

The Effectiveness of Tongue Twisters in Improving Junior High School Students' Pronunciation: A Pre-Experimental Study at SMP Negeri 3

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Article History

Submitted : June 23rd, 2025
Revised : August 20th, 2025
Accepted : October 15th, 2025

KEYWORDS

Tongue Twisters,
Teaching Technique,
Pronunciation Teaching,
Speaking Skills,
English Language Teaching.

ABSTRACT

For many Indonesian learners, mastering English pronunciation is challenging, especially when dealing with unfamiliar sounds, proper stress patterns, and natural rhythm. This study set out to investigate whether Tongue Twisters could be an effective way to address these issues for seventh-grade students at SMP Negeri 3 Tondano. Using a quantitative pre-experimental design with a one-group pre-test and post-test format, the research involved 13 purposively selected students from a BINSUS (Binaan Khusus) class. A pronunciation test adapted from Anas Sudijono's (2012) rubric measured five aspects: consonants, vowels, stress, intonation, and rhythm, along with tongue twisters. Data were gathered through a pre-test, a single treatment session using Tongue Twisters, and a post-test. The results were analyzed using descriptive statistics, normality testing, and a paired samples t-test in SPSS. Findings showed that the mean score improved from 40.59 in the pre-test to 63.24 in the post-test (scale 0–100). The paired samples t-test confirmed that this improvement was statistically significant ($t = -5.592$, $p < 0.05$), indicating that the technique effectively enhanced articulation, vowel accuracy, stress placement, and overall prosody. Beyond measurable progress, students also showed greater engagement and enjoyment during pronunciation practice. These results suggest that incorporating Tongue Twisters into classroom activities can provide both linguistic benefits and a more motivating learning experience for junior high school students.

INTRODUCTION

Pronunciation is more than just saying words; it is about producing the right sounds so that meaning comes through clearly when we speak. Pronunciation is a fundamental component of language learning that involves the accurate production and perception of sounds to convey meaning in spoken communication (Gilakjani, 2012). It includes both segmental features, such as consonants and vowels, and suprasegmental features, like intonation, stress, and rhythm (Laurea, 2015). Mastering pronunciation allows learners to produce speech that is intelligible and easily understood by others. Moreover, proficiency in speaking skills holds significant value due to providing opportunities and facilitating connections with people worldwide (Liando, Sahetapy, & Maru, 2018; Susnawati & Marhaeni, 2020). In the context of English language learning, pronunciation plays a critical role in oral communication, as inaccurate pronunciation can lead to misunderstandings and hinder effective interaction (Rachmawati & Cahyani, 2021).

In learning English, pronunciation sits alongside grammar and vocabulary as one of the three pillars of speaking skills (Lengkoan & Olli, 2020). Good pronunciation makes speech clearer, builds confidence, and helps learners understand spoken English better (Wahyu et al., 2023). Moreover, since English is now a global language, being able to speak it well opens doors to more opportunities in education, careers, and international communication (Maru, 2009; Manuas et al., 2022). Starting early is especially important because habits formed during junior high school often persist for life (Hampp et al., 2021).

However, many learners face similar challenges when it comes to pronunciation. Some sounds, such as the English “th” /θ/ or “sh” /ʃ/, do not exist in their first language, so they are often replaced with similar but incorrect sounds (Setyowati et al., 2017). Stress and intonation can also be stumbling blocks; when every word is pronounced with the same flat tone, speech can sound robotic and unclear (Lutfiani & Indri, 2017). As a result, these issues can make communication difficult, even if students know the right words and grammar.

In line with these problems, based on the researcher’s observation at SMP Negeri 3 Tondano, the seventh-grade students face these exact issues. Words like “thin” often come out as “tin,” “she” turns into “sea,” and diphthongs are simplified, such as saying “siny” instead of “shiny.” Sentences tend to be delivered with even stress and little variation in pitch, making them sound less natural. These problems not only affect how well others understand them but also seem to reduce students’ confidence when speaking English.

Given these challenges, this is where tongue twisters can make a real difference. They are short, tricky phrases full of repeating sounds that force the mouth, lips, and tongue to work harder and more accurately (Cintron, 2024; Juniarti, 2019). More importantly, they give students a fun, low-pressure way to focus on sounds they usually avoid. By repeating them, students naturally improve their control over pronunciation, stress, and rhythm. In fact, studies have shown that students often enjoy tongue twister activities so much that they forget they are practicing something difficult (Puspita, Wachyudi, & Hoerniasih, 2023).

