From Confusion to Clarity: Feynman Technique in Reading

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ABSTRACT

This study, entitled From Confusion to Clarity: Feynman Technique in Reading, investigated the effectiveness of the Feynman Technique in improving senior high school students' reading comprehension. A quasi-experimental design was employed with two eleventh-grade classes at SMA Negeri 7 Tanjungpinang: XI IPA 2 as the experimental group and XI IPS 2 as the control group. The experimental group was taught using the Feynman Technique, while the control group received conventional instruction. Data were collected through pre-tests, post-tests, and a questionnaire. The quantitative results showed that the experimental group's mean score increased from 58 (pre-test) to 74 (post-test), while the control group improved from 56 to 67. An independent samples t-test revealed a statistically significant difference (p = 0.000 < 0.05), with a large effect size (Cohen's d = 0.87). The qualitative findings further indicated that 90% of students felt the technique helped them overcome comprehension difficulties, 77% reported it simplified complex concepts, 80% stated it improved their confidence in explaining ideas, and 73% agreed it enhanced their overall comprehension. These results demonstrate that the Feynman Technique is not only statistically effective but also positively perceived by learners, making it a valuable pedagogical approach to strengthen reading comprehension in secondary education.
Keywords: *Reading Comprehension; Feynman Technique*

ABSTRAK

Penelitian ini, berjudul From Confusion to Clarity: Feynman Technique in Reading, meneliti efektivitas Teknik Feynman dalam meningkatkan kemampuan pemahaman membaca siswa SMA. Penelitian ini menggunakan desain kuasi-eksperimen dengan dua kelas XI di SMA Negeri 7 Tanjungpinang: XI IPA 2 sebagai kelas eksperimen dan XI IPS 2 sebagai kelas kontrol. Kelas eksperimen diajar dengan menggunakan Teknik Feynman, sementara kelas kontrol diajar dengan metode konvensional. Data dikumpulkan melalui pre-test, post-test, dan kuesioner. Hasil kuantitatif menunjukkan bahwa rata-rata skor kelas eksperimen meningkat dari 58 (pre-test) menjadi 74 (post-test), sedangkan kelas kontrol meningkat dari 56 menjadi 67. Uji-t sampel independen menunjukkan perbedaan yang signifikan secara statistik (p = 0.000 < 0.05), dengan ukuran efek yang besar (Cohen's d = 0.87). Temuan kualitatif lebih lanjut

menunjukkan bahwa 90% siswa merasa teknik ini membantu mereka mengatasi kesulitan pemahaman, 77% menyatakan teknik ini menyederhanakan konsep yang sulit, 80% mengatakan teknik ini meningkatkan kepercayaan diri mereka dalam menjelaskan ide, dan 73% setuju bahwa teknik ini meningkatkan pemahaman mereka secara keseluruhan. Hasil ini menunjukkan bahwa Teknik Feynman tidak hanya efektif secara statistik tetapi juga diterima secara positif oleh peserta didik, sehingga menjadi pendekatan pedagogis yang berharga untuk memperkuat pemahaman membaca di pendidikan menengah.

KataKunci: kemampuan pemahaman membaca, Teknik Feynman

INTRODUCTION

Reading comprehension is a fundamental skill in English language learning, as it enables students to extract meaning, identify main ideas, and critically analyze texts. Despite its central role, many senior high school students in Indonesia continue to struggle with comprehension, particularly when engaging with English texts. These difficulties often stem from limited vocabulary, lack of effective reading strategies, and weak metacognitive awareness (Grabe & Stoller, 2013; Snow, 2002).

Preliminary observations and discussions with English teachers at SMA Negeri 7 Tanjungpinang revealed that many eleventh-grade students experience significant difficulties in reading comprehension. While they are generally able to read texts aloud, they often fail to identify main ideas, locate supporting details, or draw appropriate inferences. Their comprehension scores frequently fall below the minimum mastery criterion (KKM), indicating that their reading proficiency does not meet expected standards. Moreover, many students reported feeling unmotivated and confused when confronted with long English passages, leading to low engagement during reading lessons.

Theoretically, reading comprehension is understood as an interactive process in which readers integrate textual information with prior knowledge (Snow, 2002). Grabe and Stoller (2013) describe comprehension as a multifaceted skill involving decoding, vocabulary mastery, and critical thinking. From a cognitive perspective, Piaget (1972) emphasizes that learners actively construct knowledge by processing and reorganizing information, while Vygotsky (1978) highlights the importance of scaffolding and peer interaction through the Zone of Proximal Development (ZPD). These perspectives underscore the need for instructional strategies that promote active engagement and learner-centered activities.

