

Mind, Motivation, and Meaning: A Multifactor Analysis of Reading Comprehension in EFL Contexts

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ABSTRACT

This study investigates the students' multifactor on reading comprehension among EFL students at Universitas Muhammadiyah Semarang. Using a descriptive quantitative design, this study surveyed 15 purposively sampled fourth-semester students in the English Education Program through a 20-item Likert-scale questionnaire. The results demonstrate that all four factors significantly influence students' reading comprehension. Learning style emerged as the most dominant factor, followed by background knowledge, motivation, and brain dominance. Students indicated that visual aids, note-taking, and topic familiarity improved their text comprehension, while motivation sustained their engagement and effort. Ultimately, these findings highlight that reading proficiency relies on a dynamic interplay of cognitive and affective elements. Therefore, this study encourages educators to design flexible, learner-centered instruction that accommodates individual preferences, activates prior knowledge, and fosters motivation to support deeper comprehension in EFL contexts.

Keywords: reading comprehension, learning styles, background knowledge, motivation, brain dominance.

INTRODUCTION

Reading comprehension is an essential skill for English as a Foreign Language (EFL) learners, helping them understand texts,

build vocabulary, and succeed academically. However, many learners still struggle with reading, even after years of studying English (Marks et al., 2024). Because of this, researchers and educators are constantly working to identify the key factors that shape reading proficiency. Recent studies show that reading comprehension is not just about knowing grammar and vocabulary; it is a complex process that depends heavily on how students process information, what they already know, how they prefer to learn, and how motivated they are (Azmi, 2023; Huettig & Pickering, 2019; Lastari et al., 2022; Par, 2020; Taylor & Clarke, 2021; Wang & Gao, 2022).

One of the most important factors is background knowledge. Students who are already familiar with a topic usually find it much easier to understand the text. This prior knowledge helps them connect new information to what they already know, creating a clearer mental picture of what they are reading. According to Smith et al. (2021), readers lacking knowledge elements required to properly integrate the text base build a less effective situation model. In short, background knowledge acts as a bridge, making the reading process both faster and more meaningful.

Another key factor is how students process information, which is closely tied to brain dominance. Some students lean toward left-brain processing, meaning they take a logical, detail-oriented approach to language. Others lean toward right-brain processing, relying more on visual, creative, and intuitive thinking. Aligning with Suwanto & Hidayah (2023), right-brain-dominant students who used a kinesthetic learning style showed a 75% increase in their reading proficiency. These findings are strongly supported by recent research by Almanea (2021), which emphasizes that aligning reading strategies with hemispheric dominance significantly boosts comprehension. Furthermore, S. Li et al. (2022) observed that when cognitive and sensory learning styles are accommodated, moderately right-brain-dominant students can achieve the highest reading comprehension scores. This suggests that understanding a student's cognitive strengths can help teachers design much more effective reading activities.

Closely related to brain dominance are learning styles, which describe how students prefer to receive information. Some students learn best by seeing (visual learners), others by hearing (auditory learners), and some by physically engaging with the material (kinesthetic learners). When reading lessons match a student's preferred style, they tend to feel more comfortable and engaged. For example, Wijayatiningsih & Lestariningsih (2020) observed that students were far more enthusiastic and understood texts better

when using an interactive, visual Android application that fit their learning preferences. This is further supported by Suparman (2022), who found a strong, significant correlation between accommodating these specific sensory modalities, visual, auditory, and kinesthetic, and increased reading comprehension scores in EFL classrooms. Additionally, Afshari & Gilakjani (2023) highlight that tailoring reading materials to fit learning styles not only boosts text retention but also significantly raises students' academic confidence and self-efficacy. Ultimately, aligning teaching methods with these sensory preferences naturally enhances both student engagement and overall comprehension

Motivation is another powerful driver of reading success. Students who are motivated, whether by personal interest (intrinsic motivation) or external rewards (extrinsic motivation), are more likely to read regularly and with purpose. Kheang (2026) emphasizes that motivated readers perceive reading as a meaningful activity, willingly accept reading challenges, and tend to excel in their reading endeavors. Motivation influences not only how often students read but also how deeply they engage with the material. Highly motivated students tend to use more metacognitive strategies. Ahmadi & Ismail (2012) also state that students' motivation directly affects their reading behaviors, and those with higher motivation are more likely to engage in extensive reading. While previous research has explored these factors individually or in pairs, such as linking motivation with reading strategies (Protacio, 2012) or brain dominance with learning styles Suwanto & Hidayah, 2023), there is still a noticeable gap in understanding how they all work together. Reading comprehension is a complex, multi-layered skill. Paige et al. (2024), yet very few studies have measured how these cognitive, sensory, and affective factors interact within a single group of EFL learners.

