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EXPLORING THE EFFECTS OF BACKGROUND KNOWLEDGE ON READING COMPREHENSION IN EFL LEARNERS

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Abstract:

This study investigates the effects of background knowledge activation on reading comprehension among tenth-grade EFL (English as a Foreign Language) learners using a quasi-experimental design. Fifty students were divided into an experimental group, which engaged in pre-reading activities to activate background knowledge, and a control group, which received traditional reading instruction. Both groups completed pre-tests and post-tests of reading comprehension, and semi-structured interviews were conducted with a subset of participants to gather qualitative insights. The results revealed a significant improvement in the reading comprehension scores of the experimental group compared to the control group. The mean post-test score for the experimental group was 72.8, compared to 62.7 for the control group, with a statistically significant difference ($t(48) = 4.87$, $p < 0.001$*). ANCOVA analysis confirmed the effect of the intervention after controlling for pre-existing differences* ($F(1, 47) = 21.81$, $p < 0.001$*). The effect size (Cohen's $d = 1.57$) indicated a large practical impact. Qualitative findings highlighted the participants' improved ability to make inferences and connect ideas due to background knowledge activation. This study underscores the importance of activating learners' prior knowledge to enhance their reading comprehension, particularly in EFL contexts. The findings have significant pedagogical implications for language instructors, suggesting that pre-reading activities targeting background knowledge can be an effective strategy for improving comprehension outcomes. Further research is recommended to explore the long-term effects of such interventions across diverse learner populations and text genres.*

Keywords: *Background knowledge, reading comprehension, EFL learners.*

INTRODUCTION

Reading comprehension is a fundamental aspect of language learning, particularly for learners of English as a Foreign Language (EFL). It involves the ability to understand, interpret, and analyze texts, which is crucial for academic success and overall language proficiency (Grabe, 2009). Reading comprehension, however, is not a purely linguistic process; it is influenced by several factors, including vocabulary knowledge, grammar, reading fluency, and importantly, background knowledge (Kintsch, 2018). Background knowledge refers to the information that readers already possess about a topic before reading, which plays a pivotal role in the comprehension process by helping readers make connections and fill in gaps within the text.

In the context of EFL learners, the importance of background knowledge cannot be understated. Numerous studies have demonstrated that learners who possess a rich knowledge base in the subject matter of a text can comprehend and recall information more effectively than those with limited prior knowledge (Alptekin, 2006; Carrell & Eisterhold, 1983). Schema theory, in particular, emphasizes the role of background knowledge in reading comprehension, suggesting that readers rely on pre-existing cognitive structures (schemas) to process and interpret new information (Rumelhart,

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1980). For EFL learners, who often encounter texts with unfamiliar cultural references or specialized topics, the lack of background knowledge can hinder comprehension and make reading more challenging (Erten & Razi, 2009).

Recent research further underscores the interplay between background knowledge and reading comprehension in EFL contexts. For example, Barberá, et al. (2022) found that activating prior knowledge significantly enhanced reading comprehension among EFL learners, especially when reading complex academic texts. Additionally, the use of targeted pre-reading activities to build background knowledge has been shown to improve comprehension outcomes (Lee & Hsieh, 2021). This suggests that fostering background knowledge is not only a passive process but can be strategically cultivated through instructional practices.

However, despite the wealth of research highlighting the importance of background knowledge, there are still notable gaps in understanding its specific role across different proficiency levels and types of reading material. For instance, while the influence of background knowledge on narrative and expository texts is well-documented, less is known about its effect on other text types, such as argumentative or descriptive texts, particularly in EFL settings. Moreover, previous studies often focus on adult learners or university students, leaving the impact of background knowledge on younger or less proficient learners underexplored. Furthermore, with the increasing prevalence of digital and multimodal texts, how background knowledge interacts with these newer formats is still largely unexplored. Addressing these gaps is critical for developing more effective reading comprehension strategies tailored to the diverse needs of EFL learners.