Metacognition is also central to successful reading. Flavell (1979) defines metacognition as awareness of one's cognitive processes, while O'Malley and Chamot (1990) argue that metacognitive strategies, such as monitoring and evaluating comprehension, are essential for effective language learning. Instruction that fosters metacognitive awareness enables students to assess their own understanding and regulate their reading processes more effectively.

One promising instructional approach that embodies these theoretical principles is the Feynman Technique. Originally developed as a learning method by physicist Richard Feynman, this technique requires learners to explain concepts in their own words as though teaching someone else. According to Reyes (2021), the process of simplification and re-explanation enables students to identify gaps in understanding and strengthen their comprehension. Gedik and Akyol

(2022) further emphasize that the technique not only deepens conceptual clarity but also builds learner confidence in articulating ideas. Applied to reading instruction, the Feynman Technique provides a framework for helping students simplify texts, highlight key ideas, and monitor their comprehension.

Previous studies have confirmed the effectiveness of the Feynman Technique in improving learning outcomes across various contexts. Reyes (2021) found that it promoted deeper comprehension by encouraging learners to reconstruct knowledge, while Gedik and Akyol (2022) reported that it enhanced motivation and engagement. Nevertheless, limited research has examined its application in English reading comprehension, particularly in the Indonesian secondary school context. This study addresses that gap by investigating the influence of the Feynman Technique on students' reading comprehension at SMA Negeri 7 Tanjungpinang, as well as exploring students' perceptions of its application.

METHODS

This study employed a quasi-experimental design to evaluate the influence of the Feynman Technique on reading comprehension. The research was conducted at SMA Negeri 7 Tanjungpinang with a population of 120 students, from which 60 students were selected as the sample using purposive sampling. The participants consisted of two classes: XI IPA 2 (experimental class) and XI IPS 2 (control class). The experimental class was taught reading comprehension using the Feynman Technique, while the control class received conventional instruction.

Data collection techniques included pre-tests, post-tests, and a questionnaire. The tests were designed to measure students' reading comprehension performance, while the questionnaire explored students' responses toward the application of the Feynman Technique. Data were analyzed using IBM SPSS Version 24. An independent samples t-test was applied to determine the statistical significance of differences between the experimental and control groups. Effect size calculations (Cohen's d) were also considered to assess the magnitude of the treatment effect.

The pre-test and post-test were developed based on the indicators of reading comprehension in the English curriculum, specifically for the text type *Explanation*. The indicators are as follows:

Tabel 1. Indicator

No	Indicator	Example Item Focus
1	Identifying the topic of the explanation text	Determining what the text is about (e.g., "The text mainly discusses…")
2	Recognizing the purpose of the text	Identifying why the text was written (e.g., to explain a natural phenomenon)
3	Identifying the main idea of paragraphs	Finding the main idea in each paragraph
4	Locating supporting details	Selecting facts or examples that support the main idea

No	Indicator	Example Item Focus
5	Understanding the text structure (general statement → explanation → conclusion)	Recognizing how information is organized in the text
6	Inferring meaning from context	Interpreting unfamiliar words or phrases based on context
7	Drawing conclusions	Making logical conclusions based on information presented

The questionnaire was designed to collect students' perceptions regarding the implementation of the Feynman Technique. The indicators are as follows:

Tabel 2. Indicator

No	Indicator	Example Item Focus
1	Perceived ease of understanding texts	"The technique helped me understand explanation texts more easily."
2	Ability to simplify and re-explain concepts	"I could explain the text in my own words."
3	Increased confidence in comprehension	"I felt more confident when explaining the content of the text."
4	Motivation and engagement	"The technique made the reading activity more interesting."
5	Effectiveness in improving comprehension	"I believe the technique improved my reading comprehension skills."
6	Peer learning experience	"Explaining the material to my classmates helped me learn better."

RESULT AND DISCUSSION

The pre-test results indicated that the experimental class had an average score of 58, while the control class scored 56. The pre-test results showed that both the experimental and control groups had similar initial abilities, with mean scores of 58 and 56, respectively. This similarity in pre-test scores indicates that any differences observed in the post-test results can be attributed to the treatment, which in this case is the Feynman Technique. By having comparable starting points, the study can more accurately assess the impact of the technique on reading comprehension.

