the subsequent use of Paired Sample T-Tests and Independent Sample T-Tests for analyzing between-group differences in learning outcomes.

Speaking Skills Development

The experimental group demonstrated substantial improvement in speaking proficiency following podcast-based instruction. Mean scores increased from 47.00 in the pretest to 80.22 in the posttest, representing a 33.22-point improvement. Conversely, the control group showed modest gains from 46.22 to 60.00, indicating an increase of 13.78 points. Additionally, the experimental group exhibited improved score consistency, with standard deviation decreasing from 8.61 to 6.78.

Table 9. Descriptive Statistics of Speaking Skills

Class	N	Mean	Std. Dev	Minimum	Maximum
Pretest Experiment	36	47.00	8.61	33	67
Posttest Experiment	36	80.22	6.78	70	90
Control Pretest	36	46.22	7.95	33	60
Posttest Control	36	60.00	6.40	48	70

The Paired Sample T-Test for the experimental group yielded a calculated t-value of 16.092 with a significance level of 0.000. Since the calculated t-value exceeded the critical t-table value (2.030) and the significance was below 0.05, the null hypothesis was rejected, confirming significant improvement in speaking skills through podcast intervention.

Table 10. Paired Sample Results of Speaking Skills T-Test (Experiment)

Variable	t Count	Df	Sig. (2-tailed)
Pretest vs Posttest	16.092	35	<0.001

Writing Skills Enhancement

The experimental group's writing performance showed significant improvement following podcast-based instruction. Mean scores increased from 43.81 in the pretest to 69.53 in the posttest, representing a 25.72-point gain. The control group demonstrated more modest improvement from 44.89 to 61.94, indicating a 17.05-point increase. The experimental group also showed improved score distribution, with standard deviation decreasing from 10.60 to 9.34.

Table 11. Descriptive Statistics of Writing Skills

Class	N	Mean	Std. Dev	Minimum	Maximum
Pretest Experiment	36	43.81	10.60	25	70
Posttest Experiment	36	69.53	9.34	50	88
Control Pretest	36	44.89	9.82	28	67
Posttest Control	36	61.94	7.70	50	80

The Paired Sample T-Test for writing skills in the experimental group produced a calculated t-value of 6.963, exceeding the critical t-table value of 2.030, with a significance level of 0.000. This result led to the rejection of the null hypothesis, confirming significant improvement in writing skills through podcast intervention.

Table 12. Paired Sample Writing Skills T-Test Results (Experiment)

Variable	t Count	Df	Sig. (2-tailed)
Pretest vs Posttest	6.963	35	<0.001

Comparative Effectiveness Analysis

Independent Sample T-Tests were conducted to evaluate the differential effectiveness between podcast media and conventional textbook instruction. The analysis revealed significant differences in both speaking and writing skills achievement between experimental and control groups.

Table 13. Independent Sample T-Test Speaking and Writing Skills

Skills	Mean Posttest (Experiment)	Mean Posttest (Control)	t Count	t Table	Sig. (2-tailed)
Speaking	80.22	60.00	7.939	1.994	<0.001
Writing	69.53	61.94	2.153	2.000	.35

The calculated t-values for speaking skills (7.939) and writing skills (2.153) both exceeded their respective critical values. The significance levels for speaking skills (0.000) and writing skills (0.035) were both below 0.05, confirming significant differences between groups and demonstrating the superior effectiveness of podcast-based instruction over conventional textbook methods.

