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# Sentence Processing Difficulties in Academic English: A Psycholinguistic Study of EFL Students

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**Abstract:** This study investigates sentence processing difficulties in academic English from a psycholinguistic perspective, focusing on EFL university students. The research aims to identify how learners plan, parse, and interpret complex academic sentences during real-time reading. A qualitative approach was employed to capture cognitive processes underlying comprehension. Data were collected through academic reading tasks, think-aloud protocols, interviews, and stimulated recall sessions. The findings reveal that learners face persistent difficulties when processing syntactically complex sentences, long noun phrases, and multi-clause structures. These difficulties are closely linked to limited working memory capacity, low processing automaticity, and heavy reliance on word-by-word translation strategies. Learners often experience cognitive overload, which leads to slow reading, frequent rereading, and inaccurate interpretation of grammatical relationships. Emotional factors such as anxiety and lack of confidence also interact with cognitive load and further disrupt comprehension. The study concludes that sentence processing problems in academic English are rooted in psycholinguistic constraints rather than insufficient linguistic knowledge. The findings emphasize the need for instructional approaches that focus on improving processing efficiency, syntactic integration, and automaticity in EFL academic reading contexts.

**Keywords**: psycholinguistics, sentence processing, academic English, EFL students, working memory

## INTRODUCTION

Academic English plays a central role in higher education, especially for students who study English as a Foreign Language (Carkin, 2005). University students are expected to read textbooks, journal articles, and research reports written in complex academic language. These texts often contain long sentences, dense information, and unfamiliar structures. As a result, many EFL students struggle to understand academic materials even when they have studied English for many years. This difficulty often leads to slow reading, misunderstanding of key ideas, and reduced academic performance (Alharbi, 2021).

One major source of this problem lies in sentence processing. Sentence processing refers to the mental activity involved in interpreting grammatical structure and meaning while reading or listening (Cooper, 2013). In academic English, sentences are often syntactically complex. They include features such as embedded clauses, passive constructions, nominalization, and abstract vocabulary. For EFL students, processing these features in real time places heavy demands on cognitive resources. This challenge goes beyond vocabulary knowledge and grammar rules.

Many EFL students report that they understand individual words but fail to grasp the overall meaning of a sentence. This experience suggests that comprehension breakdown occurs during sentence integration rather than word recognition. Students may read the same sentence several times without achieving clear understanding Biber & Gray, 2021). This pattern indicates a processing difficulty rather than a lack of exposure or motivation. Psycholinguistics provides a useful framework to explain why such difficulties persist.

Steinberg et al. (2013) argue psycholinguistics studies how language is processed in the human mind. It focuses on how learners perceive, interpret, store, and retrieve linguistic information. In sentence processing, psycholinguistics examines how readers build meaning incrementally as they encounter each word. This process requires coordination between lexical access, syntactic parsing, and working memory. When one component functions inefficiently, comprehension becomes unstable.

In the context of EFL learning, sentence processing often operates under limited cognitive capacity. Learners must allocate attention to form and meaning at the same time. Academic English increases this burden because it demands precise interpretation of complex relationships between ideas. EFL students may rely on word-by-word processing or translation strategies to cope with this load. While these strategies provide temporary support, they often slow processing and reduce comprehension accuracy (Aal-Hajiahmed, 2022).

Previous research on EFL reading comprehension has mainly focused on outcomes such as test scores, reading speed, or vocabulary size. Although these studies provide valuable insights, they do not fully explain how comprehension difficulties arise during real-time processing. Many studies treat reading as a static skill rather than a dynamic cognitive activity. As a result, the internal processes that lead to misunderstanding remain underexplored. This limitation highlights the need for psycholinguistic approaches.

Sentence processing difficulties become more visible in academic contexts because academic texts tolerate little ambiguity (Papadopoulou& Clahsen, 2006). Misinterpreting a clause or reference can change the meaning of an entire argument. For EFL students, this risk increases anxiety and cognitive pressure. They may focus excessively on grammatical form, which further disrupts meaning construction. These behaviors reflect processing strain rather than lack of intelligence or effort (Altmann, 1998). Psycholinguistic models of sentence processing emphasize the role of working memory. Working memory allows learners to hold linguistic elements while integrating new information. Academic sentences often exceed the working memory capacity of EFL learners. When this capacity is overloaded, learners lose track of sentence structure and meaning. This overload explains why long sentences pose more difficulty than shorter ones, even when vocabulary is familiar (Ran, 2024).

Another key factor in sentence processing is automaticity. Skilled readers process sentence structure rapidly and unconsciously. EFL students often lack this automatic processing. They analyze sentence structure slowly and deliberately. This slow processing increases cognitive load and reduces comprehension efficiency. Psycholinguistic theory suggests that without automaticity, learners struggle to keep up with the pace of academic reading.