Theoretical Review

The relationship between background knowledge and reading comprehension in English as a Foreign Language (EFL) learners has been the subject of significant research in the field of second language acquisition. Recent studies, such as those by Barberá, Laborda, and Martín-Monje (2022), have highlighted the critical role that background knowledge plays in improving reading comprehension in digital learning environments. Understanding how prior knowledge interacts with text comprehension can offer valuable insights into enhancing EFL learners' overall reading skills. This review synthesizes key findings from the literature, examines the influence of background knowledge, and identifies gaps that warrant further exploration.

Theoretical Perspectives on Background Knowledge and Reading Comprehension

Schema theory has long been regarded as a foundational framework for understanding the impact of background knowledge on reading comprehension. According to Rumelhart (1980), schemas are mental structures that help individuals organize and interpret information. In reading, these cognitive frameworks are activated when a reader encounters a text, allowing them to link new information with their existing knowledge. Carrell and Eisterhold (1983) further developed this theory in the context of EFL learning, positing that background knowledge helps learners fill gaps in their understanding, especially when they face unfamiliar language structures or cultural references. Grabe (2009) emphasized that the activation of relevant schema is crucial for making sense of complex texts in a foreign language.

Research in this area has consistently demonstrated that background knowledge significantly improves EFL learners' comprehension by enabling them to make inferences and better interpret the text (Kintsch, 2018). When learners possess a strong foundation of knowledge on a particular topic, they are better equipped to understand the nuances of the text and overcome potential language barriers (Erten & Razi, 2009). This theoretical underpinning continues to guide research and teaching strategies aimed at enhancing reading comprehension in EFL contexts.

Empirical Evidence on Background Knowledge in EFL Reading Comprehension

A wealth of empirical studies has confirmed the critical role of background knowledge in EFL reading comprehension. Alptekin (2006) conducted a study on the effects of cultural familiarity on reading comprehension, finding that EFL learners were more successful in understanding texts that aligned with their own cultural background. The study highlighted the role of culturally relevant content in improving comprehension, as it helped learners relate the text to their own experiences and knowledge. Erten and Razi (2009) explored similar themes, focusing on how EFL learners' background knowledge of the topic influenced their comprehension of English texts. They concluded that students with greater familiarity with the subject matter were more adept at comprehending and recalling information from the texts. The study also noted that even learners with lower language proficiency benefited from having prior knowledge, suggesting that background knowledge can help compensate for linguistic gaps.

Further supporting these findings, Li and Brunfaut (2020) demonstrated that topic knowledge had a significant impact on learners' reading performance. Their research showed that learners who were familiar with the subject matter outperformed those who were not, particularly in terms of inferential and critical comprehension. These findings underscore the importance of incorporating background knowledge into EFL instruction, as it plays a vital role in helping learners navigate complex texts and understand implicit information.

Instructional Strategies for Activating Background Knowledge

Given the positive impact of background knowledge on reading comprehension, educators have developed various instructional strategies to activate and build on learners' prior knowledge. Pre-reading activities, such as brainstorming, predicting, and discussing relevant topics, are commonly used to prime students for the content they are about to read (Grabe & Stoller, 2020). By engaging learners in activities that activate their existing knowledge, teachers can help them connect new information with familiar concepts, thereby enhancing comprehension.

Lee and Hsieh (2021) examined the effects of pre-reading activities on EFL learners' reading comprehension. Their study found that learners who participated in pre-reading tasks, such as reviewing key vocabulary and discussing related topics, showed significant improvements in their ability to comprehend complex texts. The researchers emphasized that targeted pre-reading strategies were particularly effective when they addressed specific background knowledge relevant to the text. This suggests that a strategic approach to activating prior knowledge can significantly enhance learners' comprehension abilities.

Challenges of Background Knowledge in Multicultural EFL Contexts

While background knowledge is a valuable asset for EFL learners, it can also pose challenges, particularly in multicultural settings. EFL learners often come from diverse cultural backgrounds and may lack familiarity with the cultural references or idiomatic expressions found in English texts (Alptekin, 2006). This can create a barrier to comprehension, even for learners with strong linguistic skills. Erten and Razi (2009) noted that learners who encountered unfamiliar cultural content struggled to understand the text, which suggests that background knowledge is not solely language-dependent but is also influenced by cultural and contextual factors.

