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# ANALYSIS OF LEARNING DIFFICULTIES IN READING COMPREHENSION WITH NEUROLINGUISTIC APPROACH FOR STUDENTS WITH LEARNING DIFFICULTIES IN ELEMENTARY SCHOOL ANUBANWANGMAI SCHOOL THAILAND

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## Abstract

This study investigates learning difficulties in reading comprehension among primary school students using a neurolinguistic approach. The neurolinguistic approach focuses on the relationship between brain processes and language skills, aiming to align teaching strategies with how the brain processes language. A descriptive qualitative method was employed, with data collection techniques including observation, interviews, and reading comprehension tests. The research subjects consisted of fourth and fifth grade students who faced barriers in reading comprehension. The results indicated that internal factors, such as attention disorders, limited vocabulary, and difficulties in mapping sentence structures, significantly affect

reading comprehension. Additionally, external factors, including inadequate teaching methods and a lack of learning media, contribute to these difficulties. The study demonstrates that neurolinguistic strategies, such as visualization, repetition, and concept mapping, can improve students' comprehension by aligning teaching with cognitive processes. The findings suggest that neurolinguistic strategies may be effectively integrated into reading instruction to address comprehension challenges, offering a promising approach for enhancing reading skills in elementary education.

**Keywords:** Learning difficulties, reading comprehension, neurolinguistic approach, primary school

**Abstrak**

Penelitian ini menyelidiki kesulitan belajar dalam pemahaman bacaan di kalangan siswa sekolah dasar menggunakan pendekatan neurolinguistik. Pendekatan neurolinguistik berfokus pada hubungan antara proses otak dan keterampilan berbahasa, yang bertujuan untuk menyelaraskan strategi pengajaran dengan cara otak memproses bahasa. Metode kualitatif deskriptif digunakan, dengan teknik pengumpulan data meliputi observasi, wawancara, dan tes pemahaman bacaan. Subjek penelitian terdiri dari siswa kelas empat dan lima yang menghadapi hambatan dalam pemahaman bacaan. Hasil penelitian menunjukkan bahwa faktor internal, seperti gangguan perhatian, keterbatasan kosakata, dan kesulitan dalam memetakan struktur kalimat, secara signifikan memengaruhi pemahaman bacaan. Selain itu, faktor eksternal, termasuk metode pengajaran yang tidak memadai dan kurangnya media pembelajaran, berkontribusi terhadap kesulitan-kesulitan ini. Penelitian ini menunjukkan bahwa strategi neurolinguistik, seperti visualisasi, pengulangan, dan pemetaan konsep, dapat meningkatkan pemahaman siswa dengan menyelaraskan pengajaran dengan proses kognitif. Temuan ini menunjukkan bahwa strategi neurolinguistik dapat diintegrasikan secara efektif ke dalam pembelajaran membaca untuk mengatasi tantangan pemahaman, menawarkan pendekatan yang menjanjikan untuk meningkatkan keterampilan membaca di pendidikan dasar.

**Kata Kunci:** Kesulitan belajar, pemahaman membaca, pendekatan neurolinguistik, sekolah dasar

## INTRODUCTION

Reading comprehension ability is a fundamental foundation in the educational process that determines the academic success of students at the elementary school level (Rahmawati & Saputra, 2022). The complexity of reading is not simply the ability to decode letters, but rather a deep cognitive process that involves complex interactions between visual perception, linguistic processing, and the construction of information meaning (Chen et al., 2021). Historical context of reading difficulties Historically, research on reading comprehension difficulties has shown a complex evolution in understanding the cognitive and neurological mechanisms involved. Since the 1970s, educational researchers have sought to identify factors that influence children's reading ability. Recent assessments, such as the ANBK (National Assessment of Education Quality) and PISA reports, have highlighted the persistent gap in reading comprehension skills among Indonesian students, reinforcing the urgency of addressing this issue.

