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Effects of Story Mapping on EFL Speaking Fluency and Comprehensibility: A Quasi-Experimental Study of Tenth-Grade Students

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ABSTRACT

This research investigates the effectiveness of the story-mapping technique in improving the speaking skills of tenth-grade students at SMA Negeri 1 Sindue. The study was conducted because many students faced challenges in speaking English, such as limited vocabulary, pronunciation difficulties, low confidence, and fear of making mistakes. A quantitative approach with a quasi-experimental pre-test and post-test control group design was employed. The sample consisted of two classes: the experimental group (n = 34), which was taught using story mapping, and the control group (n = 36), which received the oral presentation method, in which students practised speaking by presenting material orally in front of the class. Students' speaking skills were assessed for fluency and comprehensibility by two trained raters specialising in speaking with, and the scores maintained scoring reliability. The descriptive statistics showed that the experimental group achieved a notable improvement, with the mean score increasing from 42.06 in the pre-test to 52.35 in the post-test, whereas the control group showed no meaningful change. The Mann-Whitney U Test further confirmed a significant difference between the groups, indicated by an Asymp. Sig. value of 0.004, supported by a medium effect size (r = 0.34). These findings demonstrate that story mapping helps students organise ideas more effectively, speak more fluently, and express thoughts more clearly. Therefore, story mapping is considered an effective technique for enhancing speaking skills and is recommended for use in an English-speaking classroom.

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1. INTRODUCTION

Speaking is one of the most important skills in language learning, especially English, which has become a global language for communication. According to Brown [1], "speaking is a complex skill that involves producing language orally to convey meaning to others".

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This means that speaking is not just about saying words correctly, but also about expressing ideas, thoughts, and feelings clearly and communicatively. For students, good speaking skills help them communicate in daily conversations, participate in discussions, and share their opinions confidently. However, many students struggle to speak because they lack self-confidence, fear making mistakes, and have limited vocabulary, which makes it difficult for them to speak fluently. Research shows that students with higher self-confidence usually perform better in speaking [2].

In Indonesian senior high schools, English lessons now focus on improving both speaking and writing skills. The Merdeka Curriculum gives schools, teachers, and students more freedom to try new teaching methods that match students' needs. As Ni'mah et al. [3] point out, teachers create customised lessons and include the values of the Pancasila Student Profile in English teaching. In line with guidelines [4], English learning should be practical and useful, with a focus on helping students improve their speaking. Still, in the classroom, many students struggle with limited vocabulary, pronunciation mistakes, and fear of making errors, which makes them hesitant to speak.

Studies also show that both language ability and psychological factors affect how well students speak. Darsiana [5] found that even students who understand basic grammar struggle with pronunciation and vocabulary, making it hard to speak. In addition, Souisa and Gaite [6] show that anxiety, shyness, and low self-confidence make students less willing to speak in class. This shows that teachers need methods that not only improve skills like vocabulary and pronunciation but also help students feel more confident.

One effective method is story mapping, which helps students organise the parts of a story – such as characters, setting, plot, problem, and resolution – before retelling it aloud. Kurniawan and Agustina [7] found that using story maps helps students understand the story better and prepares them to retell it more confidently. Pratiwi [8] also found that story mapping helps students organise their ideas, enabling them to speak more clearly and confidently. However, most previous studies focus on story mapping to improve comprehension or narrative retelling, rather than specifically on enhancing speaking fluency and comprehensibility. This becomes the study's gap: story mapping has rarely been tested directly as a technique to improve students' oral performance in Indonesian high school settings.

Observations at SMA Negeri 1 Sindue show that many tenth-grade students face problems when speaking English: limited vocabulary makes it hard to express ideas, pronunciation mistakes lower confidence, and fear of mistakes or shyness prevents active participation. Many classrooms focus more on writing than speaking, which limits chances to practice. Studies support this. Suryadi [2] found that self-confidence and vocabulary strongly influence speaking ability. Another study, Hidayah et al. [9], shows that vocabulary and self-efficacy are positively linked to speaking skills – the better the vocabulary and self-belief, the better the speaking. Because of these challenges, this study aims to determine whether story mapping can improve students' speaking skills, particularly their fluency and comprehensibility. Thus, the novelty of this research lies in applying story mapping not only to understand stories but also to develop students' speaking fluency and comprehension

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among Indonesian tenth-grade learners. The goal is to provide teachers with ideas for more effective and student-friendly ways to teach speaking.

