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Language Processing in EFL Learners: A Psycholinguistic Study of Lexical Access and Sentence Comprehension

Zahwa Nazhifah Limbeng[1], Khairun Nisa[2], Faris Fadillah[3], Yani Lubis[4]
Tadris Bahasa Inggris, Universitas Islam Negeri Sumatera Utara

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Corresponding author*:
zahwanazhifah17@gmail.com

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Abstract: This study investigates language processing in EFL learners from a psycholinguistic perspective, with a focus on lexical access and sentence comprehension. Many EFL learners experience persistent comprehension difficulties despite years of formal instruction. This study aims to explain these difficulties by examining underlying cognitive processes rather than surface-level performance. The research employed a qualitative design involving undergraduate EFL students. Data were collected through think-aloud protocols, semi-structured interviews, reading comprehension tasks, and field notes. The analysis applied thematic procedures to identify patterns related to word retrieval, processing strategies, and sentence parsing. The findings reveal five dominant issues: delayed lexical access, reliance on word-by-word processing, difficulty with complex sentence structures, heavy dependence on first-language translation, and low automaticity in language processing. These factors interacted to increase cognitive load and disrupt real-time comprehension. The results indicate that comprehension failure stems primarily from processing constraints rather than insufficient grammatical knowledge. The study highlights the importance of incorporating psycholinguistic principles into EFL instruction. Teaching practices should prioritize processing efficiency, repeated exposure, and incremental sentence comprehension. By aligning pedagogy with how learners process language cognitively, EFL instruction can become more effective and sustainable.

Keywords: psycholinguistics, EFL learners, lexical access, sentence comprehension, language processing

INTRODUCTION

Psycholinguistics examines how humans process, store, and produce language in the mind. In the context of English as a Foreign Language learning, psycholinguistics offers a critical lens to understand why learners struggle with comprehension and production despite years of instruction (Krishna, et.al, 2024). Many EFL learners show limited progress in understanding sentences and retrieving words during communication. This problem persists even when learners possess adequate grammatical knowledge. The gap suggests that language difficulty does not only stem from instruction or exposure, but also from internal cognitive processes that govern language use.

Language processing refers to the mental operations involved in understanding and producing language (Pienemann, 2003). Two core components of this process are lexical access and sentence comprehension. Lexical access involves how learners retrieve words from their mental lexicon. Sentence comprehension involves how learners integrate lexical items into meaningful structures in real time (Barcroft, 2015). For EFL learners, both processes often occur under cognitive pressure. Limited exposure, low automaticity, and restricted working memory capacity can slow down processing and lead to comprehension failure. Understanding these mechanisms is essential to explain persistent learning difficulties in EFL classrooms.

Many EFL studies focus on observable outcomes such as test scores, fluency levels, or accuracy rates. Fewer studies explore what happens in the learner's mind during language use. This imbalance limits pedagogical insight (Safdari & Fathi, 2020). Teachers may know that students fail to comprehend complex sentences, but they often lack evidence-based explanations for why this happens. Psycholinguistic research addresses this issue by linking language performance to cognitive mechanisms such as attention, memory, and processing speed. By examining lexical access and sentence comprehension, researchers can identify

specific bottlenecks in language processing (Marcelino, 2024).

Lexical access plays a central role in language comprehension and production. When learners listen or read, they must recognize words rapidly and map them to meaning. In native speakers, this process occurs automatically. In EFL learners, lexical retrieval is often slow and effortful. Learners may know a word but fail to access it quickly during real-time processing. This delay increases cognitive load and disrupts sentence interpretation. Research in psycholinguistics shows that inefficient lexical access can cascade into broader comprehension problems, especially when learners process long or syntactically complex sentences (Spitzer, 2023).

Sentence comprehension requires more than vocabulary knowledge. Learners must analyze grammatical structure, assign thematic roles, and integrate meaning across clauses. This process depends heavily on working memory and processing efficiency. EFL learners often struggle with complex sentence patterns such as relative clauses, passive constructions, or embedded structures. These difficulties indicate processing limitations rather than lack of grammatical awareness. A psycholinguistic approach allows researchers to distinguish between knowledge-based errors and processing-based constraints (Nowbakht, 2019).

In EFL contexts, sentence comprehension becomes more demanding due to limited exposure to authentic input. Learners often encounter English in controlled classroom settings with simplified materials. When faced with natural language, they experience processing overload. They may rely on word-by-word translation strategies, which further slow comprehension. Psycholinguistic studies suggest that such strategies reflect inefficient parsing mechanisms and weak automaticity. Investigating sentence processing patterns can reveal how learners allocate cognitive resources during comprehension tasks.