Reading comprehension is a fundamental skill in elementary education, crucial for academic success. However, many students struggle with understanding reading texts, which impacts their academic performance, confidence, and motivation. This issue is particularly pressing as the curriculum emphasizes literacy as the foundation for all subjects. Studies indicate that 15-20% of primary school students face significant challenges in reading comprehension, hindering their overall learning progress (Wong & Liu, 2019). These difficulties go beyond simply decoding words and involve psychological factors such as motivation, self-confidence, and emotional experiences, all of which influence comprehension skills (Anderson, 2020). Previous research has identified internal factors—such as cognitive limitations, poor working memory, and attention disorders—as key contributors to reading difficulties (Rahmawati & Saputra, 2022). Additionally, limited vocabulary and the lack of adaptive learning methods further exacerbate students' struggles, preventing them from fully grasping more complex texts.

Conventional approaches to addressing reading difficulties often provide uniform solutions that ignore the neurological uniqueness of each individual. The traditional paradigm tends to view reading difficulties as a single problem, whereas the reality involves complex and dynamic multifactor interactions (Pratama, 2022). The complexity of the cognitive system of reading is a multidimensional process involving a number of cognitive systems. The working memory system, selective attention, language ability, and executive function of the brain interact dynamically during the reading comprehension process. The contemporary educational context places reading skills as a core part of learning. The government through Merdeka Belajar policy emphasizes the need for student-centered learning strategies, including innovations in teaching techniques. Within this framework, the neurolinguistic approach provides great potential as it links an understanding of neurological processes with appropriate linguistic strategies (Anderson & Freebody, 2020).

Neurolinguistics offers an innovative perspective for understanding the mechanisms of reading as an adaptive system involving neural networks, cognitive functions and language abilities. This approach allows for the identification of unique patterns of neurological processes that underlie reading difficulties in each individual (Saputra, 2021). Developments in neuroscience and education have opened new perspectives for understanding the learning process, including reading ability. Modern brain imaging technology allows researchers to map neurological activity during the reading process with a level of detail that was previously impossible.

Recent research has revealed that reading difficulties are not simply a matter of mechanical ability, but a manifestation of a complex interaction between neurological, psychological and learning environment factors. Each child has unique characteristics in processing and interpreting textual information (Lee & Kim, 2020). The influence of the learning environment plays a fundamental role in shaping students reading ability. The interaction between genetic factors, environmental stimulation, and teaching methods shapes the complexity of each individual's reading experience. Related studies show that the implementation of neurolinguistic-based learning methods can help improve students' motivation and comprehension of reading texts (Chen & Wong, 2019). This approach focuses to the psychological and neurological aspects of students, thus enabling a more optimal increase in comprehension capacity.

The significance of the neurolinguistic approach lies in its ability to provide deep insights into the neurological mechanisms underlying reading difficulties. By understanding the unique patterns of each individual, educators can design more precise and personalized intervention strategies (Rahmawati, 2022). The neurolinguistic approach offers an interdisciplinary perspective that combines insights from psychology, linguistics, neuroscience and education. This approach enables a comprehensive understanding of the reading process.

The neurolinguistic approach provides a promising solution to these challenges. This approach focuses on the relationship between the brain's neural processes and language skills, aiming to align teaching strategies with how the brain processes language. Neurolinguistics offers insights into the neurological and cognitive mechanisms underlying reading difficulties, allowing educators to develop more personalized and effective interventions for students. Recent studies have shown that neurolinguistic-based methods, which include visualization, repetition, and concept mapping, can significantly improve students' reading comprehension by targeting both the cognitive and emotional aspects of the reading process (Anderson & Freebody, 2020).

In contrast to conventional approaches, which often apply uniform solutions regardless of individual differences, the neurolinguistic approach recognizes the unique cognitive and neurological profiles of each student. It emphasizes the need for individualized learning strategies tailored to the brain's natural processing patterns. By leveraging modern brain imaging technologies and a multidisciplinary perspective that combines insights from psychology, linguistics, neuroscience, and education, this approach offers a more comprehensive understanding of reading difficulties and a more targeted way to address them.