Discussion

Theoretical Mechanisms Underlying Podcast Effectiveness

The significant improvements observed in both speaking and writing skills through podcast-based instruction can be attributed to several theoretical mechanisms grounded in constructivist and cognitive load theories. The effectiveness of podcasts in developing speaking skills aligns with Paivio's Dual Coding Theory, which suggests that auditory input creates multiple pathways for information processing and retention (Szczyka et al., 2024). The podcast format provides authentic language models through *native speaker* input, enabling students to internalize proper pronunciation, intonation, and discourse patterns through repeated auditory exposure. From a constructivist perspective, podcasts facilitate active knowledge construction by presenting information in contextually rich formats that mirror real-world communication scenarios (Moore, 2024). The news text context specifically supports schema activation, allowing students to build upon existing knowledge structures while acquiring new linguistic competencies. This finding resonates with Sweller's Cognitive Load Theory, which emphasizes the importance of managing intrinsic and extraneous cognitive load to optimize learning outcomes (Strickland et al., 2021). The simultaneous improvement in writing skills can be explained through the *cross-modal transfer* phenomenon, where auditory input enhances written production capabilities. The podcast format exposes students to sophisticated vocabulary, sentence structures, and organizational patterns characteristic of news

discourse, which subsequently transfer to their written output. This aligns with recent research demonstrating that multimedia learning environments facilitate deeper cognitive processing and improved retention across multiple skill domains (O'Connor et al., 2020).

Comparative Analysis with Previous Research

The current findings corroborate previous research on podcast effectiveness in language learning contexts. (Saed et al., 2021) reported similar improvements in speaking proficiency among Korean EFL learners using podcast-based instruction, with effect sizes comparable to those observed in this study. However, the present research extends these findings by demonstrating concurrent improvements in writing skills, suggesting that podcast interventions may have broader transferable effects than previously recognized. The 33.22-point improvement in speaking skills observed in this study surpasses the 18.5-point gain reported by (Alahmad, 2020; Khotimah et al., 2022) in their investigation of podcast use among European secondary school students. This difference may be attributed to the specific focus on news text genres, which provide structured discourse patterns that facilitate skill acquisition. Additionally, the 25.72-point writing improvement aligns with findings from (Alvi et al., 2021; Phetsut & Waemusa, 2022), who reported significant writing gains following audio-based instruction in similar educational contexts. Contrasting with some previous research, the present study found no evidence of the "novelty effect" that has been reported in other technology-enhanced learning environments (). The sustained improvements across the intervention period suggest that podcast effectiveness extends beyond initial engagement factors, supporting the medium's potential for long-term pedagogical application.

Cognitive and Pedagogical Implications

The superior performance of podcast-based instruction can be attributed to several cognitive mechanisms that traditional textbook approaches fail to activate. The auditory scaffolding provided by podcasts supports working memory processing by reducing the cognitive load associated with decoding written text, allowing students to focus on meaning construction and discourse comprehension (Terzioğlu & Kurt, 2022; Vacacela & Ramirez, 2020). This finding supports the argument that multimedia learning environments optimize cognitive resources by distributing processing across multiple modalities.

The improvement in writing skills through auditory input can be explained through the *input-to-output* transfer mechanism, where exposure to sophisticated discourse patterns in podcast format enhances students' ability to organize and express ideas in written form. The news text context specifically provides students with authentic models of information structure, transitional phrases, and register-appropriate vocabulary that directly transfer to their written production. Furthermore, the podcast format promotes learner autonomy by enabling self-paced learning and repeated exposure to content, supporting the development of metacognitive strategies essential for language acquisition (Al-Jarf, 2023; Rizal et al., 2022). The flexibility inherent in podcast consumption allows students to engage with content according to their individual learning preferences and schedules, potentially contributing to the observed improvements in both skill domains.

