WORDS PROCESSING AND ANTICIPATION ABILITY BY EFL LEARNERS

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ABSTRACT

With knowledge of the mental processes of English words and phrases, EFL teachers can activate students' ability to anticipate words according to context. However, there are not many references that can help explain this phenomenon. Therefore, this study aims to elucidate how EFL students tend to anticipate words both in speech and writing. To achieve this goal, this research employs a quantitative and qualitative descriptive approach. The 20 participants recruited are students of the Bilingual class at SLUB. The instruments used include 10 written tests and 10 oral prompting tests. The data is analyzed descriptively through content analysis from the perspective of the theory of word anticipation systems. The research results indicate that students' ability to anticipate words in writing is categorized as "moderate", while for oral expression, it is assessed as "low". There is a significant tendency for students to choose words accurately based on their understanding of the entire sentence's meaning and considerations of the semantic relationships among the words provided. Additionally, content analysis shows that students tend to select words based on preceding words rather than succeeding ones. In other words, the appropriate word emerges by anticipating the semantic and grammatical features of the words that follow, not the other way around. Based on these findings, EFL teachers are advised to stimulate the semantic features of words that have agreement with other words in the context through innovative teaching strategies.

Keywords: mental lexicon, word processing, word anticipation, English learning

ABSTRAK

Dengan pengetahuan tentang proses mental kata maupun frasa bahasa Inggris, guru EFL dapat mengaktivasi kemampuan siswa dalam mengantisipasi kata sesuai konteks. Akan tetapi, tidak banyak rujukan yang dapat membantu menjelaskan fenomena ini. Untuk itu, penelitian ini bertujuan untuk menjelaskan bagaimana kecenderungan siswa EFL dalam mengantisipasi kata baik dalam ujaran maupun tulisan. Untuk mencapai tujuan tersebut penelitian ini menggunakan pendekatan deskriptif kuantitatif dan kualitatif. 20 Partisipan yang direkut adalah siswa SLUB kelas Bilingual. Intrumen yang digunakan adalah 10 test tulis dan 10 test pancingan lisan. Data dianalis secara deskriptif melalui analisis konten dari perspetif teori sistem antisipasi kata. Hasil penelitian mengindikasikan kemampuan siswa mengantiipasi kata dalam tulisan dikategorikan "sedang" sementara untuk lisan dinilai "rendah". Terdapat kecenderungan yang signifikan siswa memilih kata dengan tepat berdasarkan pengetahuan makna seluruh kalimat dan pertimbangan hubungan makna kata dalam pilihan yang disediakan. Sementara, analisis konten menunjukkan bahwa siswa memilih kata berdasarkan kata sebelumnya bukan setelahnya. Artinya kata yang tepat muncul dengan mengantisipasi fitur-fitur semantik dan gramatikal kata yang diikuti bukan bukan sebaliknya. Dengan temuan ini, guru EFLdisarankan untuk menstimulasi fitur-fitur semantik kata yang memeiliki agreement dengan kata -kata lain dalam konteks mellaui strategi pengajaran yang inovatif.

Kata Kunci: kata mental, pemrosesan kata, antisipasi kata, pembejaran bahasa Inggris

INTRODUCTION

In learning English as a foreign language (EFL), many Indonesian students face the challenge of effectively using the language in functional interactions. Despite the natural process of language learning, students' linguistic cognition plays a significant role in processing words into phrases, phrases into sentences, and sentences into complete utterances. These

two languages' processing is managed by language coding systems (De Houwer, 1990). One common problem that arises is when Indonesian students' knowledge of the English lexicon, as the target language (L2), is primarily based on memorization. As a result, there can be overlapping interpretations of the two languages within a single utterance. McCarthy et al. (2019) implies that students may abruptly pause in the middle of a conversation while they think and select the appropriate words, considering lexical, grammatical, and semantic categories. For instance, verbs often require one or more arguments, typically nouns. Based on the presence of this predicate, the next word whether a verb, pronoun, or noun can be predicted. Therefore, this study believes that the network of word relationships can be activated based on the proximity of similar or different categories.