The novelty of this study lies in its holistic approach. Rather than looking at just one piece of the puzzle, this research brings together brain dominance, learning styles, motivation, and background knowledge into a single, unified analysis. Specifically, this study asks two main questions: (1) How do these four factors individually contribute to the reading comprehension of EFL students? and (2) Among these factors, which one is the most dominant? By answering these questions, this study aims to uncover how these elements interact, providing teachers with practical insights to design flexible, student-centered reading lessons that help all learners succeed.

METHOD

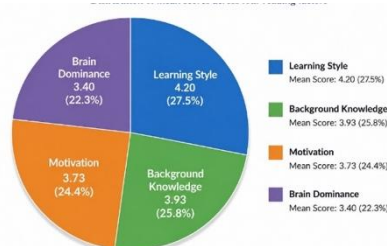
This study adopts a descriptive quantitative design to investigate the multifactorial influences on reading comprehension among EFL students. This methodology was selected to facilitate a profile-based analysis of learner tendencies, providing a quantifiable snapshot of the cognitive and affective variables that drive academic engagement within a university setting. A purposive sampling technique was employed to select 15 fourth-semester students from the English Education Program at a private university in Semarang, Indonesia. This cohort was selected for their intensive daily engagement with complex academic literature, which makes their experiences highly representative of the target research population. The variables under investigation, background knowledge, brain dominance, learning style, and motivation, are grounded in the cognitive-affective framework of language acquisition (Arnold, 1999; Ellis, 1994).

This framework posits that language proficiency is an integrative outcome of intellectual processing (cognitive domain) and emotional investment (affective domain). Data Collection and Analysis Data were gathered via a 20-item, 5-point Likert-scale questionnaire. To ensure methodological rigor, the instrument underwent a content validity assessment by an expert faculty member, confirming its alignment with participants' linguistic proficiency. Following informed consent, data were processed using a descriptive statistical framework in Microsoft Excel. The analysis computed the Mean (M) and Standard Deviation (SD) to establish the central tendency and hierarchical ranking of each factor, facilitating a comparative analysis of how these variables shape reading comprehension.

FINDINGS AND DISCUSSION

This study investigated the multifactorial nature of EFL reading comprehension by evaluating how four multifactor variables, Learning Style, Background Knowledge, Motivation, and Brain Dominance, contribute to academic engagement. To move beyond isolated mean scores and understand reading comprehension as a holistic, integrated system, the data were analyzed to determine the proportional influence of each factor. The distribution of these factors is visualized in Graphic 1.

Graphic 1. Students' Multifactor Analysis of Reading Comprehension



The empirical data explicitly confirm that reading comprehension in this academic cohort is not facilitated by a single cognitive or affective trait, but rather by a closely interconnected network of variables. However, a critical analysis of the percentages reveals that the proportional weight of these variables is asymmetrical, indicating a clear hierarchy in students' perceptions of their learning mechanisms. Accounting for more than a quarter of the total multifactor influence ($M = 4.20$), Learning Style emerges as the most prominent driver of reading comprehension. This finding is highly significant because it underscores the absolute necessity of instructional congruence in the EFL classroom. When students are empowered to engage with complex academic texts through their preferred sensory modalities, be it visual mind-mapping, auditory read-alouds, or kinesthetic annotation, the intrinsic cognitive load of decoding foreign-language syntax is radically minimized. This data strongly corroborates the assertions of Li et al. (2022), who theorize that aligning pedagogical delivery with inherent perceptual preferences effectively frees working memory. Consequently, rather than expending mental energy on the mechanical translation of individual vocabulary words, students can reallocate their cognitive resources toward higher-order analytical tasks, such as synthesizing arguments and evaluating textual coherence.

Following closely in the hierarchy of influence, Background Knowledge constitutes 25.8% of the students' reading comprehension profile ($M = 3.93$). This substantial proportion serves as a direct validation of schema activation theories within cognitive linguistics (Suhendri & Kurniawan, 2022). For advanced students engaging with dense university-level literature, prior domain familiarity does not merely assist in reading; it acts as an indispensable cognitive scaffold. The data indicate that students actively rely on pre-existing conceptual frameworks to navigate linguistic ambiguity. When faced with unknown vocabulary or complex grammatical structures, readers with high background knowledge utilize top-down processing to infer meaning from the broader context. By doing so, they rapidly construct an accurate, holistic situational model of the text, effectively bridging gaps in their immediate lexical knowledge without pausing for direct translation.