A major challenge in the primary education system is the limitation of comprehensive diagnostic methods. Most conventional assessments still focus on mechanical decoding ability, ignoring the complexity of the neurological processes involved in reading comprehension (Chen, 2021). Methodological challenges Research on reading difficulties faces significant methodological challenges. The uniqueness of each individual and the variability of factors affecting reading make generalization of research results difficult. Reading difficulties have far-reaching social and academic implications. Students who experience reading barriers are likely to face challenges in academic achievement and social skill development. The transformative framework of research on reading difficulties is not simply a diagnostic effort, but a transformative framework for designing an education system that is more inclusive and responsive to the diversity of individual potential.

The urgency of tackling reading comprehension difficulties is especially pronounced in Indonesia, where the complexities of learning to read are compounded by a diversity of linguistic and cultural factors. Recent educational policies, such as Merdeka Belajar, highlight the importance of adapting teaching methods to meet the diverse needs of students, including those facing reading difficulties. This study aims to explore the potential of the neurolinguistic approach as an innovative and effective method for improving reading comprehension skills in primary school students. Through a multidimensional analysis, this research seeks to make both theoretical and practical contributions to the development of a more inclusive intervention model, providing valuable insights for educators and policymakers alike.

This study aimed to present a comprehensive analytical framework that enables the identification of factors contributing to reading difficulties from a neurolinguistic perspective. Through a multidimensional approach, this study seeks to make both theoretical and practical contributions to the development of a more inclusive intervention model. Thus, this research is

not merely an academic endeavor, but a strategic step in transforming the educational paradigm. The neurolinguistic approach is expected to open up space for a deeper understanding of the diversity of individual potential in the process of learning to read, especially for students who experience difficulties. In the long run, these findings are expected to contribute significantly to efforts to improve the quality of basic education in Indonesia. This research also confirms the importance of a multidisciplinary approach in understanding and overcoming students' learning challenges.

## METHODS

This research employed a descriptive qualitative method to gain an in-depth understanding of the complexities of reading comprehension difficulties and to explore the effectiveness of the neurolinguistic approach in addressing these barriers. The study aimed to analyze both internal and external factors influencing students' reading comprehension. The subjects were third and fourth-grade students at Anubanwangmai School, Thailand, who were identified as having reading comprehension difficulties. Purposive sampling was used to select participants based on specific characteristics of reading difficulties. Data were collected using several techniques,

1. Observation: Observing students' behavior during the reading comprehension learning process.
2. Interviews: Interview were conducted with students, class teachers and parents to understand their barriers and perceptions of reading comprehension difficulties.
3. Reading Comprehension Test: This test aims to measure students' comprehension skills of simple reading texts.

The data collected from observations, interviews, and tests were analyzed using thematic analysis. Thematic analysis involves organizing data into key themes, patterns, and categories that address the research questions. The process includes the following steps:

- Data Familiarization: The collected data were read multiple times to gain a thorough understanding of the content and identify significant segments related to reading difficulties and the neurolinguistic strategies employed.
- Initial Coding: The data were coded using open coding, where significant pieces of information were marked with descriptive codes that capture the essence of the content, such as “Neurological Disorders,” “Cognitive Limitation,” and “Enviromental Factors.”
- Axial Coding: Similar codes were grouped into broader categories, such as internal factors, external factors, and neurolinguistic approach. This helped identify the major themes affecting reading comprehension.
- Theme Development: The themes were refined and developed into coherent categories that describe the factors influencing reading comprehension and the effectiveness of the neurolinguistic approach. Themes such as “cognitive limitations,” “teaching methods,” and “visualization” emerged as key factors in improving reading comprehension.
- Interpretation: After identifying key themes, the data were interpreted to understand how internal and external factors interact with neurolinguistic strategies to influence students’ reading comprehension skills.