In class, tongue twisters can be used in many ways. A teacher might introduce them as a warm-up, start slowly to focus on accuracy, and then gradually increase the speed as students improve (Prošić-Santovac, 2009). They can be chosen to match the sounds students struggle with, such as /p/, /t/, and /s/, so that the practice is directly linked to their needs. Over time, this kind of repetition builds not just accuracy but also the confidence to use those sounds in everyday conversation. However, students might feel awkward or frustrated when they keep tripping over the same words. Moreover, if the activity focuses too much on speed, it can even reinforce mistakes. Nevertheless, the advantages are substantial—they are adaptable, enjoyable, and easy to fit into lessons. Teachers can even let students create their own tongue twisters, turning the activity into a creative challenge that engages everyone (Cahyani & Panjaitan, 2020; Yuniar, Pahlevi, & Hoerniasih, 2021).

Looking at previous studies, many researchers have examined the use of tongue twisters for pronunciation improvement, but most have focused on older students or teacher trainees (Puspita et al., 2023; Cahyani & Panjaitan, 2020; Yuniar et al., 2021). There is far less research on using them with junior high school students in rural areas, where exposure to English outside the classroom is minimal. This study focuses on that specific group and on three particular sounds (/p/, /t/, and /s/) which are the target sounds in the pronunciation test. By combining these with structured pre-test and post-test activities, this research aims to provide measurable evidence of their effectiveness in this unique context. Hence, the aim of this study is to analyze whether tongue twisters can significantly improve the pronunciation of /p/, /t/, and /s/ sounds among seventh-grade students at SMP Negeri 3 Tondano.

METHOD

To answer the research questions, this study adopted a quantitative research method, which, according to Sugiyono (2018), focuses on collecting and analyzing numerical data in order to objectively measure variables and test hypotheses. Similarly, Creswell (2014) explains that quantitative research is often used when researchers aim to evaluate the effectiveness of a teaching method through clear, measurable results. In line with this, the present study applied a pre-experimental design with a one-group pre-test–post-test model as outlined by Campbell and Stanley (1963). This design was chosen because it enables the researcher to measure students’ performance before and after the intervention, making it possible to see precisely how much improvement occurred as a result of using tongue twisters. By doing so, the study could focus directly on the effectiveness of the treatment without the need for a comparison group.

The research was conducted over eight meetings during the first semester of the 2024–2025 academic year at SMP Negeri 3 Tondano. The population, as defined by Sugiyono (2018), is a collection of objects that share certain similarities. In this case, the population consisted of all seventh-grade students at SMP Negeri 3 Tondano. The sample, according to Sugiyono (2018), is a subset of the population with particular characteristics that represent the larger group. For this study, the sample was taken from Class 7A, which is one of the BINSUS (Binaan Khusus) classes at SMP Negeri 3 Tondano. The BINSUS class is a specially designated group for students who demonstrate higher academic

potential and motivation. These students often receive additional enrichment in academic subjects and are expected to perform at a higher level than those in regular classes.

The sampling technique used in this study was purposive sampling, which, as described by Sugiyono (2018), is a method of selecting participants based on specific considerations set by the researcher. In this case, Class 7A was deliberately chosen because the students in the BINSUS program were considered capable of actively engaging with a new learning technique and completing the pronunciation-focused activities using tongue twisters. This choice was not made at random; it was supported by insights from the English teacher and the researcher's preliminary observations, both of which revealed that the students shared similar pronunciation challenges. By focusing on this class, the study could reach learners who were most likely to benefit from the intervention.

At the same time, the relatively small group size—comprising 13 students with different levels of English proficiency—allowed for more detailed pronunciation assessment and closer monitoring of individual progress. Additionally, using purposive sampling in this context helped ensure that the findings were directly applicable to the target population—students facing specific pronunciation difficulties—thereby increasing the relevance and impact of the study's results. Furthermore, the class's accessibility to the researcher made it possible to conduct consistent observations, collect data effectively, and evaluate the results thoroughly.