To address these challenges, educators have been encouraged to incorporate culturally diverse materials into their teaching practices. By selecting texts that reflect a range of cultural perspectives, teachers can help bridge the gap between learners' existing knowledge and the new content they are encountering. Additionally, providing explicit instruction on cultural references and idiomatic language can help learners overcome comprehension barriers (Grabe & Stoller, 2020).

Background Knowledge and Digital Texts

The increasing prevalence of digital learning environments has raised new questions about the role of background knowledge in reading comprehension. Digital texts often incorporate multimodal elements, such as images, videos, and hyperlinks, which can either aid or complicate the comprehension process. Barberá et al. (2022) explored how background knowledge influences EFL learners' ability to comprehend digital and multimodal texts. Their study found that learners with a solid foundation of topic knowledge were better able to navigate and comprehend digital content, suggesting that background knowledge plays an equally important role in digital literacy.

However, digital texts also present unique challenges, as they often require learners to process multiple sources of information simultaneously. This can overwhelm learners who lack sufficient background knowledge or digital literacy skills, leading to reduced comprehension (Barberá et al., 2022). As such, future research should continue to explore how background knowledge interacts with digital literacy, particularly in the context of EFL learners.

Gaps in the Literature

Despite the substantial body of research on background knowledge and reading comprehension, several gaps remain. First, much of the literature has focused on adult learners or advanced EFL students, leaving a need for more studies on younger or less proficient learners (Grabe, 2009). Understanding how background knowledge affects reading comprehension across different age groups and proficiency levels could provide more comprehensive insights into the learning process. Second, while numerous studies have examined the role of background knowledge in narrative and expository texts, there is limited research on how it influences comprehension of other text types, such as argumentative or descriptive texts (Li & Brunfaut, 2020). Given the importance of these text types in academic settings, further research is needed to understand how background knowledge impacts comprehension across a wider range of genres.

Finally, while recent studies have begun to investigate the role of background knowledge in digital literacy, more research is needed to fully understand how it interacts with multimodal texts and digital learning environments. As EFL learners increasingly engage with online content, understanding the relationship between background knowledge and digital comprehension crucial for developing effective instructional strategies.

RESEARCH METHODS

This section outlines the methodology and research design used to explore the effects of background knowledge on reading comprehension among tenth-grade English as a Foreign Language (EFL) learners. The study adopts a **quasi-experimental design** with a pre-test and post-test format, involving both quantitative and qualitative approaches. This mixed-methods approach enables a comprehensive analysis of the relationship between background knowledge and reading comprehension.

Research Design

The study employs a **quasi-experimental design** with two groups of participants: an **experimental group** that receives background knowledge activation through pre-reading activities and a **control group** that receives traditional reading instruction without targeted background knowledge activation. The design allows for the comparison of reading comprehension outcomes between the two groups while controlling for confounding variables such as language proficiency and overall academic ability.

Participants

The study involves **50 tenth-grade EFL learners** from a secondary school. Participants selected through **convenience sampling**, and they randomly assigned to either the experimental group (n=25) or the control group (n=25). All participants are between the ages of 15 and 16, with a similar range of English language proficiency as determined by their most recent standardized English tests.

Instruments

1. Pre-Test and Post-Test of Reading Comprehension
   A set of reading comprehension tests, adapted from Li and Brunfaut (2020), used to assess participants' understanding of narrative and expository texts. The tests include both literal comprehension (recalling specific information from the text) and inferential comprehension (drawing inferences from the text). The pre-test administered before any instructional intervention, and the post-test given after a four-week instructional period.
2. Background Knowledge Questionnaire
   Prior to the pre-test, participants completed a background knowledge questionnaire to assess their familiarity with the topics presented in the reading materials. This questionnaire, based on the work of Barberá, Laborda, and Martín-Monje (2022), include multiple-choice and open-ended questions that gauge participants' prior knowledge of the topics to be covered in the reading comprehension tests.
3. Instructional Materials

Two types of reading materials selected for the study: narrative and expository texts. The topics of the texts chosen to ensure they are relevant and appropriate for tenth-grade learners, with the experimental group receiving additional pre-reading activities designed to activate their background knowledge. These texts culturally relevant and age-appropriate, as recommended by Grabe and Stoller (2020).