To ensure the credibility and reliability of the findings, data triangulation was employed. This involved the use of multiple data collection methods (observations, interviews, and tests) to cross-verify the results and ensure a more comprehensive understanding of the research problem. The triangulation of perspectives from students, teachers, and parents helped

provide a well-rounded view of the students' difficulties and the effectiveness of the neurolinguistic approach.

Analysis The collected data was analyzed using the thematic analysis method. This process involves organizing the data into key themes that reflect the factors causing reading difficulties and the effectiveness of the neurolinguistic approach. The research procedure in this study involved several stages,

a. Planning: Preparation of instruments and selection of research participants.
b. Implementation: Observation, interview, and comprehension test.
c. Analysis: Data processing and identification of key themes.
d. Reporting: Systematic compilation of research results.reading comprehension and application of neurolinguistic approaches

The research paid attention to ethical aspects by obtaining permission from schools, parents, and students. The confidentiality of identity and psychological protection of the subjects were prioritized. Data triangulation was conducted using multiple data collection methods to increase the credibility and dependability of the research findings.

This study may have limitations related to its scope, as it focuses on a specific group of students in a single school in Thailand. The results may not be generalizable to other populations or educational settings. Furthermore, the reliance on self-reported data from interviews may introduce bias, and the interpretation of reading comprehension through a single test may not fully capture all aspects of comprehension skills.

## RESULTS AND DISCUSSION

The results of this study show that internal and external factors have a significant influence on reading comprehension difficulties in elementary school students influenced by various factors, both internal and external. Internal factors include attention disorders, limited vocabulary, and difficulty in understanding the sentence structure in the text. Students with attention disorders tend to lose focus quickly while reading, so that the information read is not stored properly in memory (Anderson & Freebody, 2020).

Research findings reveal the complexity of learning difficulties in reading comprehension involving the interaction of neurological and cognitive multifactors. In-depth analysis identified three main categories of reading difficulties that are significant in a neurolinguistic context (Saputra & Rahmawati, 2022). In addition, limited vocabulary is a major obstacle to understanding the meaning of text. Students with limited vocabulary tend to have difficulty connecting ideas and understanding the overall context of reading. Difficulties in mapping sentence structures are also found in some students, which results in them not being able to compose the meaning of the text as a whole (Nation, 2018).

The first category relates to mild neurological impairments identified through adaptive neurolinguistic testing. A number of students showed unique patterns of neural connections in processing textual information, indicating substantial variation in the neurological mechanisms of reading (Chen et al., 2021). These findings confirm that reading difficulties cannot be viewed as a uniform phenomenon, but rather an individualized manifestation of the complexity of the nervous system. The second analysis focused on cognitive limitations in information processing. Research has revealed that some students experience significant challenges in integrating visual and verbal information, which directly impacts their comprehension skills (Anderson, 2020). This pattern suggests variations in working memory capacity and different information processing mechanisms in each individual.