In this study, the primary research instrument was a pronunciation test developed by the researcher and adapted from widely used pronunciation assessment frameworks (Gilakjani, 2012; Gonzales, 2009), ensuring it aligned with the learning objectives and common pronunciation challenges faced by Indonesian learners. The instrument was specifically constructed to measure students' ability across five key pronunciation areas:

1. Consonants: Evaluating clarity and accuracy in producing targeted sounds such as /p/, /t/, /s/, /θ/, and /ʃ/.
2. Vowels: Assessing correct vowel articulation and reducing mother-tongue interference.
3. Stress patterns: Measuring correct placement of stress in multisyllabic words and sentences.
4. Intonation: Checking appropriate rising and falling intonation patterns in different sentence types.
5. Rhythm: Evaluating fluency, connected speech, and pacing in spoken English.

In addition, a tongue twister task was included to test students' articulation speed, consonant clusters, and fluency under time pressure. The scoring system was based on a rubric adapted from Anas Sudijono (2012), where each of the six criteria (five aspects plus the tongue twister) was rated from 0 (poor) to 3 (excellent). This rubric provided a clear, structured way to evaluate performance consistently across all students. For reliability, the instrument was piloted with a small group of students, and the results were analyzed using Cronbach's alpha, yielding a coefficient of 0.82, which indicates high reliability (Sugiyono, 2018). The same test was used for both the pre-test and post-test to ensure that any observed changes could be attributed directly to the treatment rather than variations in test content. The pre-test served to assess the students' initial pronunciation abilities, while the post-test measured improvement after the intervention.

Table 1. Scoring Rubric

Criteria	Score 0	Score 1	Score 2	Score 3
Consonants	Was not able to pronounce any consonant correctly.	Several consonants mispronounced; speech is difficult to understand.	Minor errors in some consonants, but overall understandable.	Accurate and clear pronunciation of most consonant sounds.
Vowels	Most vowel sounds are mispronounced and unclear.	Many vowel errors, speech may be confusing.	Some vowel errors, but listener can understand the intended words.	Clear, accurate vowel sounds throughout.
Stress Patterns	No awareness of stress patterns, wrong syllables stressed.	Inconsistent stress; stressed syllables often incorrect.	Mostly correct stress with a few inconsistent patterns.	Accurate use of word and sentence stress throughout.
Intonation	Flat or inappropriate intonation; no variation.	Limited intonation variation, may sound robotic or unnatural.	Some intonation used correctly, with a few unnatural rises/falls.	Natural intonation patterns that support meaning and emotion.

Rhythm	Very choppy or too fast/slow, no sense of natural flow.	Uneven rhythm, frequent pauses or unnatural pacing.	Mostly steady rhythm with minor disruptions.	Smooth, natural rhythm and pacing.
Tongue Twisters	Could not complete the Tongue Twister; incomprehensible.	Completed with difficulty; many mispronunciations or hesitations.	Completed with a few hesitations or errors, mostly understandable.	Completed fluently with minimal errors; confident and clear delivery.

Data collection followed an eight-meeting procedure. In the first meeting, the researcher conducted the pre-test, during which students individually completed the pronunciation test. Each performance was recorded to ensure scoring accuracy and to allow for re-checking when needed. In the second to the seventh meetings, the researcher conducted the treatment sessions, introducing and guiding students in practicing pronunciation using tongue twisters, focusing on problematic sounds and gradually increasing speed to enhance fluency. Activities included slow-paced repetition, rhythm practice, and stress drills. In the eighth meeting, the researcher conducted the post-test, where students completed the same pronunciation test again, with performances recorded for comparison against the pre-test results.

In this study, the data were analyzed to determine whether the use of tongue twisters was effective in improving students' English pronunciation. Since the aim was to measure the effectiveness of a treatment, calculating and comparing only the mean scores of the pre-test and post-test was not sufficient. Therefore, the analysis was carried out comprehensively using SPSS statistical software to obtain more accurate and reliable results. The analysis involved three main steps. First, descriptive statistics were calculated to summarize the students' pronunciation scores in both the pre-test and post-test. This included measures such as the mean, minimum and maximum scores, and standard deviation, which provided a clear overview of students' performance before and after the treatment. Second, a normality test was conducted for both the pre-test and post-test scores to determine whether the data were normally distributed. The Shapiro–Wilk test in SPSS was applied, as it is considered appropriate for small sample sizes ($n < 50$). The results of the normality test were used to determine the appropriate statistical test for further analysis. Third, a paired-sample t-test (not an independent t-test) was used to compare the pre-test and post-test scores. This test determined whether there was a statistically significant difference in students' pronunciation performance after receiving the tongue twister treatment. A significance level (α) of 0.05 was used as the threshold for determining statistical significance, meaning that if the p-value obtained from the t-test was less than 0.05, the difference in scores would be considered significant.

