

ANALYSIS ON VOCABULARY MASTERY OF STUDENTS IN STMIK PPKIA TARAKANITA RAHMAWATI

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ABSTRACT

Lexical competence is a cornerstone of language proficiency and academic performance in English as a Foreign Language (EFL) contexts. In technology-focused tertiary education, students must master both general and specialized technical vocabulary to comprehend digital academic materials. This descriptive quantitative study aimed to evaluate the English vocabulary mastery level of second-semester students at STMIK PPKIA Tarakanita Rahmawati and identify specific lexical domains that present the greatest challenges. Purposive sampling was used to select 35 students in the 2025/2026 academic year. Data were collected via a 35-item multiple-choice Vocabulary Mastery Test on Google Forms, covering synonyms, antonyms, collocations, and parts of speech (verbs, nouns, adjectives, and adverbs). The collected data were analyzed using descriptive statistics via SPSS 26. Results: The findings revealed a highly polarized distribution of vocabulary proficiency. Fifteen students achieved an "Excellent" rating, whereas a significant segment fell into the "Fair" (7 students), "Poor" (5 students), and "Very Poor" (3 students) categories. Item-by-item analysis indicated that students demonstrated strong proficiency in isolating synonyms, antonyms, nouns, and verbs. However, their mastery dropped considerably in relational and contextual dimensions, specifically word collocations, adjectives, and adverbs. While students possess adequate baseline receptive skills for primary content words due to their IT coursework exposure, they lack depth in contextual word use and modifier functions. Therefore, this study recommends a shift toward corpus-based learning strategies and specialized English for Specific Purposes (ESP) materials to bridge these lexical gaps and prepare students for the global digital workforce.

Keywords: Lexical Competence, Students, Vocabulary Mastery

INTRODUCTION

Lexical competence is widely recognized as a foundational pillar of linguistic proficiency and a primary determinant of academic success in foreign language acquisition. Contemporary empirical research underscores that a student's vocabulary size directly dictates their textual comprehension, communicative efficacy, and academic performance. Within applied linguistics, words are considered the fundamental building blocks of communication; without an adequate lexical repertoire, learners encounter severe barriers in decoding or producing meaningful discourse. In English as a Foreign Language (EFL) environments, mastering

vocabulary has become critical due to the accelerating demand for English proficiency in tertiary education and global professional sectors. Current studies indicate that learners with expansive word knowledge demonstrate superior reading comprehension, advanced writing skills, and higher overall language competence (Nation, 2022; Schmitt & Schmitt, 2020). Furthermore, standard baseline thresholds suggest that university students require a minimum of 3,000 to 5,000 word families to operate effectively in academic environments (Webb & Chang, 2022). Empirical evidence also confirms that explicit vocabulary breadth directly correlates with successful content-area learning and overall GPA in higher education (Masrai, 2023). Acquiring vocabulary remains a formidable obstacle for university students, particularly in nations where English functions strictly as a foreign tongue.

This research focuses on evaluating the vocabulary mastery of students at STMIK PPKIA Tarakanita Rahmawati. As a higher education institution emphasizing computer science and information technology, STMIK PPKIA Tarakanita Rahmawati obligates its students to interact extensively with English-language content, including technical textbooks, academic papers, software manuals, and digital learning platforms. Therefore, a robust lexical command is indispensable for students to absorb technical knowledge efficiently and engage in academic or professional dialogue. In the landscape of modern digital education, technical EFL learners face the dual challenge of mastering both general high-frequency words and highly specialized technical jargon (Coxhead, 2018). However, initial observations and prior literature indicate that many university-level EFL learners still struggle to comprehend word meanings, apply vocabulary accurately in context, identify natural collocations, and retain newly acquired terms. This lack of contextual vocabulary depth often manifests as a major bottleneck when students attempt to decode complex syntactic structures in technological documentation (Piza, Boonsuk, & Ambele, 2023). These pedagogical bottlenecks potentially impede students' academic achievements and constrain their career advancement in a globalized digital workforce.