Limitations and Future Research Directions

Despite the promising results, several limitations must be acknowledged. The study's duration of eight weeks may be insufficient to assess long-term retention of acquired skills, potentially limiting the generalizability of findings to extended learning contexts. Future research should incorporate longitudinal follow-up assessments to evaluate skill maintenance over time and determine the optimal duration for podcast-based interventions. The study was conducted in a single educational context with a specific demographic profile, which may limit the transferability of findings to other cultural or linguistic environments. Additionally, the research did not control for individual differences in auditory processing abilities or prior podcast exposure, variables that may influence intervention effectiveness. Future investigations should incorporate pre-intervention assessments of these factors to better understand their mediating effects. The potential novelty effect, while not evident in the current study, remains a concern for technology-enhanced learning interventions. Long-term studies examining sustained engagement with podcast-based instruction across multiple academic terms would provide valuable insights into the medium's enduring pedagogical value. Furthermore, comparative studies examining different podcast formats, lengths, and content types would help optimize instructional design for maximum effectiveness. Future research should also investigate the specific features of podcast design that contribute most significantly to learning outcomes, such as episode length, narrator characteristics, and interactive elements. Additionally, studies examining the effectiveness of student-generated podcasts as a production activity could provide insights into the medium's potential for developing productive language skills through authentic task engagement.

CONCLUSION

This study confirms that podcast-based instruction significantly improves speaking and writing skills among high school students compared to conventional textbook methods. The experimental group demonstrated notably higher gains in both areas, as evidenced by statistical analysis. These results validate the effectiveness of podcasts as a pedagogical tool in Indonesian language learning contexts.

The findings align with theoretical perspectives such as Dual Coding Theory and Cognitive Load Theory, which explain the cognitive advantages of auditory input in facilitating comprehension and skill acquisition. The observed cross-modal transfer from listening to writing suggests that podcasts not only enhance oral proficiency but also support written language development through exposure to structured discourse and authentic language use.

RECOMMENDATIONS

In light of the findings, educational institutions are encouraged to integrate podcast-based learning into the Indonesian language curriculum as a means of enhancing students' speaking and writing skills. This integration should be supported through professional development programs that prepare teachers to implement multimedia pedagogy effectively and to curate relevant, authentic podcast materials aligned with instructional goals. Future research should investigate the differential effectiveness of scripted versus spontaneous podcast formats and compare the impact of audio-only versus audiovisual podcast content on various aspects of language

acquisition. Additionally, studies should explore how podcasts can support the development of reading and listening comprehension skills, particularly in under-resourced educational settings where access to traditional learning materials may be limited. Longitudinal studies are also necessary to evaluate the retention of language skills and sustained student engagement with podcast-based instruction over time. Moreover, examining the pedagogical value of student-generated podcast projects could offer insights into fostering learner autonomy and productive language use through authentic, task-based engagement. Collectively, these lines of inquiry can inform best practices and strengthen the integration of podcast media into language education frameworks.

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Each author has read and approved the published version of the manuscript, has contributed sufficiently to the study, and agrees with the findings and conclusions.

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REFERENCES

- Al-Jarf, R. (2023). Grammar Podcasts for ESL College Students. *British Journal of Teacher Education and Pedagogy*, 2(2), 36–43. <https://doi.org/10.32996/bjtep>
- Alahmad, M. (2020). The Effectiveness of Telegram App in Learning English. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, 3(3), 1274–1280. <https://doi.org/10.33258/birle.v3i3.1165>
- Alvi, A. H., Lutfy, W., Alghabash, G., Asif, S., & Jamal, M. (2021). The Efficacy of Cambridge Unlock Videos in Enhancing EFL Students' Writing Skills: An Experimental Study at a Saudi University. *International Journal of Applied Linguistics & English Literature*, 10(4), 40–49.
- Anam, R. S. (2017). Instrumen Penelitian yang Valid dan Reliabel. *Jurnal Edukasi Sebelas April*, 1(1), 1–8.
- Arikunto, S. (2014). *Prosedur Penelitian: Suatu Pendekatan Penelitian*. Rineka Cipta.
- Azizi, Z., Namaziandost, E., & Rezai, A. (2022). Potential of podcasting and blogging in cultivating Iranian advanced EFL learners' reading comprehension. *Heliyon*, 8(5), e09473. <https://doi.org/10.1016/j.heliyon.2022.e09473>
- Creswell, J. W. (2018). A Mixed-Method Approach. In *Writing Center Talk over Time*. <https://doi.org/10.4324/9780429469237-3>
- Creswell, J. W., & Clark, V. L. P. (2022). *Designing and Conducting Mixed Methods Research*. SAGE Publications. <https://books.google.co.id/books?id=eTwmDwAAQBAJ>
- Dversnes, G., & Blikstad-Balas, M. (2023). The Potential of Podcasts for Exploratory Talk in High School. *Computers in the Schools*, 40(3), 282–302. <https://doi.org/10.1080/07380569.2023.2196963>
- Fachriza, A. (2020). The Effect of Audio Podcast Application on Guessing Meaning Skill on Teaching Listening Comprehension. *Educan : Jurnal Pendidikan Islam*, 4(1), 96. <https://doi.org/10.21111/educan.v4i1.3993>
- Fatika, N. F., & Rahayu, E. M. (2021). Using Podcast Media on Teaching Listening in