The question of which noun is most dominantly activated remains a subject of scholarly debate from various perspectives and language domains (Pawley & Syder, 2014). It is possible for a verb to activate a noun, which then activates another noun. For example, in the sentence "This person threw away {......}," there are numerous choices for pronouns and nouns to fill in the blank. Only the context makes the selection of the appropriate category more specific. Therefore, a sorting system chooses the correct word based on both the contextual meaning and the grammatical structure of the language (Magyari et al., 2014). In this case, a mental model provides a concrete context-dependent interpretation of a language message during retrieval (Van Berkum, 2009). The question of how the cognitive function of language anticipates upcoming words in Neural information retrieval view (Onal et al., 2018); whether word concepts are regularly interconnected or layered based on conceptual proximity, or whether words are randomly positioned has not been extensively examined in language research. Therefore, this study posits that Indonesian learners of English do anticipate upcoming words by overlapping the two language systems.

However, there were previous findings on the issues. Foucart et al (2014) suggest that, at least when their 2 languages are closely related, bilinguals are able to anticipate upcoming words in a similar manner as monolinguals. In spoken language, (Gow, 2001) advocates evidence for anticipation is contrasted with claims that listeners use context to regressively infer the underlying form of place-assimilated segments. However, most of these studies primarily focus on a single language. Therefore, it is necessary to conduct a more comprehensive study involving bilingual students and their respective languages. For example, how do L1 (Indonesian) students anticipate upcoming words in L2 (English). If the word retrieval process in L1 operates under the same mechanisms as L2, it becomes essential to investigate how the brain anticipates the next word in such contexts (Wicha et al., 2004).

In line with this phenomenon, this study aims to elucidate students' ability to anticipate and respond to words in continuous English sentences. It seeks to examine and explain the mechanism of the English word anticipation system from a meta-language cognition perspective. To address the aforementioned phenomena, interpretations, and theoretical assumptions, the following research questions are posed:

1. How does word selection occur in word anticipation?

2. How do the two language systems interact in the implementation of upcoming words?

Theoretical Review

From the observed phenomenon, this study investigates two issues regarding the mental encoding process of word anticipation. Firstly, conception of word anticipatory system. Hence, it is necessary to describe the mental interpretation of word retrieval in verbal conversations or written utterances. Secondly, a lack of awareness regarding psychological anticipation may lead to delays in execution, potentially resulting in misunderstandings. (Simpson & Burgess, 1985) demonstrate a significant correlation between linguistic and meaningful prediction abilities and children's speech-reading skills.

The word anticipatory system is a structured mechanism that determines the selection of words that fulfill the contextual requirements. Rosen & Kineman (2005) suggest that encoded information is an integral aspect of any living system's organization and, based on the relation of this information to organismic behavior, as anticipatory systems. In the reactive system, the choice of the next word or phrase depends entirely on the preceding word (Nadin, 2010). Additionally, (Rossel, 2010) emphasizes that words and concepts carry messages, acting as interface representations between thought and speech. These mental structures mediate between thinking and syntactic encoding in language processing. Speakers select the most appropriate lexical concept (vocabulary element) to express their intended thought, taking the context into account. Consequently, listeners are in a favorable position to reconstruct the intended meaning, unless unintended ambiguity arises. Therefore, there is a need for mental prediction of the forthcoming words to fill in the sentence.

Louie (2012) suggests anticipation occurs in an (M,R)-system, and show that the entailment pattern of an anticipatory system may be represented as a network of metabolism and repair components. (Poli, 2010) states that there is a need for relying on at least two different levels of analysis, namely anticipation as an empirical phenomenon and the idea of an anticipatory system or the study of the internal structure that a system should possess so that it can behave in an anticipatory fashion. (Magyari & De Ruiter, 2012).argue that predictions were made in advance about the upcoming content of a turn and used this prediction to estimate the duration of the turn. They suggest an economical model of turn-end anticipation that is based on the anticipation of words and syntactic frames for comprehension.

However, Desideri & Bonifacci (2018) reveal that associations between performances in the nonverbal and the verbal tasks support the role of the nonverbal monitoring component on verbal anticipation. Psycholinguists assume that the three main types of processes underlying the language process are conceptualization, formulation, and articulation (Bernice, 2021). The process of conceptualizing words creates what is called a message, i.e., a conceptual structure that can be expressed verbally (Levelt, 2001). The next phase involves phonetic planning or articulatory programming for speech. The final step is the articulation process, which executes the articulation of the program, resulting in an open utterance.

Word finding consists of two main steps according to two formulation levels (syntactic coding and morphophonological coding) (Roelofs, 1997) The first stage is called lemma recovery, and the second stage is called word shape coding. Lemma retrieval uses a message concept representation to retrieve the word lemma from memory. A lemma is a memory representation of words, including their meaning and syntactic properties (e.g., syntax class, linguistic gender, argument structure).