For data analysis, the researcher calculated the pre-test and post-test results using SPSS, adapting the scoring sheet from Anas Sudijono (2012). The scoring for each assessment ranged from 0–3. Below is the scoring rubric for each assessment. Finally, based on the research objectives, the hypotheses were formulated as follows:

- Null Hypothesis (H_0): There is no significant difference in the pronunciation ability of seventh-grade students at SMP Negeri 3 Tondano before and after being taught using tongue twisters.
- Alternative Hypothesis (H_1): There is a significant difference in the pronunciation ability of seventh-grade students at SMP Negeri 3 Tondano before and after being taught using tongue twisters.

FINDINGS

Descriptive Statistics

Descriptive statistics were first calculated to provide an overview of the students' pronunciation performance before and after the intervention. The scores were then converted to a conventional scale (0–100) to ensure clarity and comparability. For the pre-test, students' total scores ranged from 33.33 to 61.11, with a mean score of 40.59 ($SD = 9.73$) and a median of 33.33. The total sum of all pre-test scores was 527.73. These figures indicate that, prior to the tongue twister treatment, students' pronunciation ability was generally in the lower range, suggesting a clear need for targeted intervention. In contrast, the post-test results showed scores ranging from 33.33 to 83.33, with a mean score of 63.24 ($SD = 14.08$) and a median of 66.66. The total sum of scores increased to 822.15. This upward shift in both the mean and median reflects a substantial improvement in students' pronunciation performance after receiving the treatment. Interestingly, the standard deviation in the post-test (14.08) was higher than in the pre-test (9.73). As Creswell (2012) explains, a higher standard deviation indicates greater variation in performance, meaning that while most students experienced improvement, the degree of progress varied from one student to another.

This descriptive analysis provides an initial indication that the tongue twister technique positively influenced students' pronunciation skills. However, as Ary et al. (2018) emphasize, descriptive statistics alone cannot confirm the statistical significance of this improvement. Therefore, these results serve as the foundation for subsequent inferential analyses, including normality testing and a paired-sample *t*-test, to determine whether the observed differences are statistically significant rather than occurring by chance. Below are the tables for the pre-test and post-test results, along with the descriptive statistics obtained from the SPSS output.

Table 2. Students' Pre-Test Result

Name	C	V	SP	I	R	TT	Total Score	Score
Student 1	1	1	1	2	1	1	7	38.88
Student 2	2	2	1	1	1	1	8	44.44
Student 3	1	1	1	1	1	1	6	33.33
Student 4	2	2	1	1	1	1	8	44.44
Student 5	1	1	1	1	1	1	6	33.33
Student 6	1	1	1	1	1	1	6	33.33
Student 7	1	1	1	1	1	1	6	33.33
Student 8	2	2	1	2	2	1	10	55.55
Student 9	1	1	1	1	1	1	6	33.33
Student 10	2	2	2	2	2	1	11	61.11
Student 11	2	1	2	2	1	1	9	50
Student 12	1	1	1	1	1	1	6	33.33
Student 13	1	1	1	1	1	1	6	33.33
Overall Mean Score								40.59

Table 3. Students' Post-Test Result

Name	C	V	SP	I	R	TT	Total Score	Score
Student 1	2	2	2	2	2	2	12	66.66
Student 2	2	2	2	2	2	2	12	66.66
Student 3	2	2	2	2	2	2	12	66.66
Student 4	2	2	2	2	2	2	12	66.66
Student 5	2	2	2	2	2	2	12	66.66
Student 6	1	1	1	1	1	1	6	33.33
Student 7	1	1	1	1	1	1	6	33.33
Student 8	2	2	2	2	2	2	12	66.66
Student 9	2	2	2	2	2	2	12	66.66
Student 10	3	2	2	2	2	2	13	72.22
Student 11	2	2	2	2	2	2	12	66.66
Student 12	2	2	2	2	2	2	12	66.66
Student 13	2	3	3	2	3	2	15	83.33
Overall Mean Score								63.24

Table 4. Descriptive Statistics

	n	Minimum	Maximum	Sum	Mean	Std. Deviation
Pre-test Total Score	13	33.33	61.11	527.73	40.59	9.72515
Post-Test Total Score	13	33.33	83.33	822.15	63.24	14.07934
Valid N (Listwise)	13					