Despite the importance of sentence processing, few studies have examined this issue directly from a psycholinguistic perspective in EFL university settings. Existing research often isolates grammar instruction from reading comprehension. However, knowing grammatical rules does not guarantee successful sentence processing. Learners may understand rules but fail to apply them in real time. This gap between knowledge and processing ability requires closer investigation. This study addresses that gap by examining sentence processing difficulties in academic English among EFL students. It adopts a psycholinguistic perspective to explore how learners process complex sentences during comprehension tasks. The study focuses on cognitive constraints that interfere with meaning construction. It seeks to explain why EFL students struggle even when linguistic knowledge appears sufficient.

The study also aims to contribute to pedagogical understanding. Many instructors assume that exposure to academic texts will naturally improve comprehension. However, without addressing processing limitations, exposure alone may not be effective. Psycholinguistic insights can inform teaching practices that support sentence processing development. Instruction can then move beyond surface-level comprehension strategies. Understanding sentence processing difficulties has practical implications for EFL instruction. If learners struggle due to working memory overload, texts can be scaffolded to reduce cognitive burden. If learners rely heavily on word-by-word processing, instruction can focus on chunking and structural awareness. These strategies align with how the brain processes language rather than how language is traditionally taught.

## METHODOLOGY

This study employed a qualitative research design to investigate sentence processing difficulties in academic English among EFL university students from a psycholinguistic perspective. A qualitative approach was selected because the study aimed to explore internal cognitive processes that cannot be directly measured through numerical data (Creswell, et.al., 2007). Sentence processing involves real-time interpretation, decision making, and resource allocation in the mind. These processes are better captured through in-depth observation and learner reflection. The design allowed the researcher to focus on how students process sentences rather than how well they perform on tests.

The research was conducted in a university EFL context where academic English texts are regularly used. The setting provided authentic exposure to complex sentence structures commonly found in textbooks and journal articles. This context ensured that the data reflected real academic demands faced by EFL students. The study emphasized natural comprehension behavior rather than artificial laboratory tasks. The participants were undergraduate EFL students enrolled in an English Education program. They had completed several reading-based courses and were familiar with academic texts. However, they still reported difficulties

in understanding long and complex sentences. Participants were selected through purposive sampling to ensure relevance to the research focus. All participants voluntarily agreed to take part in the study.

**Data Collection**

Data were collected from multiple sources to capture sentence processing behavior comprehensively. The primary data source consisted of academic reading tasks. Participants were asked to read selected academic texts containing syntactically complex sentences. The texts included features such as relative clauses, passive constructions, nominalization, and embedded clauses. These features are known to increase processing difficulty. During the reading tasks, participants engaged in think-aloud protocols. They were instructed to verbalize their thoughts while reading. This method allowed the researcher to observe real-time processing, hesitation, confusion, reanalysis, and interpretation strategies. Think-aloud data provided direct insight into how participants processed sentence structure and meaning as they read.

In addition to think-aloud sessions, semi-structured interviews were conducted after the reading tasks. The interviews explored participants' perceptions of sentence difficulty, processing strategies, and sources of confusion. Open-ended questions encouraged participants to explain how they approached complex sentences and how they coped with processing challenges. This step helped clarify patterns observed during the reading tasks. Stimulated recall sessions were also used with selected participants. During these sessions, participants revisited specific sentences they had struggled with and explained their thought processes. This method helped link observable behavior to internal cognitive activity. Field notes were taken throughout the data collection process. These notes recorded pauses, rereading behavior, emotional responses, and visible signs of processing strain. All reading sessions, think-aloud protocols, interviews, and recall sessions were audio-recorded. The recordings were transcribed verbatim to ensure accuracy. Data collection took place over four weeks to allow repeated exposure and reduce task familiarity effects. The use of multiple instruments supported data triangulation and increased credibility.

**Data Analysis**

Data analysis followed a thematic qualitative procedure grounded in psycholinguistic theory. The analysis focused on identifying patterns related to sentence processing difficulty, cognitive load, and comprehension breakdown. The first step involved data familiarization. The researcher repeatedly read transcripts and listened to recordings to gain an overall understanding of the data. The second step involved initial coding. Segments of data related to sentence processing were identified and labeled. Codes included syntactic confusion, delayed integration, working memory overload, word-by-word processing, translation reliance, and reanalysis. These codes captured both observable behavior and verbalized cognitive processes. The third step involved categorization. Related codes were grouped into broader categories that reflected key psycholinguistic constructs. These categories included processing load, parsing difficulty, integration failure, and limited automaticity. Constant comparison was used to refine categories across participants and data sources. The fourth step involved theme development. Themes were generated to explain how sentence processing difficulties emerged and why they persisted. The themes described relationships between sentence complexity, cognitive constraints, and comprehension outcomes. The analysis emphasized process rather than correctness.