Based on the phenomenon, this study investigates two issues concerning the mental encoding process of word anticipation. First, the thinking process follows a hierarchy of cognitive activities, ranging from simple interpretation to complex action, from the initiation of linguistic deep structure to the realization of surface structure, or from language comprehension to language skill. Therefore, it is necessary to describe any mental interpretation of word retrieval, whether in verbal conversation or written utterance. Second, a lack of awareness of psychological anticipation may lead to delays in execution, potentially causing misunderstandings.

RESEARCH METHODS

The appropriate research mechanism can help achieve the research objectives, so the research approach and design must refer to how to achieve the research goals. Because the first research objective is to describe students' ability to select word-word agreement in post-lexical contexts, the approach used is quantitative descriptive. According to (Creswell, 2012) the quantitative descriptive research approach is a research method aimed at describing phenomena or variables by collecting numerical data that can be statistically analyzed, as it relates to levels, frequencies, distributions, or relationships between specific variables. The second research objective is to explain the mechanism of mental processes in anticipating English words and phrases, hence the applied approach is qualitative descriptive. According to Sugiyono (2013), this approach aims to describe and understand phenomena in depth through narrative interpretation, context analysis, and meaning inherent in the collected data. This approach is more focused on an in-depth understanding of the qualitative aspects of phenomena, namely the perspective of psycholinguistic theory in explaining the mental process of word anticipation.

Participants

The participants of this study were 25 students from the 8th grade of SLUB Bilingual Denpasar, consisting of 9 (33,3%) female students and 18 (66,7%) male students, aged between 12 (96,3%) and 14 (3,7%). The research participants were chosen due to several considerations. The bilingual class is a special class where they receive additional hours for all subjects, including English. Their English language abilities are quite homogeneous, both in speaking and writing. Participant recruitment can be stated not to violate the ethics code of student privacy. They volunteered to participate in this study and could withdraw without intimidation from anyone.

Research Instruments

To collect quantitative data, the instrument used in this study was a completion test with 6-answer choices based on their semantic categories. There

were 10 post-lexical format questions and another 10 questions in the form of sentences from conversation responses. 1 multiple-choice question was given a time limit of 1 minute. This was done to determine the word processing time span. The word class categories within all options of the multiple-choice questions were the same to avoid measlading to wronng or correct answers, based on their semantic features as well. Meanwhile, for collecting qualitative data, the instrument was non-test, but rather classroom observations and student responses. Conclusions and theoretical insights were derived from observing how and why word choices were made by the students. As a result, the validation of the word processing theory can be determined.

Data Collection

The data is collected through testing and observation methods. Tests are given to students to determine their ability to identify the form and lexical meaning of words before and after by choosing one of the six provided options. Students' critical thinking is necessary to assist them in distinguishing word classes. Each correct answer is awarded a score of 1. Qualitative data is obtained from in-depth observations of students' choices, both correct and incorrect. From these observations, student preference trends and theoretical reasons behind these choices can be identified. This observation employs the theory of word anticipation.

Data Analysis

In this approach, data regarding the selection of word-word agreement in post-lexical contexts are gathered through tests, observations, or surveys. Quantitative measures, such as percentages of correct selections, error rates, and patterns of agreement, are computed and analyzed using appropriate statistical techniques. The results provide a quantitative overview of students' ability to anticipate and select appropriate word agreements. The qualitative data were analized through narrative interpretation, and context analysis are applied to extract meaningful patterns and themes from the data. The emphasis is on gaining a comprehensive understanding of the mental processes involved in word anticipation, particularly from the perspective of psycholinguistic theory.

FINDINGS AND DISCUSSION
Findings

The results of this study refer to the answers or evidence of analysis that pertain to the research objectives. The first research outcome addresses the first research objective, which is to explain students' ability to classify the lexical and grammatical meanings of words related to word and sentence contexts. The second research outcome pertains to the analysis of strategies in anticipating words and sentences. Therefore, the sub-sections to be presented include the ability to anticipate words or sentences and strategies for anticipating words or sentences.

Ability to Anticipate Words & Sentences

Out of the ten provided fill-in-the-blank questions, there are participant responses that vary according to students' understanding, experiences, and knowledge of the English language. The correct choices are quantitatively analyzed by assigning a score of 10 to each correct answer, and for incorrect answers, they are analyzed through the mechanism of word selection flow. The ability to anticipate

words and sentences in English can be presented in Table 1.