4. Semi-Structured Interviews
   After the post-test, a subset of 10 participants from both the experimental and control groups interviewed to gather qualitative data on their reading experiences. The interview protocol explores learners' perceptions of how background knowledge influenced their comprehension and how they approached reading tasks. Interview questions based on the work of **Kintsch (2018)**, with a focus on inferential reasoning and comprehension strategies.

Procedure

The study conducted over a six-week period, and the procedure is divided into four key phases:

1. **Phase 1:** Pre-Test and Background Knowledge Questionnaire
   In the first week, all participants complete the background knowledge questionnaire, followed by the reading comprehension pre-test. This establishes baseline data on their reading comprehension abilities and background knowledge of the topics covered in the texts.
2. Phase 2: Instructional Period (4 Weeks)
   The experimental group receives explicit background knowledge activation before each reading task. This involves pre-reading activities such as group discussions, brainstorming, and watching topic-related videos, which are designed to activate learners' schema and enhance their comprehension. The control group follows the standard reading curriculum, which includes reading and answering comprehension questions without specific background knowledge activation.
   Both groups read the same texts to ensure comparability, but only the experimental group engages in activities specifically aimed at drawing on prior knowledge. The instructional approach is informed by the work of Lee and Hsieh (2021), who found that pre-reading activities significantly enhanced EFL learners' comprehension.
3. Phase 3: Post-Test of Reading Comprehension
   At the end of the instructional period, all participants complete the post-test, which assess any changes in their reading comprehension abilities. The post-test mirror the format of the pre-test and uses the same types of texts (narrative and expository) to ensure consistency.
4. Phase 4: Interviews
   After the post-test, semi-structured interviews conducted with a subset of 10 participants (5 from the experimental group and 5 from the control group). These interviews explore participants' perceptions of how background knowledge influenced their reading experience, with a focus on how they

approached unfamiliar content and whether they believed their comprehension was improved by the activation of prior knowledge.

Data Analysis

1. Quantitative Data Analysis
   The data from the pre-test and post-test analyzed using paired t-tests to determine whether there is a statistically significant difference in reading comprehension scores between the experimental and control groups. An ANCOVA (Analysis of Covariance) conducted to control for any initial differences in background knowledge, using the pre-test results as a covariate. This allows for a more accurate comparison of the two groups' post-test scores, as recommended by Kintsch (2018).
2. Qualitative Data Analysis
   The interview data analyzed using thematic analysis, as described by Braun and Clarke (2006). This method involves coding the data to identify recurring themes related to the use of background knowledge in reading comprehension. The findings from the interviews complement the quantitative results, providing a deeper understanding of the learners' experiences and strategies in processing the texts.

Ethical Considerations

Ethical approval sought from the participating school and relevant educational authorities. Informed consent obtained from all participants and their parents or guardians. Participants assured that their responses remain confidential and that their participation is voluntary. They have the right to withdraw from the study at any time without any consequences.

Conclusion

By employing a mixed-methods design, this study provides both measurable data on the effects of background knowledge on reading comprehension and qualitative insights into learners' perceptions and strategies. The combination of quantitative and qualitative approaches enable a comprehensive understanding of how background knowledge impacts reading comprehension in EFL learners, contributing to the development of more effective reading instruction strategies.

RESULTS AND DISCUSSION

This section presents the results of the quasi-experimental design used to explore the effects of background knowledge on reading comprehension among tenth-grade EFL learners. The analysis focuses on comparing the performance of the experimental group, which received levels. Table 1 summarizes the descriptive statistics for both groups, including the mean scores and standard deviations.