After the treatment, the experimental class improved significantly with a mean score of 74, surpassing the minimum competency standard, while the control class only reached an average of 67. The experimental group demonstrated a significant improvement, surpassing the minimum competency standard with a mean score of 74. This achievement is a strong indicator of the effectiveness of the Feynman Technique in enhancing reading comprehension skills. In contrast, the control group only reached a mean score of 67, falling short of the experimental group's performance.

An independent samples t-test revealed a significant difference ($p = 0.000 < 0.05$), confirming that the Feynman Technique had a positive impact on reading comprehension.

Table 3. Independent Samples T-Test Summary

Group	N	Mean	Std. Deviation
Experimental (Post-test)	30	74	6.2
Control (Post-test)	30	67	5.8
t(df=58)	–	–	4.25
p-value	–	–	0.000 (Significant)

The results of the independent samples t-test revealed a statistically significant difference between the two groups, with a t-value of 4.25 (df=58) and a p-value of 0.000. This indicates that the observed difference in post-test scores between the experimental and control groups is unlikely to be due to chance, and instead suggests that the Feynman Technique had a real and significant impact on reading comprehension.

Effect Size (Cohen's d) of Feynman Technique on Reading Comprehension
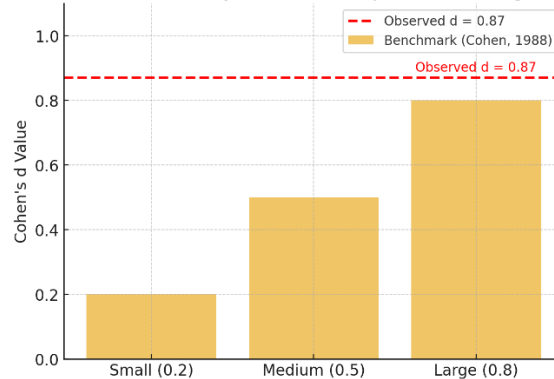
The effect size, as measured by Cohen's d, was calculated to be 0.87, which indicates a large effect. This suggests that the Feynman Technique had a substantial and meaningful impact on reading comprehension, with a significant difference between the experimental and control groups. The large effect size provides further evidence of the effectiveness of the Feynman Technique in improving reading comprehension skills.

The questionnaire results show that students have a positive perception of the implementation of the Feynman Technique in reading comprehension. This suggests that the technique has been well-received by students and has had a positive impact on their learning experience.

One of the key findings is that 90% of students reported that the Feynman Technique helped them identify and address comprehension problems. This demonstrates the technique's effectiveness in enhancing the ease of understanding texts, which is a crucial aspect of reading comprehension. Additionally, 77% of students agreed that the technique simplified complex concepts, showing its ability to facilitate better understanding.

Furthermore, the results indicate that the Feynman Technique has a positive impact on students' confidence in comprehension. 80% of students reported that the technique improved their ability to explain ideas, which can boost their confidence in understanding texts. This

increased confidence can have a positive impact on students' overall learning experience and motivation.

The questionnaire results also suggest that students found the Feynman Technique engaging and effective in supporting their learning process. This can increase motivation and engagement, which are essential for effective learning. Moreover, 73% of students stated that the technique improved their overall reading comprehension skills, demonstrating its effectiveness in enhancing comprehension.

Overall, the questionnaire results support the quantitative findings and demonstrate that the Feynman Technique is effective in improving students' reading comprehension skills and supporting their learning process. While there is no specific data on peer learning experience, the results suggest that students found the technique effective in supporting their learning, which may include peer learning experiences.

CONCLUSION

This study demonstrated that the Feynman Technique significantly improved students' reading comprehension at SMA Negeri 7 Tanjungpinang. The experimental class, which received instruction through the Feynman Technique, outperformed the control class in post-test scores, with a statistically significant difference confirmed by a t-test and a large effect size. Additionally, students' perceptions of the technique were highly positive, suggesting that it fostered active engagement and simplified complex concepts.

Based on these findings, teachers are encouraged to integrate the Feynman Technique into reading instruction to enhance comprehension skills. Future studies are recommended to apply this technique across different contexts, longer periods, and larger samples to further validate its effectiveness.

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