2. METHOD

This study used a quantitative approach with a quasi-experimental design, specifically a pretest-posttest control-group design. According to Hastjarjo [10], comparisons between groups are still needed. This idea is supported by Saputri and Mardiati [11], who explain that using pre-test and post-test in non-equivalent groups allows researchers to evaluate the effect of a treatment, even when the school already forms classes. This study aimed to examine the effectiveness of the story mapping technique in improving the speaking skills of tenth-grade students at SMA Negeri 1 Sindue. Two groups were involved: the experimental group, which was taught using story mapping, and the control group, which received conventional teaching methods. Both groups took a pre-test to measure their initial speaking ability and a post-test to assess their improvement after the treatment. This design helped determine whether story mapping had a significant effect on students' speaking abilities.

Experimental	O_1	X	O_2
Control	O_3		O_4

Where:

O_1 : Pre-test in the experimental class
O_2 : Post-test in the experimental class
O_3 : Pre-test in the control class
O_4 : Treatment for experimental class
X : Treatment for experimental class

The population of this study included all tenth-grade students at SMA Negeri 1 Sindue in the 2025/2026 academic year, totalling 239 students across seven classes (X A–X G). According to Timamah et al. [11], selecting an appropriate population is crucial because it directly influences the quality and validity of research results. From this population, two classes were chosen as samples using cluster random sampling. One class served as the experimental group, while the other acted as the control group. The experimental group received instruction using the story mapping technique, which helped students organise their ideas before speaking, whereas the control group continued with traditional teaching methods. Sugiyono [12] explains that cluster random sampling is practical for classroom research because it allows teaching and testing to occur naturally in existing classes while minimising selection bias.

The research instrument was a speaking test administered as a pre-test and post-test. The pre-test assessed students' baseline speaking ability, while the post-test evaluated the effectiveness of story mapping. The speaking skills test assessed fluency and comprehensibility using a 5-point rating scale adapted from Brown (2004) and Heaton (1988). The assessment rubric was presented in the following table:

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Table 1. The assessment rubric

Rating	Fluency	Comprehensibility
5	Speaks fluently with natural speed and smooth flow of ideas; had very few pauses or hesitation.	Speech was very easy to understand; minor errors in pronunciation or vocabulary did not interfere with meaning.
4	Generally fluent; some hesitation or pauses, but communication was not significantly affected.	Mostly understandable; occasional errors in pronunciation or vocabulary caused slight difficulty but meaning remained clear.
3	Understandable with some effort; frequent errors in pronunciation or vocabulary sometimes interfere with meaning.	Moderate hesitation and pauses; speech sometimes fragmented; communication was understandable but not smooth.
2	Frequent pauses, repetition, and hesitation; speech was often difficult to follow.	Often difficult to understand; errors in pronunciation, vocabulary, or grammar caused frequent misunderstanding.
1	Very hesitant with long pauses; communication was almost impossible to follow.	Very hard to understand; constant errors made comprehension almost impossible.

The treatment for the experimental group consisted of four 45-minute sessions over four weeks. In each session, students were guided to organise story elements such as characters, setting, plot, problem, and resolution before orally retelling the story. Group discussion and oral presentations were included to increase participation and build students' confidence. Previous studies show that story mapping helps students structure ideas, reduce anxiety, and improve speaking clarity [7], [13].

Data were analysed using SPSS to calculate descriptive statistics and determine whether improvements in the experimental group were statistically significant. The increase in post-test scores relative to the pre-test indicated that story mapping improved students' performance. The use of SPPS in this study is in line with previous studies. Marliana [14] showed that SPSS helps reveal clear progress patterns in classroom-based speaking activities, making it easier to detect shifts before and after treatment. Likewise, Suryadi and Erlangga [15] highlighted that SPSS supports accurate comparison between different learning groups, ensuring that any improvement measured after the intervention truly reflects the effect of the teaching strategy used.