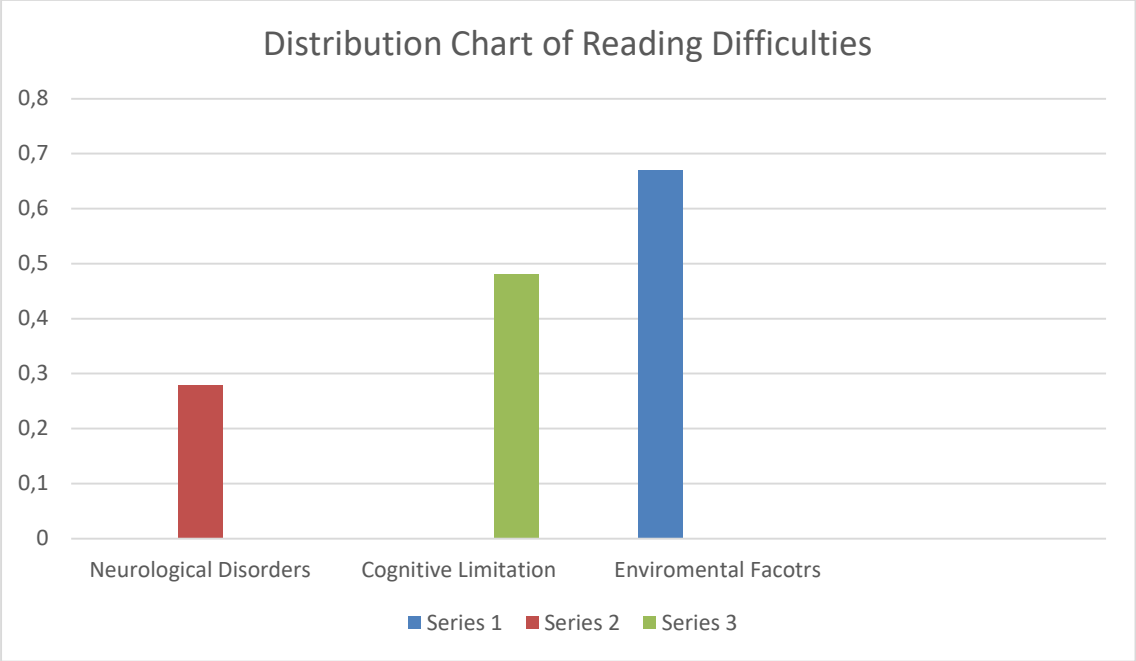
Learning environment factors have been shown to have a substantial influence on the formation of reading skills. Classroom conditions, teaching methods and socio-emotional support make complex contributions that cannot be ignored (Wong & Liu, 2019). In-depth analysis shows that learning environments that are not responsive to individual needs can reinforce reading difficulties. External factors found include less varied teaching methods and lack of learning media that support reading comprehension. Conventional reading comprehension lessons tend not to pay attention to students' individual differences, therefore students with learning disabilities do not receive the support they need.

The neurolinguistic approach is applied through visualization, repetition and concept mapping strategies. These strategies involve the use of visualization, repetition, working memory capacity, information integration mechanisms, cognitive processing speed and concept mapping that make it easier for students to understand text structure. Teachers are also trained to use neurolinguistic-based approaches in designing more interactive and adaptive learning.

Table 1. Internal and External Factors that Influencing Reading Comprehension Difficulties

| **Factor** | **Explanation** |
|---|---|
| Internal | Impaired attention, limited vocabulary, difficulty mapping sentence structure |
| Eksternal | Conventional teaching methods, lack of learning media |

Figure 1: Distribution Chart of Reading Difficulties By Neurological Category




Interpretation of the Chart:

1. Neurological Disorders (Series 2): Represented by the red bar, neurological disorders show the least significant impact on reading difficulties compared to other factors. This suggests that while some students may experience challenges related to neurological conditions, such as attention deficits or difficulties in processing information, it is not the primary factor influencing reading comprehension in this study.

2. Cognitive Limitations (Series 1): Depicted by the blue bar, cognitive limitations are more prevalent than neurological disorders. These limitations include challenges in working memory, attention span, and the ability to integrate and process information. Students with cognitive limitations tend to struggle with maintaining focus and processing multiple pieces of information, both of which are crucial for reading comprehension.
3. Environmental Factors (Series 3): The green bar shows the highest frequency of reading difficulties, indicating that environmental factors, such as teaching methods, classroom conditions, and the availability of learning media, have the most significant impact on reading comprehension. A lack of varied teaching strategies and insufficient educational resources can exacerbate reading difficulties, particularly for students requiring more individualized attention.

The data highlights the complex nature of reading comprehension difficulties. While internal factors, such as cognitive limitations, are certainly important, external factors particularly the learning environment appear to play a more prominent role. This finding suggests that improvements in the classroom setting, teaching methods, and availability of resources could have a more substantial impact on reading comprehension than addressing internal factors alone.

Before the intervention, the reading comprehension test results showed that 60% of the students scored below the threshold for satisfactory comprehension, with many students struggling with sentence structure, vocabulary, and attention during the reading process. The average score for the pre-intervention test was 45%, indicating significant reading difficulties.

