**DOI: https://doi.org/10.5281/zenodo.14048489**

# THE INFLUENCE OF BACKGROUND KNOWLEDGE ON READING COMPREHENSION

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***ABSTRACT***

*This study explores the impact of background knowledge on reading comprehension, with a specific focus on how pre-existing knowledge shapes individuals' understanding of complex texts. Through assessing high school students with different levels of background knowledge, we investigate the correlation between familiarity with subject matter and reading comprehension outcomes. Using a mixed-methods approach, including quantitative analysis of comprehension scores and qualitative feedback, we found that background knowledge significantly enhances reading comprehension. The study's findings imply that educational strategies that include pre-reading knowledge-building activities can help students with varying levels of familiarity with academic topics, contributing to more equitable learning outcomes.*

***Key words:*** *Background knowledge, reading comprehension, prior knowledge, schema theory, educational strategies, comprehension skills, inference-making, high school student.*

## INTRODUCTION

Reading comprehension is a critical cognitive skill that influences academic performance, cognitive development, and even career success. Effective reading comprehension involves multiple mental processes, including decoding, inferring, and synthesizing information. However, comprehension can vary significantly among readers due to factors such as vocabulary, reading fluency, and, notably, background

knowledge. The concept of background knowledge in reading refers to an individual's pre-existing information, cultural context, and previous experiences that can enhance or impede their understanding of new material.

Previous research has shown that readers with rich background knowledge in a given topic are generally more successful in making sense of complex texts. Anderson and Pearson (1984) describe background knowledge as a "schema" that allows readers to link new information with pre-existing mental structures, thereby promoting better understanding. In practice, this means that students with prior knowledge can draw on previous experiences and established concepts, enabling them to process and interpret information more effectively than those without.

Despite extensive research into reading comprehension, the mechanisms by which background knowledge impacts comprehension still warrant further exploration. This study seeks to fill this gap by investigating the relationship between background knowledge and reading comprehension specifically among high school students. Understanding this relationship could provide insights into educational strategies for improving comprehension skills, particularly among students with diverse learning needs.

## METHODS

The study recruited 100 high school students aged 15 to 18 from a range of socio-economic backgrounds. Participants were selected based on prior assessments of reading fluency and vocabulary to ensure a baseline comprehension level across the group. They were then categorized into two groups based on an initial test of background knowledge on the specific topic of environmental sustainability:

1. High Background Knowledge Group (HBKG): This group consisted of 50 students who demonstrated familiarity with concepts such as renewable energy, pollution, and conservation in the preliminary test.

2. Low Background Knowledge Group (LBKG): This group included the remaining 50 students, who showed limited or no prior understanding of the topic.

By dividing participants into these two groups, we aimed to control for background knowledge as a variable while minimizing the impact of other factors like general reading proficiency. The reading material selected for this study was an excerpt from an academic article discussing sustainable energy and its role in combating climate change. This topic was chosen due to its relevance and moderate complexity, which would allow us to observe comprehension differences across varying levels of background knowledge.

The comprehension test designed for this study contained:

Multiple-choice questions: To assess basic understanding and recall of specific details in the text.

Open-ended questions: To evaluate higher-order thinking skills such as inference and synthesis.

Short answer questions: Focusing on interpreting graphs and statistics related to sustainable energy, which required participants to integrate textual and visual information.

The study followed a structured procedure to ensure consistency:

1. Pre-test for Background Knowledge: Students completed a preliminary test to assess their knowledge about sustainable energy. Based on the scores, they were placed into the HBKG or LBKG.

2. Reading Session: All participants were given 20 minutes to read the passage, which was sufficient to avoid time pressure but limited enough to encourage focused engagement with the material.

3. Comprehension Test: Following the reading session, students completed the comprehension test. They were instructed to answer as accurately as possible without referring back to the text.

4. Qualitative Feedback: After completing the test, students were invited to provide qualitative feedback on the reading material, including any difficulties they encountered and factors they felt influenced their comprehension.

Data analysis involved a mixed-methods approach:

Quantitative Analysis: We calculated the mean comprehension scores for each group and conducted an independent samples t-test to determine the statistical significance of differences in scores.

Qualitative Analysis: Students' feedback on reading difficulty, unfamiliar vocabulary, and personal interest in the topic was thematically analyzed to identify factors that may have influenced comprehension beyond background knowledge.