The present inquiry is driven by the premise that assessing students' baseline vocabulary proficiency is a vital prerequisite for optimizing English language pedagogy and academic outcomes. While extensive literature has explored vocabulary learning strategies and lexical acquisition among Indonesian EFL students, sparse empirical attention has been directed toward information technology-based colleges, specifically at STMIK PPKIA Tarakanita Rahmawati.

This study aims to address this empirical gap by mapping out students' vocabulary mastery levels and pinpointing specific lexical deficiencies. Understanding these baseline discrepancies allows educators to design customized instructional pathways tailored to the specific professional needs of technological fields (Dang, 2022). The insights generated are expected to refine instructional methodologies by highlighting students' direct linguistic needs and guiding the development of targeted learning materials and pedagogical techniques.

The significance of this research is offering both theoretical and practical insights. Theoretically, it expands the academic discourse on vocabulary acquisition and competence within EFL frameworks, particularly regarding students in technology-focused higher education. Practically, the data serves as a pragmatic benchmark for English instructors, curriculum designers, and educational administrators in formulating vocabulary-centric syllabus interventions. Additionally, these findings can foster meta-cognitive awareness among students regarding their lexical competencies, thereby prompting them to adopt more constructive vocabulary acquisition techniques.

This study is guided by the following research question: “What is the level of vocabulary mastery among students of STMIK PPKIA Tarakanita Rahmawati?” In addition, the study seeks to identify which aspects of vocabulary knowledge present the greatest challenges for students. Since the research employs a descriptive approach, it does not necessarily test a causal hypothesis. However, it is assumed that students demonstrate varying levels of vocabulary mastery and that certain aspects of vocabulary knowledge may require further instructional support.

The theoretical foundation of this study is primarily based on vocabulary acquisition theory and lexical competence theory. Nation (2022) argues that vocabulary knowledge encompasses both receptive and productive dimensions, including knowledge of word meaning, form, use, collocation, and grammatical functions. Similarly, Schmitt and Schmitt (2020) emphasize that vocabulary mastery is not merely the ability to recognize words but also the ability to use them accurately and appropriately in different communicative contexts. Furthermore, the Lexical Quality Hypothesis proposed by Perfetti and Stafura (2014) suggests that high-quality lexical representations facilitate efficient language processing and comprehension. These theoretical perspectives provide a framework for understanding vocabulary mastery as a multidimensional construct that plays a critical role in language learning and academic achievement. Therefore, analyzing students’ vocabulary mastery is essential for understanding their linguistic competence and identifying strategies to enhance their English language proficiency.

METHOD

This study employed a descriptive quantitative research design to analyze the vocabulary mastery of students at STMIK PPKIA Tarakanita Rahmawati. The research aimed to identify and describe students’ levels of vocabulary mastery without manipulating any variables. Therefore, the study focused on a single variable, namely students’ vocabulary mastery, which refers to the students’ ability to understand and use English vocabulary appropriately. The aspects of vocabulary assessed in this study included word meaning, synonyms, antonyms, parts of speech (nouns, verbs, adjectives, and adverbs), and word collocations.

The subjects of this research were second semester students of STMIK PPKIA Tarakanita Rahmawati who were enrolled in the academic year 2025/2026. The participants were selected using purposive sampling because they are taking English courses in this semester

and were expected to possess basic English vocabulary knowledge. A total of 35 students participated in the study. The participants represented different academic levels and study programs to provide a comprehensive overview of students' vocabulary mastery within the institution.

The primary instrument used in this research was a Vocabulary Mastery Test developed by the researcher based on English vocabulary learning objectives and previous vocabulary assessment studies. The test consisted of 35 multiple-choice questions covering four components of vocabulary knowledge: synonyms, antonyms, word collocations, and parts of speech (verb, noun, adjective, adverb). Each correct answer was awarded one point, while incorrect answers received zero points. Thus, the maximum score was 35 points. Prior to data collection, the instrument was reviewed by English language experts to ensure content validity and was pilot-tested to determine its reliability. In addition, documentation was used to collect supporting data regarding students' academic information.