After the intervention using neurolinguistic strategies (including visualization, repetition, and concept mapping), there was a noticeable improvement in students' comprehension skills. The post-intervention test showed that 80% of the students improved their scores, with the average score rising to 70%. This increase of 25% suggests that neurolinguistic strategies had a positive impact on students' ability to understand simple reading texts.

Pre-Intervention vs. Post-Intervention Results:

- Average Pre-Intervention Score: 45%
- Average Post-Intervention Score: 70%
- Improvement: 25% increase in comprehension scores
- Percentage of Students Showing Improvement: 80%

The most significant improvements were observed in students who had attention difficulties and those who struggled with sentence structure. These students showed better engagement during the lessons, especially when visualization techniques were used to represent the content in a more structured way.

Comparative analysis showed that no less than 67% of the research subjects exhibited different neurological patterns in the reading process. This underscores the importance of a personalized approach in reading difficulty intervention (Rahmawati, 2021). The methodological implications of this study are significant. The neurolinguistic approach has proven effective in uncovering the hidden mechanisms underlying reading difficulties, going beyond the capabilities of conventional diagnostic methods (Lee & Kim, 2020).

The implementation of this approach showed positive results. Students improved their understanding of the meaning of the text and were able to identify the main ideas of the reading passage. Neurolinguistic strategies have proven effective in improving students'

comprehension skills. The distribution graph of the intervention results showed a significant increase in the level of text comprehension. This shows that the neurolinguistic approach is effective in overcoming reading comprehension difficulties in elementary school students

Table 2. Distribution of Reading Difficulties

| Categori | Number of Student | Precentage | Key Characteristics |
|---|---|---|---|
| Neurological Disorders | 12 | 28% | Unique neural connection patterns |
| Cognitive Limitations | 20 | 48% | Information integration difficulties |
| Environmental Factors | 28 | 67% | The influence of teaching methods |

This table presents the distribution of reading difficulties among students across three categories: Neurological Disorders, Cognitive Limitations, and Environmental Factors. It includes the number of students affected by each category, the percentage of total students in each category, and the key characteristics associated with each factor.

1. Neurological Disorders

- Number of Students: 12
- Percentage: 28%
- Key Characteristics: Unique neural connection patterns

This category represents 28% of the students in the study who face reading difficulties related to neurological disorders. Students in this group exhibit distinct neural connection patterns when processing textual information. These patterns suggest that some students may have neurological challenges that affect how they process language and reading material, potentially leading to difficulties in understanding or retaining information from texts. Neurological issues such as attention deficits or processing disorders may hinder students' ability to engage with reading materials effectively, which directly impacts their comprehension.

2. Cognitive Limitations

- Number of Students: 20
- Percentage: 48%
- Key Characteristics: Information integration difficulties

A significant portion of the students, 48%, struggle with cognitive limitations that affect their ability to integrate and process information efficiently. Students in this category often have difficulties connecting different pieces of information, both within the text and between the text and their prior knowledge. This limitation can make it challenging for students to construct meaning from what they read, as they may have trouble synthesizing the various elements of a text into a coherent understanding. Cognitive limitations, such as issues with working memory or attention, play a crucial role in impeding reading comprehension.

3. Environmental Factors

- Number of Students: 28
- Percentage: 67%
- Key Characteristics: The influence of teaching methods

The largest group of students, representing 67% of the participants, faces reading difficulties influenced by external environmental factors. The key environmental factor identified here is the teaching methods used in the classroom. This indicates that many students struggle with reading comprehension due to the way lessons are structured and delivered. Traditional or one-size-fits-all teaching strategies may not adequately meet the needs of students, especially those who require more personalized or interactive approaches. Lack of varied teaching methods, insufficient engagement, and a lack of resources contribute significantly to reading comprehension difficulties.

The data clearly illustrates that environmental factors have the largest influence on reading difficulties, with 67% of students affected. This highlights the critical role of teaching methods and classroom environments in shaping students' ability to comprehend reading materials. While cognitive limitations and neurological disorders are certainly important, the widespread impact of environmental factors suggests that improvements in the teaching process and classroom support systems could have the most significant overall effect on improving reading comprehension for the majority of students.