Table 1. Distribution of written words anticipation

Test No	Correct	Incorrect (%)	category
1	21 (77,78%)	6 (22,22%)	high
2	24 (88,89%)	3 (11,11%)	very high
3	21 (77,78%)	6 (22,22%)	high
4	23 (85,18%)	4 (14,82%)	very high
5	17 (70,37%)	10 (29,63%)	high
6	13 (48,15%)	14 (51,85%)	low
7	25 (92,60%)	2 (7,40%)	very high
8	20 (74,07%)	7 (25,93%)	high
9	12 (44,43%)	15 (55,52%)	low
10	18 (66,67%)	9 (33,33%)	fair
Total	19 (70,37%)	8 (29,63%)	high

Based on the distribution of acquisition values in Table 1, the participants' average score is 62.96 out of 100 points, and the median score is 70 out of 100 points. Considering this range of scores, participants' ability in anticipating English words and sentences is categorized as "moderate," with the lowest score being 10 and the highest being 100. 70% of participants accurately anticipate English words and sentences, while 30% of participants struggle to anticipate English words and sentences. The distribution of students' abilities in word anticipation can be depicted in Figure 1.
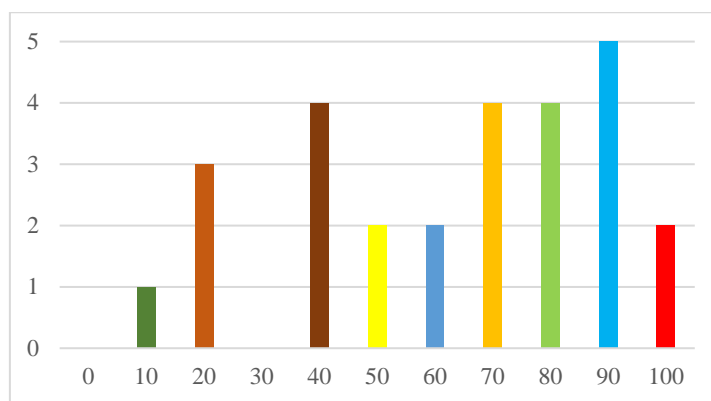
Figure 1. Distribution of Written Words Anticipation

From the above Figure 1, the distribution of participants' abilities is heterogeneous; one participant scored the lowest, two participants achieved the highest score, and two participants received a moderate score. This study uncovered several pieces of evidence related to both students' failures as amount of 29,63% and successes which was 70,37% in anticipating English words and sentences. Participants who answered correctly all demonstrated a high proficiency in word anticipation, while the rest encountered difficulties in placing the right words within the appropriate context. From this depiction, it can be interpreted that participants struggle in

word and sentence anticipation due to their inability to identify word classes, the relationships between words, the meanings of lexical words, and sentence contexts.

Therefore, it is also necessary to ascertain the students' ability in anticipating spoken words and sentences presented in Table 2.

Table 2. Distribution of Spoken Words Anticipation

Test No	Correct	Incorrect (%)	category
1	19 (77,78%)	8 (22,22%)	high
2	15 (88,89%)	12 (11,11%)	very high
3	20 (77,78%)	7(22,22%)	high
4	22 (85,18%)	5 (14,82%)	very high
5	18 (70,37%)	9 (29,63%)	high
6	14 (48,15%)	14 (51,85%)	low
7	25 (92,60%)	2 (7,40%)	very high
8	20 (74,07%)	7 (25,93%)	high
9	12 (44,43%)	15 (55,52%)	low
10	18 (66,67%)	9 (33,33%)	fair
Total	19 (70,37%)	8 (29,63%)	high

Based on the data distribution above, participants' ability to anticipate words and sentences orally is categorized as low. This can be observed from the participants' mean score of 54.81 on the oral test, with a median of 60. The highest score recorded was 90, categorized as "excellent," while the lowest score was 20, categorized as