The research was conducted through several stages. First, the researcher reviewed relevant literature on vocabulary mastery and developed the research instrument. Second, the vocabulary test was validated by experts and revised based on their feedback. Third, the researcher administered the test to the selected participants during scheduled class sessions. Fourth, the students' responses were collected and scored according to the predetermined scoring criteria. Finally, the obtained data were tabulated and analyzed to determine the level of vocabulary mastery demonstrated by the participants.

The collected data were analyzed using descriptive statistical techniques. Students' scores were calculated and converted into percentages using the following formula:

$$\text{Score} = (\text{Total Items/Correct Answers}) \times 100$$

The percentage scores were then classified into categories adapted from common educational assessment standards, as shown in Table 1.

Score Range	Category
86–100	Excellent
71–85	Good
56–70	Fair
41–55	Poor
0–40	Very Poor

Table 1. Vocabulary Mastery Classification

Furthermore, the mean score, maximum score, minimum score, frequency distribution, and percentage of each category were calculated using the Statistical Package for the Social Sciences (SPSS). The results were presented in tables and interpreted descriptively to provide a clear picture of students' vocabulary mastery levels. The findings were then discussed in relation to relevant theories and previous studies to draw conclusions regarding the vocabulary proficiency of students at STMIK PPKIA Tarakanita Rahmawati.

RESULT/FINDINGS

The empirical data for this study were collected on May 20, 2026, at STMIK PPKIA Tarakanita Rahmawati using a Google Form instrument. The assessment comprised a 35-item multiple-choice vocabulary test distributed evenly across seven lexical domains, with five questions dedicated to each of the following components: synonyms, antonyms, collocations, verbs, nouns, adjectives, and adverbs.

No	Name	Syn	Ant	Col	V	N	Adj	Adv	Score	Category
1	Student 1	5	5	4	5	4	5	5	93	Excellent
2	Student 2	3	3	2	3	3	3	4	63	Fair
3	Student 3	2	5	4	4	4	5	4	84	Good
4	Student 4	5	5	5	5	4	5	4	93	Excellent
5	Student 5	4	5	3	5	4	3	3	90	Excellent
6	Student 6	5	5	5	5	5	4	5	96	Excellent
7	Student 7	5	5	5	5	5	5	5	100	Excellent
8	Student 8	2	0	3	3	2	2	3	45	Poor
9	Student 9	5	5	5	5	5	4	5	96	Excellent
10	Student 10	4	5	5	5	5	5	5	96	Excellent
11	Student 11	5	5	3	4	3	3	4	81	Good
12	Student 12	5	5	3	3	4	2	3	75	Good
13	Student 13	1	3	3	3	2	2	3	51	Poor
14	Student 14	5	5	4	4	4	5	4	90	Excellent
15	Student 15	4	5	5	5	4	5	5	93	Excellent
16	Student 16	5	5	4	4	5	5	5	93	Excellent
17	Student 17	5	4	1	3	1	0	1	45	Poor
18	Student 18	2	2	2	4	1	0	1	36	Very Poor
19	Student 19	4	3	3	3	2	2	3	60	Fair
20	Student 20	4	3	2	3	5	3	2	66	Fair
21	Student 21	3	3	3	3	2	0	3	51	Poor
22	Student 22	3	4	5	2	3	4	4	75	Good
23	Student 23	5	2	3	4	3	4	2	69	Fair
24	Student 24	2	2	2	1	2	1	1	33	Very Poor
25	Student 25	5	5	5	5	4	3	5	90	Excellent
26	Student 26	5	5	4	5	5	5	5	96	Excellent
27	Student 27	4	3	5	3	3	3	3	72	Good
28	Student 28	4	4	5	4	5	5	5	93	Excellent
29	Student 29	5	4	4	2	2	1	3	63	Fair
30	Student 30	1	2	1	2	2	0	2	10	Very Poor
31	Student 31	5	4	3	3	4	1	3	69	Fair
32	Student 32	5	5	5	5	5	3	5	93	Excellent
33	Student 33	2	3	4	2	2	3	2	54	Poor
34	Student 34	3	4	4	5	5	4	5	90	Excellent
35	Student 35	2	3	4	2	4	2	3	60	Fair

Table 2. The Result of Students' Answer

Based on Table 2, it can be presented that 15 students got scores around 86 – 100 which categorized “excellent”, 5 students “good” whose score 71 – 85. In the category “Fair”, there

were 7 students who got scores 56 – 70, then 5 students with scores 41 – 55 were categorized “poor” and 3 students were categorized “very poor” with score 0 – 40. The following describes the detail of each part evaluated on Google Form.