To ensure trustworthiness, data triangulation was applied across reading tasks, think-aloud protocols, interviews, and field notes. Member checking was conducted by sharing summarized interpretations with selected participants. Peer debriefing with a fellow researcher helped reduce subjective bias. Overall, this methodology enabled a detailed and systematic exploration of sentence processing difficulties in academic English. The qualitative approach aligned with the psycholinguistic focus of the study and provided rich evidence of how EFL students construct meaning from complex sentences.

## FINDING AND DISCCUSION

This study revealed several important findings related to sentence processing difficulties experienced by EFL students when reading academic English texts. The findings are based on data from academic reading tasks, think-aloud protocols, interviews, stimulated recall sessions, and field notes. Overall, the results show that comprehension problems mainly stem from cognitive processing constraints rather than lack of vocabulary or grammatical knowledge. The difficulties appeared consistently across participants and text types.

One major finding concerns difficulty in processing syntactically complex sentences. Participants struggled most with sentences containing embedded clauses, relative clauses, and long noun phrases. During think-aloud sessions, many students paused for extended periods when encountering such structures. They often reread the same sentence multiple times without achieving clear understanding. This behavior indicates problems in syntactic parsing rather than word recognition. Even when participants understood individual words, they failed to integrate them into a coherent sentence meaning.

Another significant finding relates to word-by-word processing strategies. Most participants processed academic sentences linearly, focusing on one word at a time. They attempted to translate each word into their first language before moving to the next. This strategy slowed comprehension and overloaded working memory. As a result, participants often forgot the beginning of a sentence before reaching the end. This pattern led to fragmented understanding and frequent misinterpretation of sentence meaning.

The study also found heavy reliance on first-language translation during sentence processing. Almost all participants reported translating complex sentences mentally to understand them. While translation provided temporary support, it often caused confusion when translated structures did not align with English syntax. Think-aloud data showed that translation interrupted incremental meaning construction. Instead of building meaning progressively, participants delayed interpretation until they completed translation, which increased cognitive load and reduced comprehension efficiency. Another key finding involves working memory overload. Academic sentences with multiple clauses exceeded participants' working memory capacity. Participants struggled to hold syntactic elements while integrating new information. This overload resulted in loss of sentence structure and unclear interpretation. Field notes showed visible signs of cognitive strain, such as sighing, long pauses, and expressions of frustration. These observations confirm that sentence length and structural density play a major role in comprehension difficulty.

The findings also reveal limited automaticity in sentence processing. Participants processed sentence structure slowly and deliberately. They consciously analyzed grammar rather than relying on intuitive parsing. This slow processing increased mental effort and reduced reading efficiency. Interviews confirmed that participants felt academic reading was exhausting and time-consuming. The lack of automatic processing explains why comprehension difficulties persisted despite years of English instruction.

Another important finding concerns misinterpretation of grammatical relationships. Participants often misidentified subjects, agents, or referents in complex sentences. Passive constructions and nominalized forms caused particular confusion. In several cases, participants assigned incorrect roles to sentence elements, which led to misunderstanding of key ideas. This issue highlights difficulty in syntactic integration rather than lack of grammatical awareness. The study also identified frequent rereading and reanalysis behavior. Participants repeatedly returned to earlier parts of a sentence to repair understanding. This behavior indicates instability in initial parsing decisions. While rereading sometimes improved comprehension, it significantly slowed reading pace. Participants reported feeling overwhelmed by the need to constantly revise interpretation. Finally, the findings show that emotional responses interacted with cognitive difficulty. Participants expressed anxiety and lack of confidence when facing long academic sentences. This emotional pressure further increased cognitive load and disrupted processing. Some participants avoided difficult sentences altogether, which affected overall text comprehension.

**Sentence Complexity and Cognitive Load in Academic English**

The findings of this study show that sentence complexity is a primary source of processing difficulty for EFL students when reading academic English. Sentences containing embedded clauses, long noun phrases, and passive constructions consistently caused comprehension breakdown. These structures increased cognitive load and required learners to hold multiple linguistic elements in working memory at the same time. When working memory capacity was exceeded, learners lost track of sentence structure and meaning. This result supports psycholinguistic theories that view sentence comprehension as a resource-limited process.

Academic English places high demands on syntactic integration. EFL students must identify grammatical relationships while simultaneously interpreting meaning. The findings indicate that many learners failed at this integration stage. They recognized words but could not combine them into a coherent mental representation. This problem reflects processing difficulty rather than lack of grammatical knowledge. Learners often knew the rules but could not apply them efficiently in real time.