"very low." This low ability is attributed to the fact that speaking is a spontaneous and more urgent process, so prolonged pauses can result in a lack of focus on word selection. To understand the level of students' proficiency in anticipating English words and sentences orally, it can be illustrated in Figure 2.
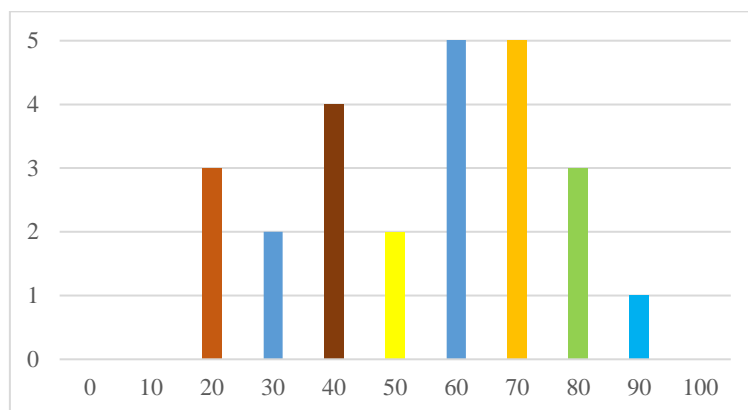
Figure 2. Distribution of Spoken Words Anticipation

Referring to Figure 2 above, the results of this study indicated a varied level of accuracy in responding to English words and sentences orally. This meant that there were several participants who had

excellent, fairly good, and very low abilities. The high and low proficiency of students in accessing spoken English words and sentences was an indicator of their ability to comprehend preceding words in

the mental process of constructing ideas related to the subsequent words, guided by the provided context. Therefore, there was a difference in the ability to anticipate words and sentences in writing and speaking English. This difference was also influenced by the time gap required to activate all the stored words and sentences, sorting and selecting them for use.

Strategies in Anticipating Words & Sentences

The second set of data was analyzed based on content observation to understand participants' mechanisms and strategies in anticipating words and sentences in written and oral forms. This study refers to the theories of word retrieval and word anticipation. Every correct and incorrect word and sentence made by the participants were then collected, and scientific reasons were sought for their choices. Word anticipation strategies consist of "identification," "selection," "elimination," and "determination." This process can occur in various instances within a sequence of sentences. This anticipation process also refers to the assimilation process or the adjustment of word choices based on preceding and succeeding words. The following is an analysis of word and sentence anticipation strategies based on the assimilation process.

1) John gives (//his //her//him//your//my// book/dog/flower/love/mom/time //) to the vet.
   Identifiction 1 Selection 1 → Elimination 1 → determination 1

From the tested sentences, participants were required to make multiple choices for elimination before deciding which ones to use. So, the key to successful decision-making is the ability to identify the meaning of words, including their grammatical functions, and the relationships between words before and after them in context. How smoothly students select "his," referring to the agreement with its subject "John," by eliminating "her," "him," "your," "my," is crucial. Several others failed to determine this pronoun. Additionally, participants quickly identified the existing context of "to the pet.". Students had to understand what "pet" referred to, leading them to eliminate words like "book," "flower," "love," "mom," "time," and choose the word "dog." This strategy in oral language happens rapidly, with connections forming between different components of the language.

2) John gives his **case 1**……………to Marry to park……… **case 2**……under the tree.

ring
keyring
key
keys
wallet
love
money
rings

the truck
the train
the car
the cars
a car
the plane
the chart
the taxi

Identifiction 1 Selection 1 → Elimination 1 → determination 1 → implementation 1→ anticipation. Case 2 Selection 2 → Elimination 2 → determination 2

From the given incomplete sentence descriptions above, participants who answered correctly tend to use the step of identifying the context of the entire sentence to determine the appropriate word for case 1 and case 2. After identifying the meaning and grammatical elements of the preceding and succeeding words in the first blank, participants anticipate the word in case 2. They then eliminate words that do not have a grammatical category relationship (ring, keyring, keys, wallet, love, money, rings) in the first blank and the word after the blank, and choose the word "key." Then, for case 2, participants see the verb "park" before the second blank space, eliminating words other than "car." So, this process of word assimilation also occurs in cases of words positioned differently within a sentence.