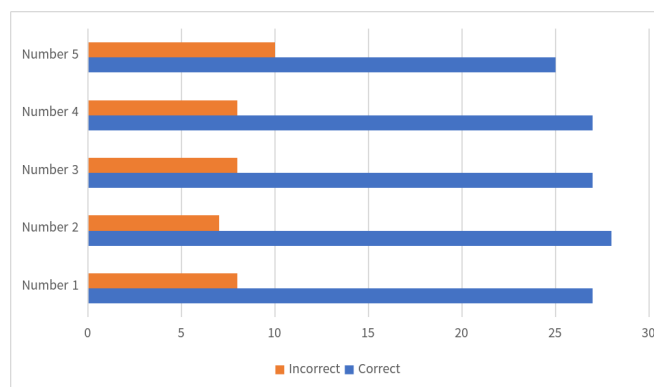


Table 3. Students Answers of Synonym Questions

Table 3 displays the students' responses for the synonym question category, which demonstrate an even distribution of correct answers. Item 5 yielded 25 correct responses, while items 1, 3, and 4 each recorded an identical total of 27. Finally, item 2 achieved the highest frequency of correct answers within the synonym category, with a total of 28.

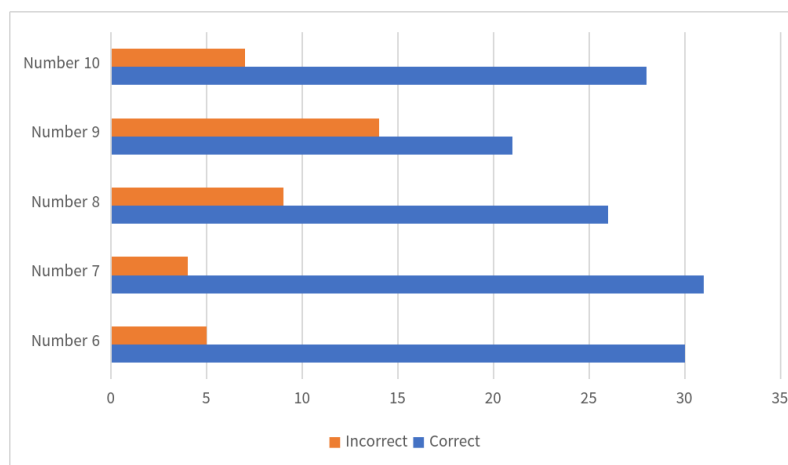


Table 4. Students' Answers of Antonym Questions

Table 4 presents the results of the antonym questions answered by 35 students. Fewer than 10 students answered questions 6, 7, 8, and 10 incorrectly, whereas 14 students provided incorrect answers for question 9.