The results also confirm that sentence length and density intensify processing difficulty. Longer sentences delayed comprehension and increased rereading behavior. Learners struggled to maintain earlier sentence elements while processing later information. This outcome aligns with working memory models in psycholinguistics. These models explain that comprehension declines when processing demands exceed cognitive capacity. Academic sentences often cross this threshold for EFL learners.

From a pedagogical perspective, these findings suggest that exposure to academic texts alone is insufficient. Learners need support that reduces cognitive load during sentence processing. Instruction should focus on helping learners recognize sentence structure and clause boundaries. Breaking complex sentences into manageable units may support more efficient processing. Such practices align with how the brain processes language incrementally.

**Processing Strategies and Meaning Construction**

Another major discussion point concerns the processing strategies used by EFL students. The study found that learners relied heavily on word-by-word processing and translation. These strategies slowed comprehension and disrupted meaning construction. Instead of building meaning incrementally, learners

focused on isolated words. This approach increased working memory demands and led to fragmented understanding. Psycholinguistic theory explains that efficient sentence processing requires chunking and structural prediction. Native or proficient readers anticipate sentence structure and integrate information as it appears. The learners in this study lacked this ability. They processed language linearly and reactively. This limitation explains why they struggled even with familiar vocabulary.

Translation played a central role in learners' processing behavior. While translation offered short-term support, it interfered with direct form-to-meaning mapping. Learners delayed interpretation until translation felt complete. This delay disrupted incremental processing and increased cognitive load. The findings support psycholinguistic claims that reliance on first-language mediation slows second-language comprehension.

The frequent rereading and reanalysis observed in the data further illustrate unstable processing. Learners often revised their interpretation after reaching the end of a sentence. This behavior indicates weak initial parsing decisions. In psycholinguistic terms, learners failed to establish a stable syntactic frame early in processing. As a result, comprehension remained uncertain. These findings suggest that instructional practices should address processing strategies explicitly. Learners need guidance on how to process sentences beyond word-level translation. Teaching strategies such as chunking, identifying main clauses, and recognizing grammatical signals can support more efficient meaning construction. Such instruction shifts focus from product to process.

**Automaticity and Long-Term Comprehension Development**

The final discussion focuses on the role of automaticity in sentence processing. The study found that EFL students processed academic sentences slowly and deliberately. They relied on conscious analysis at every stage. This lack of automaticity increased mental effort and reduced reading efficiency. Learners described academic reading as exhausting, which reflects high cognitive demand. Psycholinguistic theory emphasizes automaticity as a key condition for fluent comprehension. When processing becomes automatic, cognitive resources are freed for higher-level interpretation. The learners in this study had not reached this stage. Their processing remained effortful even after years of instruction. This explains why sentence processing difficulties persisted at the university level.

The findings also show that low automaticity interacted with emotional factors. Learners experienced anxiety when facing complex sentences. This anxiety further increased cognitive load and disrupted processing. The interaction between cognitive and affective factors highlights the complexity of academic reading in EFL contexts. Comprehension difficulty cannot be explained by language knowledge alone. These results have important implications for long-term EFL instruction. Developing automaticity requires repeated exposure and meaningful practice. However, repetition must target processing efficiency, not memorization. Activities such as repeated reading, sentence-level practice, and guided analysis can support automatization. Instruction should gradually reduce reliance on translation and encourage direct comprehension.

## CONCLUSION

This study examined sentence processing difficulties in academic English among EFL university students from a psycholinguistic perspective. The findings show that comprehension problems are not mainly caused by limited vocabulary or grammatical knowledge. Instead, they stem from cognitive processing constraints that occur during real-time sentence interpretation. Syntactic complexity, long sentence structures, and dense academic features place heavy demands on working memory. As a result, learners struggle to integrate sentence elements into coherent meaning. Reliance on word-by-word processing and first-language translation further increases cognitive load and disrupts incremental comprehension.

The study also highlights the crucial role of processing strategies and automaticity. EFL students process academic sentences slowly and consciously, which makes reading effortful and inefficient. Limited automaticity forces learners to analyze structure repeatedly, leading to rereading, reanalysis, and frequent misunderstanding. These difficulties often interact with anxiety and low confidence, which further hinder comprehension. Overall, the study confirms that sentence processing difficulty is a psycholinguistic issue rather than a motivational or instructional failure. Addressing this problem requires teaching practices that focus on processing efficiency, structural awareness, and gradual development of automaticity. A psycholinguistic approach therefore provides a strong foundation for improving academic reading instruction in EFL contexts.

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