Operating simultaneously within the affective domain, Motivation accounts for nearly a quarter of the total multifactor distribution at 24.4% ($M = 3.73$). Grounded in the principles of Self-

Determination Theory (Ryan & Deci, 2020), this variable serves as the psychological endurance required to navigate the rigors of academic reading. Reading complex EFL texts is inherently fraught with moments of frustration and comprehension failure. The data suggest that intrinsic interest, coupled with the desire for academic mastery, provides the necessary emotional drive for students to persist. It is this affective engine that compels a student to employ metacognitive repair strategies, such as pausing to reread a difficult paragraph, consulting external resources, or actively questioning the author's intent, rather than abandoning the text when cognitive fatigue sets in. Finally, brain dominance occupies the smallest proportion of the distribution, at 22.3% ($M = 3.40$). While pedagogical frameworks, specifically the lateralized processing theories of left- and right-brain functions, are well established in the language acquisition literature, the lower proportional weight in this cohort reveals a fascinating latency effect. The students objectively acknowledge the existence of their biological neurological traits, but they perceive these traits as static realities. In the immediate, functional, and often high-stress environment of academic reading, neurobiology is viewed as far less actionable or manipulatable than one's learning style or prior knowledge.

By cross-examining these proportional values, the data definitively answer the inquiry regarding the dominant predictor of reading success. The structural hierarchy established by the empirical data, led decisively by Learning Style (27.5%) and Background Knowledge (25.8%), reveals a profound student preference for pedagogical agency over biological determinism. The variables that grant students the highest degree of self-regulation are consistently perceived as the most influential. A fourth-semester student can actively choose to apply a specific visual strategy to a text, or research the background of a topic before reading. These are functional, strategic choices over which the learner exercises complete control. In stark contrast, Brain Dominance is perceived as an inherent, immutable variable operating outside of their conscious jurisdiction (Elleman & Oslund, 2019). Therefore, the dominance of Learning Style highlights that successful EFL learners are primarily strategic learners; their academic triumph is heavily reliant on the methodological freedom to interact with literature on their own cognitive terms.

The tightly clustered percentages in this multifactor analysis, ranging from 22.3% to 27.5%, offer a strong critique of monolithic, uniform teaching methodologies. Because these four variables operate not in isolation, but as a deeply integrated cognitive-affective

system, educational institutions must pivot toward Differentiated Reading Pathways (Lee & Kim, 2025). Practical implementation of this paradigm requires educators to transition from being mere content providers to becoming strategic literacy facilitators. Pre-reading activities must be formalized to systematically activate background schemas before assigning heavy texts. Content delivery must be multimodal to satisfy diverse learning styles, and classroom environments must be cultivated to foster intrinsic academic motivation. By respecting and accommodating this proportional cognitive architecture, university programs can successfully transform EFL reading from a mechanical, teacher-directed struggle into an autonomous, professional-level literacy endeavor.

CONCLUSION

This study investigated the multifactorial nature of EFL reading comprehension among university students, specifically evaluating how learning style, background knowledge, motivation, and brain dominance interplay to shape academic engagement. The findings elucidate that reading comprehension constitutes a deeply integrated cognitive-affective process rather than a singular, mechanical skill. The quantitative analysis delineates an interdependent network where each variable supports the reader's cognitive engagement with complex academic literature.

Addressing the hierarchy of influence, the data establishes Learning Style as the primary predictor of reading success, accounting for 27.5% of the total multifactor influence, followed closely by Background Knowledge at 25.8%. This hierarchy underscores a critical insight: students prioritize pedagogical agency. Learners advocate for actionable, self-regulated strategies, such as selecting how they interact with a text over fixed biological traits like Brain Dominance. Consequently, the study maintains that successful EFL learners are primarily strategic, relying on the methodological freedom to navigate literature on their own cognitive terms.

The pedagogical implications are significant. Educators must abandon monolithic, standardized text delivery and instead implement Differentiated Reading Pathways. By actively scaffolding prior knowledge and aligning instruction with diverse sensory preferences, teachers can effectively reduce the cognitive load of

foreign-language reading, thereby fostering a more autonomous and motivated learning environment.

While these findings provide a robust profile of fourth-semester students, this study is limited by its focused sample size. Future research should expand the cohort across multiple academic levels or employ qualitative interviews to further investigate how EFL students regulate these multifactor variables during high-stakes reading tasks. By respecting this proportional cognitive architecture, university programs can successfully transform EFL reading.

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