Normality Test

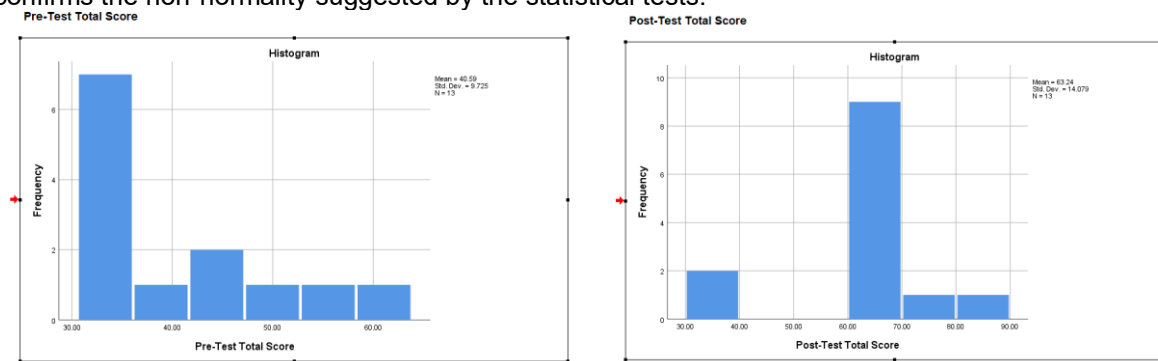
After obtaining the descriptive statistics, the next step was to examine whether the pre-test and post-test scores were normally distributed. This step was crucial, as the selection of appropriate statistical tests depends on whether the data meet the assumption of normality (Field, 2018; Sugiyono, 2018). To assess this assumption, both the Kolmogorov–Smirnov and Shapiro–Wilk tests were conducted. For the pre-test total scores, the Kolmogorov–Smirnov test yielded a significance value of 0.001, while the Shapiro–Wilk test produced 0.004. For the post-test total scores, both tests indicated significance values of 0.000. Since all of these values fall below the 0.05 threshold, the results suggest that both the pre-test and post-test datasets deviate significantly from a normal distribution. The data deviated from the normal distribution is caused by a very limited sample since the p-value from a

normality test is highly influenced by sample size (Uttley, 2019). Results from a small sample are unstable because any single data point has a disproportionate influence on the outcome.

Table 5. Normality Test						
	Kolmogorov-Smirnov ^a			Saphiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-Test Total Score	.311	13	.001	.778	13	.004
Post-Test Total Score	.422	13	.000	.663	13	.000

a. Lilliefors Significance correction

This statistical result is further supported by the histogram analysis. In the pre-test distribution, a substantial number of students clustered at the lower end of the scale, with seven students scoring 33.33 and only one student achieving 61.11, indicating a strong left-skewed pattern rather than the balanced, bell-shaped curve typical of a normal distribution. Similarly, in the post-test distribution, nine students scored 66.66, while only a few were positioned at either extreme (two students at 33.33 and one each at 72.22 and 83.33). This pronounced clustering of scores demonstrates limited variability and further confirms the non-normality suggested by the statistical tests.



Picture 1. Histogram Analysis of Pre-Test and Post-Test Data Distribution

As Pallant (2020) emphasizes, when the significance value in normality tests falls below 0.05, the assumption of normality is violated. By integrating both statistical and visual analyses, this study ensured that the chosen inferential approach accurately reflected the data's distribution pattern, thereby strengthening the validity and reliability of the overall findings.

T-test

The paired samples *t*-test was conducted to compare the mean pronunciation scores before and after the implementation of the Tongue Twister treatment. The Paired Samples Statistics revealed that the mean score increased markedly from 40.59 in the pre-test to 63.24 in the post-test, indicating a substantial improvement in students' pronunciation performance. The Paired Samples Correlation table showed a correlation coefficient of $r = 0.290$ ($p = 0.336$), suggesting a weak but positive relationship between the pre-test and post-test scores, although this correlation was not statistically significant. This finding implies that the improvement in scores was more likely attributable to the treatment rather than a consistent pre-existing pattern among the participants.