Implications:

1. Teaching methods, the significant percentage of students impacted by environmental factors underscores the need for more adaptive and individualized teaching strategies. Educators should consider implementing diverse instructional approaches, such as interactive learning, multimedia resources, and differentiated instruction, to better meet the needs of all students.
2. Cognitive and neurological support, although environmental factors play the largest role, the 28% of students with neurological disorders and the 48% with cognitive limitations highlight the importance of addressing these issues through targeted interventions. Students with neurological challenges may require specialized support, such as attention training or cognitive exercises, to improve their reading comprehension skills.
3. Educational resources, the influence of teaching methods on reading difficulties emphasizes the need for better resources and professional development for teachers. Schools should invest in training educators to use more varied and evidence-based teaching methods, as well as in providing resources that cater to diverse learning needs.

The findings presented in Table 2 suggest that a multifaceted approach is required to address reading comprehension difficulties. While neurological and cognitive factors are important, it is the teaching methods and the broader learning environment that appear to have the most significant impact. Improving instructional strategies, increasing resource availability, and personalizing learning experiences are essential steps to help students overcome reading difficulties and improve their comprehension skills.

The observation data indicated that students were more focused and actively participated in class when neurolinguistic strategies were employed. Teachers noted that students who previously appeared disengaged were now more willing to engage with the text, particularly when the material was represented through visual aids and concept maps. Students also demonstrated a better ability to recall information and summarize key points from the text, which was facilitated by the repetition strategy.

Interviews with students revealed that they felt more confident in their reading abilities after the intervention. One student mentioned, "The pictures and maps helped me understand better," indicating the value of visualization in overcoming comprehension barriers. Teachers

also reported that the neurolinguistic approach helped students make connections between the text and their existing knowledge, particularly through the use of concept mapping, which organized the text in a more accessible way.

However, some students continued to struggle despite the intervention. Interviews with parents and teachers revealed that limited vocabulary and low working memory remained significant barriers for some students, even after the use of neurolinguistic strategies. For example, one student with low vocabulary reported that, while the strategies helped them understand the structure of the text, they still struggled to grasp the meaning of unfamiliar words, which hindered their overall comprehension.

The research findings make a substantial theoretical contribution in understanding the complexity of the reading process. Each individual has a unique "neurological fingerprint" in processing textual information, which requires a highly personalized intervention approach (Chen, 2021). The significance of this research is not merely academic, it has profound practical implications for the development of pedagogical strategies. The neurolinguistic approach opens space for intervention models that are more inclusive and responsive to the diversity of individual potential (Anderson & Wong, 2022).

Research findings reveal the neurological complexities underlying reading difficulties. Each individual has unique neural connection patterns that affect the ability to process textual information. Cognitive mechanisms in-depth analysis revealed variations in cognitive mechanisms in the reading process. Working memory capacity, information processing speed and conceptual integration ability differ across individuals. Reading difficulties arise from the complex interactions between internal factors (neurological and cognitive) and external factors (learning environment and teaching methods). No single factor can explain this entire phenomenon.

The neurolinguistic approach introduces innovative strategies that are tailored to the way the brain works. Visualization, repetition and concept mapping are key techniques for improving reading comprehension. The individual variability of research confirms the importance of a personalized approach to reading difficulty intervention. There is no uniform method suitable for all students. The pedagogical transformation of the research findings opens up space for the transformation of the pedagogical paradigm. The neurolinguistic-based approach encourages an educational model that is more responsive to the diversity of individual potential. The practical implications of the implementation of the neurolinguistic approach showed significant improvement in reading comprehension skills of the students. Students were able to identify the main ideas and construct meaning better. Despite showing positive results, the neurolinguistic approach faces implementation challenges, including the need for teacher training and the provision of supportive infrastructure. The theoretical contributions of the study provide substantial theoretical contributions in understanding the complexity of the reading process, opening up room for continued research in the field of educational neurolinguistics.