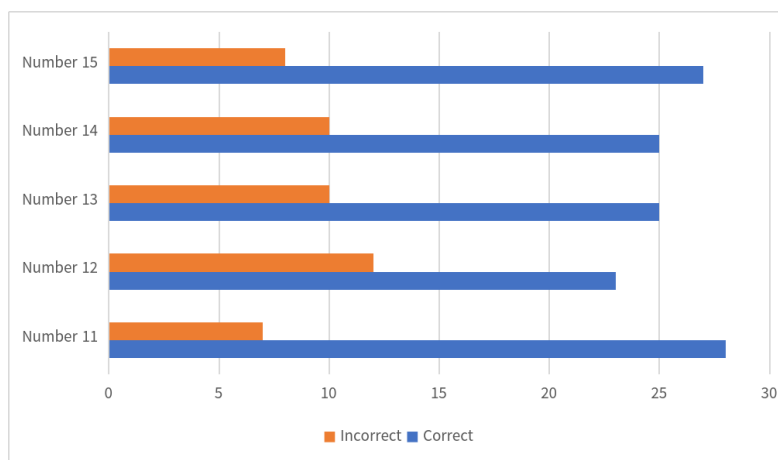


Table 5. Students' Answers of Collocation Questions

Table 5 shows the result of students' answers to 5 collocation questions. The result showed that for items 11 and 15 respectively, there were 27 and 28 students who could answer correctly. Then, 25 students picked correct choices for items 13 and 14. On collocation questions, item 12 was correctly answered by 23 students.

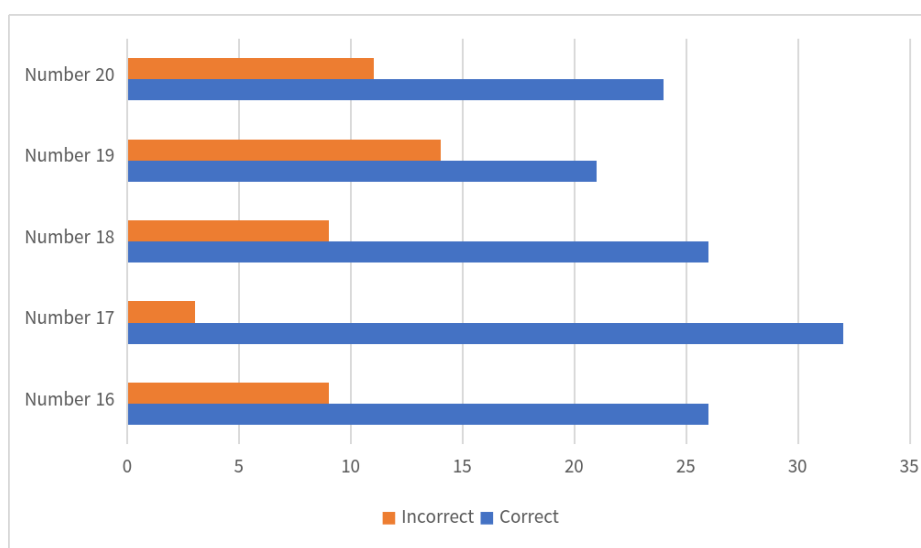


Table 6. Students Answers of Verb Questions

Table 6 shows students' answers on verb items 16 to 20. For items 16 and 18, there were 26 students answered correctly. Meanwhile, there were 21 and 24 students who answered items 19 and 20 correctly. Item 17 had the most students with the correct answer, 31 students.

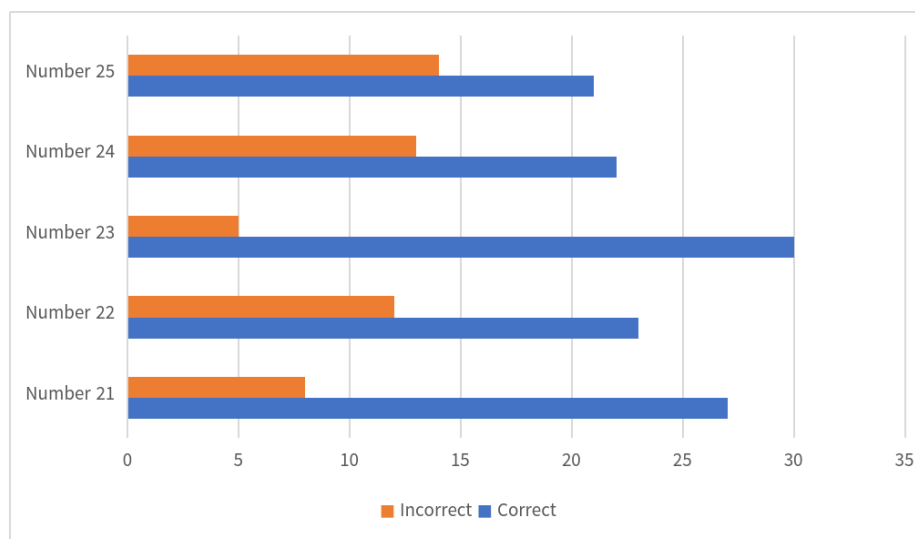


Table 7. Students Answers of Noun Questions

As shown in Table 7, which details the responses to noun items 21 to 25, question 23 yielded 5 incorrect answers, while question 21 resulted in 8 incorrect choices. Then, a total of 23, 22, and 21 students correctly answered number 22, 24, and 25 respectively.