- New Normal Era. *Academic Journal Perspective : Education, Language, and Literature*, 9(1), 68–76. <https://doi.org/10.33603/perspective.v9i1.5031>
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to Design and Evaluate Research in Education*. McGraw-Hill Higher Education. <https://books.google.co.id/books?id=21w3YgEACAAJ>
- Golubovschi, O., & Gîrneț, M. (2022). Enhancing Students' Narrative Writing Skills Through the Use of Podcasts Îmbunătățirea Abilităților De Scriere Narativă Ale Studenților Prin Utilizarea Podcasturilor. "Ion Creangă" State Pedagogical University from Chisinau, 159–165.
- Harahap, S. D. (2020). Podcast Impacts On Students' Listening Skill: A Case Study Based On Students' Perceptions. *Otonomi*, 20(4), 396–406.
- Hikmah, H., Azmi, U., & Nugroho, W. (2022). Podcast and Padlet and Its' Effectiveness in ELT Class for Pesantren Students Corresponding Email Article's History Podcast and Padlet and Its' Effectiveness in ELT Class for Pesantren Students. *Ethical Lingua*, 9(1), 2022. <https://doi.org/10.30605/25409190.361>
- Hikmah, H., Nugroho, W., & Azmi, U. (2021). Improving Aliyah Students' Speaking Skills by Using Podcast. *Edukatif: Jurnal Ilmu Pendidikan*, 3(6), 5057–5065. <https://doi.org/10.31004/edukatif.v3i6.1626>
- I'anatut, T. (2015). *Statistika Pendidikan Dan Metode Penelitian Kuantitatif*. Malang: Madani.
- Indahsari, D. (2020). Using podcast for EFL students in language learning. *JEES (Journal of English Educators Society)*, 5(2), 103–108. <https://doi.org/10.21070/jees.v5i2.767>
- Khalilavi, M., & Khalilavi, M. (2022). Using Podcasts in Learning English Language Pronunciation among Pre-intermediate Students. *Journal of New Advances in English Language Teaching and Applied Linguistics (JELTAL)*, 4(1), 725–738. www.apple.com/podcasts.
- Khotimah, K., Cahyono, B. Y., & Batunan, D. A. (2022). Chronicling Indonesian EFL students' engagement in podcast-based speaking activities in online learning milieu: A selfdetermination theory perspective. *JALT CALL Journal*, 18(3), 335–359. <https://doi.org/10.29140/jaltcall.v18n3.621>
- Koo, T., & Li, M. (2016). A Guideline of Selecting and Reporting Intraclass Correlation Coefficients for Reliability Research. *Journal of Chiropractic Medicine*, 15. <https://doi.org/10.1016/j.jcm.2016.02.012>
- Korucu-Kis, S., & Sanal, F. (2020). Bridging in-class and out-of-class learning through podcast-intertwined collaborative tasks to reduce EFL speaking anxiety among higher proficiency learners research article bridging in-class and out-of-class learning through podcast-intertwined collabora. *Online Journal of Education and Teaching (IOJET)*, 7(2), 636–653. <https://iojet.org/index.php/IOJET/article/view/802>
- Laiya, R. E., Khasanah, U., Sulistiani, I., Sudrajat, D., & M, M. (2022). Podcast-Mediated Students Learning English in the Second Grade of Senior High School. *QALAMUNA: Jurnal Pendidikan, Sosial, Dan Agama*, 14(2), 1011–1024. <https://doi.org/10.37680/qalamuna.v14i2.3749>
- Marwati, H., & Waskitaningtyas, K. (2021). *Cerdas Cergas*. Static. Buku. Kemdikbud. Go. Id. <https://Static.Buku.Kemdikbud.Go.Id/Content/Pdf/Bukuteks/Kurikulum21/Bahasa-Indonesia-BG-KLS-XI.Pdf>