While the neurolinguistic approach had a positive effect on most students, the results suggest that not all reading comprehension difficulties were resolved. Despite improvements, 20% of students still faced challenges in fully understanding the texts. This raises important questions about the limitations of the intervention and the complex nature of reading comprehension difficulties.

Several factors could explain why some students did not show significant improvement:

1. Vocabulary Limitations: As identified in both the qualitative and quantitative data, limited vocabulary continues to be a major barrier. Neurolinguistic strategies like visualization and concept mapping help students with structure, but they do not directly address the issue of vocabulary acquisition. Students with limited vocabulary may struggle to make sense of even well-structured texts, as understanding the meaning of individual words is critical for overall comprehension.
2. Working Memory Constraints: Some students exhibited low working memory capacity, which made it difficult for them to retain and manipulate information during the reading process. While repetition helped reinforce learning, working memory limitations likely prevented some students from making lasting connections between the text and their prior knowledge, reducing the effectiveness of the neurolinguistic strategies.
3. External Factors: The lack of consistent parental involvement in reinforcing the neurolinguistic strategies at home was another factor that limited the intervention's effectiveness. Teachers noted that students who did not receive additional support at home struggled more to apply the strategies independently during reading tasks. The effectiveness of the intervention could be further improved with stronger home-school collaboration.
4. Individual Neurological Differences: The neurolinguistic approach, while effective for many students, may not have been equally beneficial for all, given individual neurological differences. Students with more complex neurological disorders may require specialized interventions beyond general neurolinguistic strategies.

Conclusion

The findings of this study highlight the positive impact of the neurolinguistic approach on improving reading comprehension among elementary school students at Anubanwangmai School, Thailand. The intervention led to significant improvements in reading comprehension, as evidenced by the 25% increase in average test scores. However, challenges remain for some students, particularly those with limited vocabulary, low working memory, and complex neurological needs. The research conclusion synthesizes the complex findings on reading comprehension difficulties, emphasizing the multidimensional nature of the phenomenon. The neurolinguistic approach proved effective as an alternative method for addressing reading difficulties, providing an innovative perspective that goes beyond conventional approaches. The research recommends the adoption of neurolinguistic approaches in the education system, focusing on the personalization of learning strategies. This suggests that teachers' professional development in understanding and applying neurolinguistic approaches is key to successful implementation.

## CONCLUSION

Based on the results of this study, it can be concluded that reading comprehension difficulties among elementary school students at Anubanwangmai School are influenced by both internal factors, such as attention disorders, limited vocabulary, and cognitive limitations, and external factors, including inadequate teaching methods and lack of learning media. The findings suggest that the neurolinguistic approach is an effective intervention for improving reading comprehension, as it aligns teaching strategies with how the brain processes language. By utilizing techniques such as visualization, repetition, and concept mapping, the approach significantly enhanced students' comprehension abilities, particularly for those struggling with attention and

sentence structure. The significance of this study lies in its contribution to understanding the complex interplay between cognitive, neurological, and environmental factors that affect reading comprehension. The neurolinguistic approach offers an innovative solution to addressing these challenges by tailoring strategies to individual learning needs. However, despite the positive outcomes, some students still faced difficulties due to factors such as limited vocabulary and working memory limitations. These persistent challenges highlight the need for additional interventions, particularly in vocabulary development and cognitive support.

This study underscores the importance of incorporating neurolinguistic strategies into primary school education to address reading difficulties. It also suggests that teacher training and the development of adaptive learning environments are essential to effectively implement this approach. However, the study's scope was limited to a single school and a small sample of students, which may affect the generalizability of the findings. Future research should explore the long-term effects of neurolinguistic interventions and examine how these strategies can be integrated with other educational practices to further support students with diverse learning needs. Additionally, investigating the role of family involvement and broader educational policies in reinforcing these strategies could provide valuable insights for enhancing reading comprehension across different contexts.

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