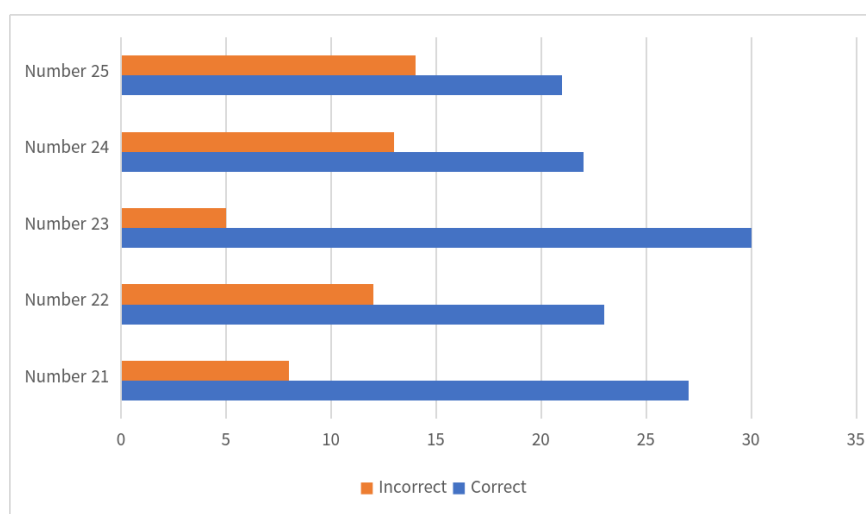


Table 8. Students Answers of Adjective Questions

The result of the students' responses for the adjective category (items 26 to 30) are displayed in Table 8. Within this category, 3 items (28, 29, and 30) were answered incorrectly by more than 10 students. Meanwhile, item 26 received 10 incorrect answers. Notably, item 27 accumulated a higher number of incorrect responses (19) than correct responses (16).

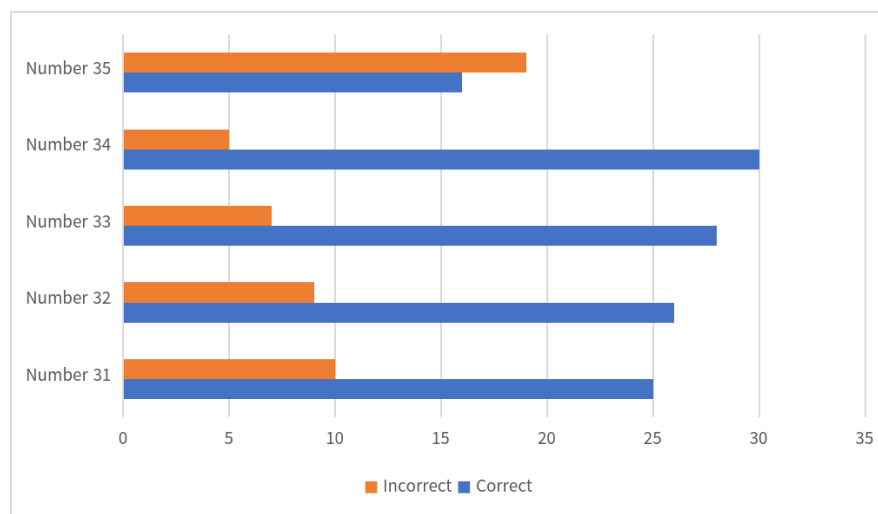


Table 9. Students Answers of Adverb Questions

Table 9 displays the data regarding students' answers for the adverb question category (items 31 to 35). In item 35, the correct responses (16) were outnumbered by the incorrect ones (19). In contrast, items 31 through 34 sequentially recorded 25, 26, 28, and 30 correct responses.