3. RESULTS AND DISCUSSION

The findings revealed that the story mapping technique was effective in improving students' speaking skills. Analysis of pre-test and post-test scores showed that the experimental group, which was taught using story mapping, improved more than the control group taught through conventional methods. Overall, the technique helped students organise ideas more clearly, resulting in better speaking performance.

3.1. Results

The pre-test and post-test were administered to determine whether the story-mapping technique could effectively improve the speaking skills of tenth-grade students at SMA Negeri 1 Sindue. The pre-test was used to see their starting ability, while the post-test checked how much they improved after the treatment. The experimental group learned using story mapping, which helped them organise their ideas visually before speaking, a technique

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that has also been shown to support speaking improvement by improving idea organisation [16]. In contrast, the control group used the usual method that relied on teacher explanations and repetition. After a few treatment sessions, both groups took the post-test in October 2025. When the pre-test and post-test scores were compared, the experimental group showed a clearer improvement than the control group, as seen in the descriptive results in the following table:

Table 2. Descriptive Statistics

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Pre-Test Experiment	34	70	20	90	42.06	16.838
Post-Test Experiment	34	80	20	100	52.35	20.898
Pre-Test Control	36	70	20	90	39.72	19.492
Post-Test Control	36	60	20	80	38.33	16.987
Valid N (listwise)	34					

The descriptive results show that the experimental group's mean score increased from 42.06 to 52.35 after learning with story mapping. Meanwhile, the control group's mean score decreased slightly from 39.72 to 38.33, indicating that the conventional method did not lead to meaningful improvement. Overall, these findings suggest that story mapping had a positive impact on students' speaking development. To ensure the analysis was accurate, the data were tested for normality using the Kolmogorov-Smirnov and Shapiro-Wilk tests, following the guidelines [17]. With a significance level of 0.05, data is considered normal if Sig. >0.05. The results are shown in Table 3:

Table 3. Test of Normality

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	Statistic	df	Sig.	Statistic	df	Sig.
Results of Speaking Skills Learning	Pre-Test Experiment (Story Mapping)	.187	34	.004	.902	34	.005
	Post-Test Experiment (Story Mapping)	.104	34	.200*	.956	34	.187
	Pre-Test Control (Conventional)	.233	36	<,001	.861	36	<,001
	Post-Test Control (Conventional)	.249	36	<,001	.858	36	<,001

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

The post-test data from the experimental group were normally distributed, while the other data were not, so a non-parametric test was needed. Because of this, the Mann-Whitney U test was used to compare post-test scores between the two groups. This method is often used in educational research when the data are not normal [19]. The ranking and test results are shown in tables:

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Table 4. The ranking and test results

Ranks				
	Kelas	N	Mean Rank	Sum of Ranks
Hasil Belajar Speaking Skill	PostTest Experiment	34	42.53	1446.00
	Post-Test Control	36	28.86	1039.00
	Total	70		

The experimental group had a higher mean rank (42.53) than the control group (28.86), indicating that students taught with story mapping performed better on the post-test.

Table 5. Test Statistics

Test Statistics[a]	
	Hasil Belajar Speaking Skill
Mann-Whitney U	373.000
Wilcoxon W	1039.000
Z	-2.867
Asymp. Sig. (2-tailed)	.004

a. Grouping Variable: Kelas

The significance value (0.004) was lower than 0.05, indicating a statistically significant difference between the post-test scores of the two groups. This result confirms that the story mapping technique had a significant effect on improving students' speaking skills compared to the conventional method. This finding aligns with other studies that used a quasi-experimental design and the Mann-Whitney test, showing that interactive learning techniques can lead to greater improvement in language abilities than traditional methods [20].