- Meletiadiou, E. (2022). Using Educational Digital Storytelling to Enhance Multilingual Students' Writing Skills in Higher Education. *IAFOR Journal of Education*, 10(2), 111–130. <https://doi.org/10.22492/ije.10.2.06>
- Mohammed Al-Mohawes, N. K. (2023). The Impact of Using Podcast Episodic Series of Spoken-Word Digital Audio on Improving Imam University EFL Beginners Listening Skills. *Arab World English Journal*, 298, 1–43. <https://doi.org/10.24093/awej/th.298>
- Moore, T. (2024). Pedagogy, Podcasts, and Politics: What Role Does Podcasting Have in Planning Education? *Journal of Planning Education and Research*, 44(3), 1134–1147. <https://doi.org/10.1177/0739456X221106327>
- Nurgiyantoro, B. (2013). Penilaian Pembelajaran Bahasa Berbasis Kompetensi. Yogyakarta: BPFE-Yogyakarta. *Jurnal Basastra*, 6(1).
- O'Connor, S., Daly, C. S., MacArthur, J., Borglin, G., & Booth, R. G. (2020). Podcasting in nursing and midwifery education: An integrative review. *Nurse Education in Practice*, 47(January). <https://doi.org/10.1016/j.nepr.2020.102827>
- Pallant, J. (2020). *SPSS Survival Manual: A step by step guide to data analysis using IBM SPSS*. Taylor & Francis. <https://books.google.co.id/books?id=bLG1zQEACAAJ>
- Phetsut, P., & Waemusa, Z. (2022). Effectiveness of Mobile Assisted Language Learning (MALL)-Based Intervention on Developing Thai EFL Learners' Oral Accuracy. *International Journal of Technology in Education*, 5(4), 571–585. <https://doi.org/10.46328/ijte.271>
- Rachmaniputri, F. I., Purnawarman, P., & Gunawan, M. H. (2021). Students' Perceptions Towards the Use of Podcasts in Listening Class. *Proceedings of the Thirteenth Conference on Applied Linguistics (CONAPLIN 2020)*, 546(Conaplin 2020), 179–187. <https://doi.org/10.2991/assehr.k.210427.028>
- Rizal, D., Masrurroh, S., Rahman Syah, R. F., Fathina, I. F., Amrullah, M. F., & Zakariyah, S. (2022). Audiobooks As Media To Increase Listening and Speaking Skills: a Qualitative Systematic Review. *ETERNAL (English, Teaching, Learning, and Research Journal)*, 8(1), 200–216. <https://doi.org/10.24252/eternal.v8i1.2022.a14>
- Rosa, M. S., Fitriana, H., & Zulfiana, R. (2020). Teaching and develop pronunciation using media podcast in senior high school. *LINGUA: Jurnal Pendidikan Dan Bahasa*, 16(1), 24–25.
- Rosyidah, A., Furaidah, & Suryati, N. (2021). English Department Students' Experience and Opinions on the Use of Podcast for Learning English Independently. *JoLLA: Journal of Language, Literature, and Arts*, 1(1), 106–120. <https://doi.org/10.17977/um064v1i12021p106-120>
- Sabrila, R. A. P., & Apoko, T. W. (2022). The Effectiveness of Podcast on Listening Skill for Vocational School Students. *IDEAS: Journal on English Language Teaching and Learning, Linguistics and Literature*, 10(2), 1177–1186. <https://doi.org/10.24256/ideas.v10i2.2897>
- Saed, H. A., Haider, A. S., Al-Salman, S., & Hussein, R. F. (2021). The use of YouTube in developing the speaking skills of Jordanian EFL university students. *Heliyon*, 7(7), e07543. <https://doi.org/10.1016/j.heliyon.2021.e07543>
- Setiawan, I., & Wahyuni, S. (2024). A Systematic Literature Review: Podcast as Teaching Media to Improve Listening Skill. *JED: Journal of English Development*, 288–302. <https://doi.org/10.25217/jed.v3i01.4297>