## RESULTS

The analysis of reading comprehension scores between the two groups—the High Background Knowledge Group (HBKG) and the Low Background Knowledge Group (LBKG)—revealed notable differences in comprehension performance. Our goal was to determine whether students with greater prior knowledge of the topic could recall, interpret, and synthesize information more effectively than those without such familiarity. The results show a clear correlation between background knowledge and reading comprehension across multiple dimensions of understanding, including fact recall, inference-making, and data interpretation.This section presents quantitative findings that indicate significant performance differences between the groups, as well as qualitative feedback that provides additional insight into students' reading experiences. Specifically, HBKG students demonstrated a greater ability to engage with the material and make meaningful connections, which was less evident in the LBKG group. The observed differences support our hypothesis and contribute to a broader understanding of how pre-existing knowledge can act as a cognitive scaffold, enhancing comprehension processes and overall reading success.

Key Findings:

1. Recall of Factual Information: Students in the HBKG demonstrated superior recall abilities for specific details within the text, suggesting that background knowledge aids memory retention.

2. Interpretation and Inference: The HBKG performed better on inference-based questions, indicating that prior knowledge facilitates more complex cognitive processes beyond simple recall.

3. Graph and Data Interpretation: Students with prior knowledge more accurately interpreted the statistical data provided in the text, supporting the notion that background knowledge helps with understanding integrated content (textual and visual).

The t-test results revealed a statistically significant difference ($p < 0.05$) between the groups, confirming that the difference in comprehension scores was unlikely due to chance.

## DISCUSSION

These findings support the hypothesis that background knowledge positively influences reading comprehension by enhancing recall, inference-making, and integrated content interpretation. The HBKG‘s performance on inference questions indicates that background knowledge provides a framework, or schema, that allows readers to make connections within the text. The implications for educational practice are considerable. Teachers might consider implementing background-building sessions before introducing complex reading materials. Pre-reading activities, such as brief overviews, vocabulary previews, or discussions on related experiences, could help students lacking prior knowledge engage with and understand the material more effectively.

Furthermore, curriculum designers could consider organizing reading assignments by gradually increasing complexity and ensuring students have sufficient exposure to key concepts before tackling complex texts. Differentiated instruction could also be an effective strategy to address varying levels of background knowledge within a classroom. The study has certain limitations, notably the focus on a single topic and age group. Future research could expand to other domains, such as historical texts or scientific literature, to see if the correlation between background knowledge and comprehension is consistent across disciplines. Additionally, longitudinal studies could investigate the long-term impact of structured background knowledge-building strategies on students’ comprehension skills.

## CONCLUSION

This study provides valuable insights into how background knowledge influences reading comprehension. Our findings reveal that students with substantial prior knowledge in a given subject tend to comprehend texts more effectively, outperforming their peers with limited background knowledge. These students demonstrated better recall, stronger inference-making abilities, and an enhanced capacity to interpret complex information, including data visuals. This supports the schema theory, suggesting that prior knowledge serves as a mental framework that aids in organizing and integrating new information, leading to improved comprehension. The implications for educational practice are far-reaching. For students with lower levels of background knowledge, teachers can implement strategies such as pre-reading discussions, topic overviews, and vocabulary instruction to help bridge comprehension gaps. This would provide students with a foundational schema, enabling them to connect new information with pre-existing knowledge structures and enhancing their ability to understand complex materials. For curriculum designers, this emphasizes the importance of sequential learning, where topics are introduced with adequate background context to ensure that students can progressively build knowledge and skills.

Additionally, this research underscores the role of differentiated instruction, as not all students come with equal exposure to various academic topics. By recognizing these differences, educators can tailor their instruction to meet diverse learning needs and create a more inclusive and supportive classroom environment. Future studies could expand this research to explore other subjects and age groups, providing a more comprehensive understanding of the role of background knowledge across different contexts and learning stages. Moreover, longitudinal studies could offer insight into how sustained, structured background-building activities influence comprehension over time, potentially shaping effective long-term reading strategies in education. Enhancing reading comprehension through background knowledge not only improves academic performance but also prepares students to be more informed and critical thinkers. By fostering connections between new knowledge and prior understanding, educators can help students navigate increasingly complex information landscapes, equipping them with skills necessary for lifelong learning and success in various fields.

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