3) She went to the (Case 1 /office/, /café/, /market/, store/, restaurant//)..., bought some (case 2 /shirts/, /meals/, /groceries/, //books/).., and then headed home to start (Case 3 / serving/, cooking, /preparing/, /buying/, /ordering/ … dinner.
Case 1 Identifiction 1 Selection 1 → Elimination 1 → determination 1 → implementation 1→ anticipation Case 2 Selection 2 → Elimination 2 → determination 2 → implementation 2→ anticipation Case 3) Selection 3 → Elimination 3 → determination 3 → implementation

From the three cases in the above data, participants' strategies in determining and implementing words in each case follow an assimilation pattern. Identifying the entire sentence is done to ascertain the correct word to use in case 1, which refers to the lexical and grammatical meaning of the verb "went to," so the identification word must be a place. In the provided options of place names, the anticipation for case 2 is determined by the word at the end of the sentence, namely "dinner." Thus, selection and elimination are carried out, where the word "store" is the most appropriate choice for case 1, and for case 2, "groceries" is the most suitable, and the most fitting verb for dinner is "cooking." Although the verbs "serving" and "preparing" could be considered correct for the word "dinner," "cooking" is closer to the process of preparing groceries to cook and then serve dinner. Therefore, to determine and implement the correct word in case 1, the speaker anticipates the words present in case 2 and case 3.

Discussion

Based on the analysis of quantitative and qualitative data, the findings of this research can confirm the research objectives regarding the issue of students' ability to anticipate English words and sentences. This study also demonstrates the existence of mental processes in anticipating words or sentences, both in the form of category selection, elimination, and determination. These three processes constitute word anticipation strategies that structurally and naturally occur within the language cognitive process. Therefore, the research findings are summarized, synthesized with previous studies, and draw a common thread to highlight the novelty of this research.

The first finding indicates that participants' ability to anticipate English words and sentences in written form is categorized as "moderate." However, in oral form, it is categorized as "low." The discrepancy in these results is due to limitations in word mastery, sentence patterns, and discourse context. The

selection of the correct word can be influenced by preceding and succeeding words or contexts. In line with the finding, Van Petten & Kutas (1990) suggest that speakers should have prepared various word or sentence options to be sorted according to lexical and contextual meaning relationships. As a result, the participants' high or low ability to anticipate English words and sentences, both in writing and speech, can influence the speed at which they select the appropriate words or sentences. This signifies that the higher the participants' proficiency in language knowledge, including lexicon, syntax, and textual comprehension, the faster they can provide accurate responses (James & Burke, 2000) This finding demonstrates that anticipating English words or sentences is a complex cognitive process in language acquisition.

The second finding revealed that the participants applied the four steps of words processing inanticipating the target words; identification, selection, elimination, determination, and implementation. The judments of correct target words in word anticipation was following the assimilation process. Goldinger et al (1989) also claim that the target words were influenced by the nearest words, either before or after.

This is in line with retrieval theory (de I'Etoile, 2002) that emphasizes the three stages of the word retrieval process: conceptualization, formulation, and articulation. Studies conducted by Georgiev et al (2021) support this notion. Typically, initial findings on language processing mechanisms serve as pioneers in language cognition research. Nonetheless, there is a need for more in-depth investigation into how cognitive mechanisms anticipate the next word in English among Indonesian-speaking students.

Most word retrieval models differentiate between three sequential processing stages, which Levelt (1992) terms as conceptualization, formulation, and articulation. However, in this study, the word retrieval process consists of four phases: identification of the intended word form (recognition), word selection (selection), mental sound processing (phoneme implementation), and linguistic conversion for both oral and written forms (speech realization).

The findings of the study yield several implications. The ability to anticipating words and sentence in EFL can enhance language instruction, speaking proficiency improvement, feedback integration, Cross-Modal Training, Technology Integration, and Research Extensions: In conclusion, the research findings emphasize the significance of word processing and anticipation skills for EFL learners. Integrating these skills into language instruction can lead to improved language proficiency and effective communication abilities

CLOSING
Conclusion
Based on the analysis and discussion of the results, the study concludes with two significant findings. Firstly, the findings of this research indicate that students' ability to anticipate written English words and sentences is categorized as "fairly good," while their ability to anticipate spoken words and sentences is categorized as "low." The level of students' proficiency in word and sentence anticipation is heavily influenced by their comprehension of word meanings, grammatical functions, and the relationships between words within the context. This provides new evidence that spoken or written words refer to preceding

and succeeding words. The second finding stems from content analysis through observations of accuracy and errors in written and spoken words. Across three sentence cases, this finding reinforces the word retrieval theory that word implementation within sentences follows a pattern of identification, selection, elimination, with a process of word assimilation. However, these studies cannot universally apply to all linguistic cases, they emphasize the significance of understanding and incorporating such strategies into language teaching approaches. The findings of both studies suggest that the identified word anticipation strategy through the assimilation process offers a broad insight into the mental process of word selection within English sentences by EFL learners.

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