Despite the relevance of psycholinguistics, many EFL studies remain descriptive. They report learning outcomes without explaining underlying cognitive causes (Krishna, et.al, 2024). This creates a research gap. There is a need for empirical studies that connect EFL learner performance with psycholinguistic constructs. Specifically, few studies examine how lexical access speed relates to sentence comprehension in EFL learners. Even fewer explore this relationship in classroom-based contexts where instructional implications can be drawn.

This study addresses that gap by examining language processing in EFL learners through a psycholinguistic lens. It focuses on lexical access and sentence comprehension as key variables. The study seeks to understand how learners retrieve words and process sentence structures during comprehension tasks. By doing so, it aims to provide evidence-based explanations for common learning difficulties observed in EFL classrooms.

The theoretical foundation of this study draws on established psycholinguistic models of language processing. The mental lexicon theory explains how words are stored and accessed in memory. Sentence processing models describe how learners build meaning incrementally as they encounter linguistic input. These theories suggest that language comprehension depends on processing efficiency rather than knowledge alone. When processing demands exceed cognitive capacity, comprehension breaks down. This framework guides the analysis of learner performance in this study (Dóczi, 2019).

From a pedagogical perspective, understanding language processing has practical value. If learners struggle due to slow lexical access, instruction should emphasize repeated exposure and automatization. If sentence comprehension fails due to memory overload, teachers should scaffold input and reduce processing demands. Psycholinguistic evidence can inform teaching strategies that align with how the brain processes language. This approach moves beyond surface-level instruction and targets cognitive mechanisms directly (Miroshnychenko, 2024).

The EFL context provides a meaningful setting for psycholinguistic investigation. Learners operate in a non-immersive environment where English input is limited. This condition highlights processing challenges that may not appear in first language acquisition. Studying EFL learners allows researchers to observe how cognitive constraints interact with limited exposure. The findings can contribute to both psycholinguistic theory and EFL pedagogy.

RESEARCH METHODS

This study employed a qualitative research design to investigate language processing in EFL learners, with a specific focus on lexical access and sentence comprehension. A qualitative approach was chosen because the study aimed to explore internal cognitive processes rather than measure outcomes numerically. Psycholinguistic phenomena such as word retrieval difficulty, processing delay, and comprehension breakdown cannot be fully captured through test scores alone. Qualitative data allow deeper access to learners' experiences, strategies, and processing behavior during language use (Hein, K., & Kauschke, 2020).

Qualitative research is appropriate for psycholinguistic inquiry because it emphasizes meaning, interpretation, and process (Privalova, 2021). This study sought to understand how learners process language

in real time, how they respond to complex sentences, and how they explain their own comprehension difficulties. These objectives align with qualitative inquiry, which priorit izes depth over breadth and focuses on how and why phenomena occur. The approach enabled the researcher to interpret language processing as a dynamic cognitive activity rather than a static product.

The participants were undergraduate students enrolled in an English Education program at a university. They were EFL learners who used English primarily in academic settings. The study involved 20 university students selected through purposive sampling. This technique ensured that participants met specific criteria relevant to the research focus. All participants had completed at least two years of formal English instruction at the university level. They had prior exposure to reading and listening tasks involving academic English texts. However, they still reported difficulties in sentence comprehension and vocabulary retrieval during coursework. This profile made them suitable for investigating psycholinguistic processing challenges in EFL contexts.

University students were chosen because they regularly engage with complex sentence structures in academic materials. These conditions increase cognitive demands during language processing. As a result, issues related to lexical access and sentence comprehension become more visible. Studying this group provided rich data on how processing constraints operate under high linguistic and cognitive load.

Data Collection

Data were collected using three qualitative instruments: think-aloud protocols, semi-structured interviews, and reading comprehension tasks. These instruments were selected to capture both observable behavior and internal cognitive processes. First, participants completed reading tasks that contained sentences with varying levels of syntactic complexity. The texts included relative clauses, passive constructions, and embedded sentences. During the tasks, participants were asked to verbalize their thoughts using the think-aloud technique. This method allowed the researcher to observe real-time lexical access, hesitation, reanalysis, and meaning construction. Think-aloud data are widely used in psycholinguistic research because they reveal processing strategies directly.

Second, semi-structured interviews were conducted after the tasks. The interviews explored participants' perceptions of difficulty, vocabulary retrieval problems, and sentence comprehension strategies. Open-ended questions encouraged participants to explain how they processed unfamiliar words and complex sentence structures. This step helped clarify patterns observed during the think-aloud sessions.

Third, researcher field notes were taken during all sessions. These notes recorded pauses, self-corrections, repetition, and visible signs of processing difficulty. Field notes supported data triangulation and strengthened the credibility of the findings. All sessions were audio-recorded with participant consent. The recordings were transcribed verbatim to ensure accuracy. Data collection occurred over four weeks to allow sufficient time for careful observation and reflection.