Table 6. Paired Samples Statistics					
Pair 1		Mean	N	Std. Deviation	Std. Error Mean
	Pre-Test Total Score	40.59	13	9.72515	2.69727
	Post-Test Total Score	63.24	13	14.07934	3.90491

Table 7. Paired Samples Correlation				
Pair 1		N	Correlation	Sig.
	Pre-Test Total Score Post-Test Total Score	13	.290	.336

Table 8. Paired Samples Test

Pair 1	Pre-test Score – Post-Test Score	Paired Differences							
		Mean	St. Dev	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2- tailed)
					Lower	Upper			
		22.64769	14.60373	4.05035	13.82275	31.47264	5.592	12	.000

The Paired Samples Test further demonstrated a mean difference of 22.65, with a 95% confidence interval ranging from 13.82 to 31.47. The obtained t value (5.592) was considerably higher than the critical t table value of approximately 2.179 at $df = 12$ and $\alpha = 0.05$. Because $t_{\text{count}} > t_{\text{table}}$ and the significance value ($p = 0.000$) was well below the 0.05 threshold, the results indicate that the difference between the pre-test and post-test scores was statistically significant. These findings provide strong empirical support for the effectiveness of the Tongue Twister technique in improving students' pronunciation skills.

Given these results, the null hypothesis (H_0), which stated that there was no significant difference in pronunciation scores before and after the use of Tongue Twisters, was rejected. Conversely, the alternative hypothesis (H_1), which posited that Tongue Twisters significantly improved students' pronunciation performance, was accepted. This finding confirms that the technique not only facilitated better articulation of difficult sounds and enhanced rhythm and intonation but also produced a statistically significant improvement in overall pronunciation ability.

DISCUSSIONS

The findings of this study clearly show that Tongue Twisters had a strong and positive effect on students' pronunciation skills. Before the treatment, the average score was 40.59, which placed most students in the lower range of performance. After a short period of focused practice, the average increased to 63.24. This improvement supports what second language acquisition experts have long suggested—that when learners repeatedly practice the sounds most difficult for them, they can make meaningful progress (Celce-Murcia et al., 2010). In this case, the playful yet challenging nature of Tongue Twisters helped students focus on difficult consonants such as /θ/ in *thin* and /ʃ/ in *shiny*, as well as on rhythm, stress, and intonation.

The statistical tests reinforced this positive trend. The paired samples t -test revealed a highly significant difference between the pre-test and post-test scores ($t = 5.592$, $p < .05$), confirming that the improvement was not a random occurrence. Interestingly, the correlation between the two sets of scores was relatively low ($r = .290$, $p > .05$), suggesting that the post-test gains were not merely a continuation of earlier patterns but rather the result of an actual change brought about by the treatment itself. These outcomes align with previous research findings. For instance, Puspita et al. (2023) demonstrated that Tongue Twisters enhance pronunciation by making practice both challenging and enjoyable. Similarly, Cahyani and Panjaitan (2020) reported that this technique outperforms traditional drilling methods in helping learners master pronunciation. The current study adds to these findings by providing clear statistical evidence of improvement and by showing progress not only in individual sounds but also in overall fluency, rhythm, and word stress.

The results also reveal that not all students improved at the same rate. This was evident in the wider spread of post-test scores ($SD = 14.08$) compared to the pre-test ($SD = 9.73$). While most students demonstrated strong progress, a few improved more slowly, possibly due to differences in prior English exposure, listening ability, or personal confidence. This aligns with Derwing and Munro's (2005) observation that pronunciation learning is influenced not only by linguistic ability but also by individual factors such as motivation and anxiety.

This study, as noted, has certain limitations. The small sample size of only 13 students, all from the same BINSUS class, limits the generalizability of the findings. Additionally, the short duration of the treatment means it remains uncertain how long the improvements might last without continued reinforcement. Future research should therefore explore the use of Tongue Twisters with larger participant groups, in varied school contexts, and over extended periods to determine whether the gains are sustained over time.

CONCLUSION

The findings of this pre-experimental study clearly demonstrate that the use of Tongue Twisters had a strong and positive effect on the pronunciation skills of seventh-grade students at SMP Negeri 3

Tondano. Following the treatment, the students' mean score increased markedly from 40.59 in the pre-test to 63.24 in the post-test. A paired samples *t*-test confirmed that this improvement was statistically significant ($t(12) = 5.592, p < .001$), indicating that the observed progress was highly unlikely to have occurred by chance. These results provide compelling evidence that Tongue Twisters can effectively enhance students' articulation, stress accuracy, rhythm, and intonation, making them a powerful and engaging tool for developing English pronunciation skills.

ACKNOWLEDGMENTS

The researchers would like to express their gratitude for all parties who supported and helped the researchers.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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