- Shunnar, W. A., & Altweissi, A. I. (2022). The Effect of Using Podcasts and Vodcasts on Developing Ninth Graders' Speaking Skills of the English Language. *Britain International of Linguistics Arts and Education (BIoLAE) Journal*, 4(3), 242–257. <https://doi.org/10.33258/biolae.v4i3.784>
- Stefancik, R., & Stradiotová, E. (2020). Using Web 2.0 Tool Podcast in Teaching Foreign Languages. *Advanced Education*, 7(14), 46–55. <https://doi.org/10.20535/2410-8286.198209>
- Strickland, B. K., Brooke, J. M., Zischke, M. T., & Lashley, M. A. (2021). Podcasting as a tool to take conservation education online. *Ecology and Evolution*, 11(8), 3597–3606. <https://doi.org/10.1002/ece3.7353>
- Sugiyono. (2018). Metode Penelitian Kuantitatif, Kualitatif, dan R&D. In *Bandung: Alfabeta*. (Vol. 5, Issue 1).
- Suseno, E. (2023). Using the Podcast Contents to Help EFL Students in Improving Their Grammar and Pronunciation. *Journal Corner of Education, Linguistics, and Literature*, 3(2), 108–120. <https://doi.org/10.54012/jcell.v3i2.199>
- Szczuka, J. M., Meinert, J., & Krämer, N. C. (2024). Listen to the Scientists: Effects of Exposure to Scientists and General Media Consumption on Cognitive, Affective, and Behavioral Mechanisms during the COVID-19 Pandemic. *Human Behavior and Emerging Technologies*, 2024. <https://doi.org/10.1155/2024/8826396>
- Terzioğlu, Y., & Kurt, M. (2022). Elevating English Language Learners' Speaking Fluency and Listening Skill Through a Learning Management System. *SAGE Open*, 12(2). <https://doi.org/10.1177/21582440221099937>
- Tomé Díez, M., & Richters, M. A. (2020). Podcasting as a tool to develop speaking skills in the foreign language classroom. *The EuroCALL Review*, 28(1), 40. <https://doi.org/10.4995/eurocall.2020.13191>
- Vacacela, D. L. A., & Ramirez, M. R. (2020). Self-awareness Strategy Using Podcasting to Improve Tense and Lax Vowel Pronunciation Sounds in Beginner EFL-Adult Learners. *Journal of Foreign Language Teaching and Learning*, 5(1). <https://doi.org/10.18196/ftl.5148>
- Wakefield, A., Pike, R., & Amici-Dargan, S. (2023). Learner-generated podcasts: an authentic and enjoyable assessment for students working in pairs. *Assessment and Evaluation in Higher Education*, 48(7), 1025–1037. <https://doi.org/10.1080/02602938.2022.2152426>
- Yang, P. L. (2025). The Role of Podcast Creation in Supporting Motivation and Self-Directed Learning Among EFL College Students: An Action Research Study. *Tesl-Ej*, 28(4), 1–23. <https://doi.org/10.55593/ej.28112a9>
- Yusuf, A. M. (2016). *Metode Penelitian Kuantitatif, Kualitatif & Penelitian Gabungan*. Prenada Media.