Data Analysis

Data analysis followed a thematic analysis procedure. This method was chosen because it allows systematic identification of patterns across qualitative data. The analysis focused on recurring indicators of lexical access and sentence comprehension processes.

First, all transcripts were read repeatedly to achieve data familiarity. The researcher identified segments related to word retrieval, processing delay, sentence parsing, and comprehension failure. Initial codes were then assigned to these segments. Examples of codes included delayed lexical retrieval, word-by-word processing, syntactic reanalysis, and reliance on translation. Second, related codes were grouped into broader categories. These categories reflected key psycholinguistic constructs such as processing load, working memory limitation, and automaticity. The categories were refined through constant comparison across participants. Third, themes were generated to represent core findings. The themes explained how lexical access influenced sentence comprehension and how processing limitations shaped learner performance. The analysis emphasized relationships between cognitive processes rather than isolated behaviors.

To ensure trustworthiness, data triangulation was applied by comparing findings from think-aloud protocols, interviews, and field notes. Member checking was also conducted by sharing summary interpretations with selected participants to confirm accuracy. Overall, the qualitative method enabled an in-depth exploration of EFL learners' language processing. The approach aligned with the psycholinguistic focus of the study and provided rich evidence to explain why lexical access and sentence comprehension remain challenging for university-level EFL learners.

RESULTS AND DISCUSSION

1. Delayed Lexical Access During Real-Time Processing

The first major finding concerns delayed lexical access. Most participants showed hesitation when encountering unfamiliar or low-frequency words. They paused, repeated words, or verbalized uncertainty. These behaviors appeared consistently across tasks. Even when participants recognized a word, they often failed to retrieve its meaning quickly. Think-aloud data showed that delayed lexical access disrupted sentence flow. Participants frequently stopped mid-sentence to focus on a single word. This interruption caused them to lose track of sentence structure. As a result, comprehension became fragmented. Several participants stated that they knew the word but could not access it fast enough. This delay increased cognitive load and reduced processing efficiency.

Field notes confirmed this pattern. Participants often reread sentences after failing to retrieve word meaning. They relied on contextual guessing or translation into their first language. These strategies consumed additional cognitive resources. The delay in lexical access therefore functioned as a bottleneck in comprehension.

2. Word-by-Word Processing Strategy

The second finding relates to processing strategy. Most participants relied on word-by-word processing. They attempted to translate each word individually before constructing sentence meaning. This approach appeared especially in sentences with complex syntax. Think-aloud protocols revealed that participants focused on isolated words rather than phrase-level or clause-level meaning. They often ignored syntactic cues such as relative pronouns or verb agreement. This strategy led to misinterpretation. Participants reported confusion even when they understood most words in the sentence.

Word-by-word processing slowed comprehension. It also increased working memory demands. Participants struggled to retain earlier sentence elements while processing later ones. This pattern caused frequent rereading and reanalysis.

3. Difficulty with Complex Sentence Structures

The third finding involves sentence complexity. Participants experienced significant difficulty with sentences containing relative clauses, passive constructions, and embedded clauses. These sentence types triggered longer pauses and higher rates of misinterpretation. Many participants misidentified sentence subjects or agents in passive constructions. Others failed to connect relative clauses to their antecedents. Think-aloud data showed repeated syntactic reanalysis. Participants often revised their interpretation after reaching the end of the sentence.

Interview responses supported this finding. Participants reported that long sentences confused them even when vocabulary seemed familiar. They attributed difficulty to sentence length and structure rather than word meaning alone. This result indicates that sentence comprehension failure stemmed from processing limitations rather than lack of grammatical knowledge.

Another key finding concerns translation. Almost all participants relied heavily on their first language during comprehension. They translated words or phrases mentally before attempting to understand the sentence. This strategy appeared automatic. Participants reported that they translated unconsciously. However, translation slowed processing and increased cognitive load. In many cases, translated meanings did not fit the sentence context. This mismatch caused confusion and misinterpretation. Translation reliance also disrupted incremental processing. Instead of building meaning progressively, participants delayed interpretation until translation felt complete. This delay weakened comprehension accuracy and efficiency.

Participants showed low levels of automatic processing. Lexical access, syntactic parsing, and meaning integration required conscious effort. Participants frequently expressed fatigue during tasks. They described reading as mentally demanding. These reports align with observed behaviors such as frequent pauses and rereading. Low automaticity forced participants to allocate excessive attention to basic processing. This allocation reduced capacity for higher-level comprehension.