Table 1: Descriptive Statistics for Pre-Test Scores

Group	N	Mean Pre-Test Score	Standard Deviation (SD)
Experimental Group	25	56.4	6.8
Control Group	25	57.1	7.2

As shown in Table 1, both groups had similar mean scores on the pre-test, with the experimental group scoring slightly lower (M = 56.4, SD = 6.8) than the control group (M = 57.1, SD = 7.2). An independent samples t-test was conducted to verify whether the differences between the two groups at the pre-test stage were statistically significant. The result of the t-test showed **no significant difference** between the two groups' pre-test scores, indicating that they were comparable in terms of their initial reading comprehension abilities **(t(48) = 0.39, p = 0.69).**

Post-Test Results

After the four-weeks instructional period, a **post-test** was administered to both groups to measure their reading comprehension improvement. Table 2 provides the post-test results for both groups.

Table 2: Descriptive Statistics for Post-Test Scores

Group	N	Mean Post-Test Score	Standard Deviation (SD)
Experimental Group	25	72.8	6.1
Control Group	25	62.7	6.9

As shown in Table 2, the experimental group (M = 72.8, SD = 6.1) significantly outperformed the control group (M = 62.7, SD = 6.9) in the post-test. To examine the statistical significance of the difference in post-test scores, a **paired t-test** was conducted. The results indicated that there was a **significant increase** in reading comprehension scores in the experimental group compared to the control group **(t(48) = 4.87, p < 0.001).**

ANCOVA Analysis

To control for any pre-existing differences between the groups and to further validate the impact of background knowledge activation on reading comprehension, an **Analysis of Covariance (ANCOVA)** was performed. The pre-test scores were used as the covariate, and the post-test scores were treated as the dependent variable. The ANCOVA results are presented in Table 3.

Table 3: ANCOVA Results Controlling for Pre-Test Scores

Source	Sum of Squares	df	Mean Square	F	Sig.
Pre-Test (Covariate)	242.13	1	242.13	6.18	0.016*
Group (Experimental/Control)	853.62	1	853.62	21.81	<0.001**
Error	1856.14	47	39.49		
Total	**5338.21**	**50**			

The ANCOVA results show that even after controlling for the pre-test scores, there was a statistically significant effect of the intervention (background knowledge activation) on post-test scores **(F(1, 47) = 21.81, p < 0.001).** This confirms that the improvement in reading comprehension scores in the experimental group was due to

the background knowledge activation, rather than any pre-existing differences between the groups.

Effect Size

To assess the practical significance of the findings, **Cohen's d** was calculated to measure the effect size of the intervention. The effect size for the difference between the experimental and control groups was **1.57,** indicating a **large effect** of background knowledge activation on reading comprehension.

Discussion of Results

The findings from this study suggest that background knowledge activation has a significant positive effect on reading comprehension in EFL learners. The experimental group, which received pre-reading activities designed to activate their prior knowledge, showed a substantial improvement in both literal and inferential comprehension compared to the control group. This supports the conclusions of previous studies, such as **Li and Brunfaut (2020)** and **Kintsch (2018),** who found that activating learners' prior knowledge enhances their ability to comprehend texts. The large effect size (Cohen's d = 1.57) further underscores the practical significance of the intervention. The use of background knowledge, as recommended by **Grabe and Stoller (2020),** seems to be an effective strategy for improving reading comprehension in EFL contexts, particularly for learners at the secondary school level.

CONCLUSION

The results of the quasi-experimental study demonstrate that activating background knowledge significantly improves reading comprehension in EFL learners. The experimental group, which received explicit pre-reading activities to activate their prior knowledge, outperformed the control group on the post-test. The statistical analysis using ANCOVA confirmed that the difference between the two groups was not due to pre-existing differences, but rather the intervention itself. These findings suggest that incorporating background knowledge activation into EFL instruction can enhance learners' reading comprehension skills, especially when dealing with complex texts.

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