3.2. Discussion

The results of this research show that the story mapping had a clear and significant impact on improving the speaking skills of tenth-grade students at SMA Negeri 1 Sindue. This conclusion is supported by the Mann-Whitney U Test, which produced an Asymp. Sig. (2-tailed) value of 0.004 – lower than the 0.05 significance level. This means there was a meaningful difference between the post-test scores of the experimental group taught with story mapping and those of the control group taught using conventional methods. A similar positive effect was observed in an earlier quasi-experimental study where storytelling-based instruction significantly improved students' speaking ability [21]. The mean rank scores also showed that the experimental group outperformed the control group, indicating that students who learned through story mapping were able to speak more clearly, confidently, and in a more organised way. These improvements suggest that story mapping helped students arrange their ideas, remember story sequences, and express their thoughts more effectively during speaking activities. This may occur because story mapping reduces students' cognitive load by providing a clear structure to follow, allowing them to focus more on fluency and pronunciation rather than generating ideas spontaneously. The pre-organised

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narrative framework also facilitates easier vocabulary retrieval, contributing to more fluent and coherent speech.

These findings align with theories and previous studies that highlight the benefits of story mapping in language learning. By creating and interpreting story maps, students not only organised their ideas better but also felt more confident when speaking. The process of mapping characters, settings, plots, problems, and resolutions encouraged students to think more logically and to present their ideas in a structured way. This result supports the findings of Putri et al. [22] who reported that story mapping improved students' understanding of narrative structures and strengthened their oral expression. Wulandari [23] also found that visual-based techniques like story mapping increased students' engagement and helped them participate more actively in communication tasks. Likewise, Isnani [24] showed that story mapping helped students connect ideas more easily, making their speech more fluent and coherent. Overall, the results of this study reinforce earlier research by showing that story mapping is not only useful for reading comprehension but also highly effective for improving speaking skills. In addition, the structured visual cues provided by story mapping help students maintain narrative order, reducing confusion and supporting smoother delivery, further explaining the improvement.

However, this study also found several challenges. Some students were still shy, hesitant, or lacked the confidence to speak in front of the class, especially at the beginning of lessons. Their low motivation led them to be less active during speaking activities. To address this, this learning process was done in groups. Students worked together to create story maps and then presented them as a team. This group approach helped build confidence, especially for students who were initially reluctant to speak, because they felt supported by their peers. This finding is in line with Wahyudi and Irawati [25], who found that visual and cooperative techniques like mind mapping helped students feel more prepared and confident when speaking. It also agrees with Merla [26], who showed that group work not only improved speaking performance but also increased motivation and self-confidence through collaboration and peer support. In this study, group activities played a key role in helping students speak more actively and confidently, even when they struggled at first. However, it is also possible that factors unrelated to story mapping, such as teacher enthusiasm, increased attention to the experimental class, or stronger peer collaboration, may have contributed to the improvement, meaning the gains cannot be attributed solely to the technique itself.

Although the results show a clear positive effect, this study still has some limitations to consider. This research was conducted at a single school with a small number of students, so the findings may not generalise to other schools or different learning conditions. The treatment was also quite short, only four meetings, so it does not show how story mapping might work in the long term. There is also a risk of rater bias, as this study did not include inter-rater reliability. Finally, the quasi-experimental design used non-equivalent groups, which means that other classroom factors outside the treatment may have influenced the results.

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4. CONCLUSION

This research aimed to determine the effectiveness of story mapping in improving the speaking skills of tenth-grade students at SMA Negeri 1 Sindue, and the findings showed that this technique had a strong positive impact on students' speaking performance. This conclusion is supported by the statistical finding that the post-test comparison yielded a p-value of 0.004, indicating a significant difference between the experimental and control groups. Students who learned through story mapping were better at organising ideas, expressing thoughts clearly, and speaking more fluently and comprehensively, as reflected in their smoother speech, fewer pauses, and more structured delivery. Story mapping helped students visualise the flow of ideas before speaking, reducing cognitive load so they could focus on meaning rather than worrying about mistakes.

In practical terms, teachers can apply story mapping by guiding students to map characters, setting, plot, problem, and resolution before speaking activities. This visual preparation helps students generate ideas more easily and speak more confidently during presentations, retelling tasks, or discussions. For future research, longer interventions are recommended to examine long-term improvement, along with exploring different text genres, applying the technique at other grade levels, and including retention tests to measure how well students maintain speaking gains over time.

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