The findings provide strong evidence that EFL learners face psycholinguistic processing constraints during language comprehension. Delayed lexical access emerged as a central issue. This result aligns with mental lexicon theory, which emphasizes retrieval speed as critical for fluent comprehension. When lexical access slows, processing cascades fail. Sentence comprehension then breaks down. The word-by-word processing strategy reflects limited automaticity and inefficient parsing. Psycholinguistic models of sentence processing argue that skilled readers process language incrementally and hierarchically. Participants in this study failed to do so. Their reliance on word-level translation prevented syntactic integration. This pattern supports previous research showing that EFL learners depend on bottom-up strategies when automaticity remains low.

Difficulty with complex sentence structures highlights the role of working memory. Sentences with embedded clauses impose higher cognitive demands. Participants struggled to maintain earlier elements while processing later ones. This finding supports capacity-based models of sentence processing. When processing demands exceed working memory limits, comprehension accuracy declines. The heavy reliance on translation further explains processing inefficiency. Translation adds an extra processing layer. It competes for cognitive resources needed for parsing and integration. Psycholinguistic theory suggests that direct form-to-meaning mapping leads to more efficient comprehension. Participants in this study lacked this mapping. Their dependence on translation indicates weak connections in the mental lexicon.

Low automaticity appears as an underlying cause of these difficulties. Automatic processing reduces cognitive load and frees resources for comprehension. Participants demonstrated conscious effort at every processing stage. This pattern explains their fatigue and slow performance. The finding supports theories that emphasize repeated exposure and practice to build automaticity in second language processing.

From a pedagogical perspective, these findings carry important implications. Instruction that focuses only on grammar rules and vocabulary lists does not address processing efficiency. Teachers need to design activities that promote rapid lexical access and incremental sentence processing. Repeated exposure to high-frequency vocabulary in varied contexts can strengthen lexical connections. Timed reading and listening tasks can encourage faster processing.

Sentence-level instruction should emphasize structure awareness. Teachers can guide learners to identify clause boundaries and syntactic cues. This practice can reduce reliance on word-by-word translation. Scaffolded exposure to complex sentences can gradually increase processing capacity. The findings also suggest that translation should be minimized during comprehension tasks. While translation may help beginners, excessive reliance hinders processing development. Teachers can encourage meaning-focused strategies that prioritize global understanding over exact translation.

This study contributes to psycholinguistic research by providing qualitative evidence of processing constraints in EFL learners. It moves beyond performance scores and reveals internal cognitive mechanisms. The use of think-aloud protocols and interviews allowed direct observation of processing behavior. This approach strengthens the link between theory and classroom practice. However, the study has limitations. The sample size was small and limited to one academic context. Future research can include larger and more diverse populations. Experimental designs can complement qualitative findings by measuring processing speed and accuracy. Longitudinal studies can track changes in automaticity over time.

CONCLUSION

This study examined how EFL university learners process language during comprehension tasks. It focused on lexical access and sentence comprehension as core psycholinguistic mechanisms. The findings demonstrate that learners face systematic processing constraints that hinder effective comprehension. These constraints operate even when learners possess adequate vocabulary knowledge and grammatical awareness. Delayed lexical access emerged as a central problem. Learners struggled to retrieve word meanings quickly, which disrupted sentence flow and increased cognitive load. This delay often triggered rereading and reanalysis. As a result, comprehension became slow and fragmented. The issue did not reflect lack of knowledge, but limited retrieval efficiency.

The study also found that learners relied heavily on word-by-word processing. This strategy prevented them from integrating syntactic and semantic information effectively. Instead of constructing meaning incrementally, learners focused on isolated words. This approach increased working memory demands and led to misinterpretation, especially in complex sentences. Sentence complexity further intensified processing difficulty. Relative clauses, passive structures, and embedded sentences overloaded learners' cognitive capacity. Learners struggled to maintain sentence elements in memory while processing new input. These difficulties confirm that sentence comprehension failure often results from processing limitations rather than rule-based errors.

Another key finding concerns the dominant role of translation. Learners depended extensively on their first language to make sense of English input. While translation offered temporary support, it slowed processing and interfered with meaning integration. This reliance weakened direct form-to-meaning connections in the mental lexicon. Low automaticity underpinned all observed difficulties. Learners invested conscious effort at every processing stage. This effort caused fatigue and reduced comprehension efficiency. The lack of automatic processing explains why learners struggle with academic texts that demand rapid and sustained comprehension.

The study contributes to psycholinguistic research by providing qualitative evidence of how EFL learners process language in real time. It bridges cognitive theory and classroom reality. The findings suggest

that effective EFL instruction must address processing efficiency, not only language knowledge. Pedagogical practices should promote rapid lexical access, reduce translation dependence, and scaffold sentence-level processing. Future research should explore instructional interventions that target automaticity and processing speed. Larger samples and mixed-method designs can strengthen generalizability. Overall, this study confirms that a psycholinguistic perspective is essential for understanding and improving EFL learner comprehension.

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