DISCUSSION

The primary objective of this study was to analyze the level of vocabulary mastery among students at STMIK PPKIA Tarakanita Rahmawati and to identify the specific dimensions of lexical knowledge that present the most significant challenges. The empirical findings reveal a highly polarized distribution of vocabulary proficiency among the participants. While a substantial proportion of students demonstrated "Excellent" competence, a critical segment of the sample fell into the "Fair", "Poor", and "Very Poor" categories. This variance supports the initial assumption that English learners in technology-oriented institutions exhibit highly diverse lexical capacities, which directly impacts their readiness to engage with English-centric academic and technical materials.

Analysis of Vocabulary Mastery Across Categories

A closer inspection of the data indicates that students performed relatively well in the receptive and foundational dimensions of vocabulary, specifically synonyms and antonyms. In the synonym category, the high frequency of correct responses—particularly for Item 2 (28 correct answers)—suggests an adequate baseline of basic semantic associations among the majority of students. Similarly, the antonym results show that fewer than 10 students committed errors across most items (Items 6, 7, 8, and 10). This proficiency in isolating word meanings aligns with the classical receptive dimension of lexical competence noted by Nation (2022), where establishing fundamental form-meaning connections represents the initial stage of vocabulary acquisition.

However, a noticeable decrease in performance was observed when moving from isolated word meanings to collocations. Although Items 11 and 15 yielded high correct response rates (27 and 28 students, respectively), Item 12 demonstrated a lower accuracy rate with only 23 correct answers. This drop indicates that while students can recognize individual lexical items, their contextual knowledge regarding how words naturally co-occur remains constrained. As argued by Schmitt and Schmitt (2020), true vocabulary mastery extends beyond mere word recognition; it demands a deeper knowledge of word use and structural environment. Recent longitudinal studies confirm that phraseological and collocational competence develops at a much slower rate than single-word knowledge, often requiring targeted contextual exposure (Gyllstad Vilkaite-Lozdiene, & Schmitt, 2021). The lack of collocation mastery among a segment of these students may hinder their ability to produce natural and fluent language in professional or academic discourse.

Grammatical Components and Lexical Quality

The results regarding grammatical components (Parts of Speech) reveal a distinct hierarchy of difficulty among the participants. Students demonstrated the highest proficiency in identifying and utilizing verbs and nouns. For instance, Item 17 in the verb category achieved the highest accuracy with 31 correct responses, while the noun category showed low error rates, with only 5 and 8 incorrect answers for Items 23 and 21, respectively. This trend can be attributed to the prominent role that nouns and verbs play as core content words within information technology texts, which students regularly encounter in their study programs. In technical domains, nouns and verbs carry the primary informational load, leading to higher incidental acquisition due to repeated exposure in computer science textbooks (Peters, 2020).

In contrast, adjectives and adverbs posed the most formidable challenges for the learners. Within the adjective category, three items (28, 29, and 30) were answered incorrectly by more than 10 students. Most notably, Item 27 exhibited a negative distribution where incorrect responses (19) outnumbered correct ones (16). A similar pattern emerged in the adverb category, where Item 35 was failed by the majority of students (19 incorrect responses vs. 16 correct responses).

This deficiency in modifiers (adjectives and adverbs) points to a structural weakness in the students' depth of vocabulary knowledge. According to the Lexical Quality Hypothesis (Perfetti & Stafura, 2014), efficient language processing relies heavily on high-quality, fully specified lexical representations that encompass meaning, form, and grammatical functions. When students fail to master adjectives and adverbs, their lexical representations remain superficial or incomplete. This limitation inevitably restricts their ability to comprehend nuanced technical documentation, qualify experimental data, or articulate precise procedural steps in computing contexts.

Pedagogical Implications

The findings have critical practical implications for English instruction within IT-based higher education. The distinct performance gaps between fundamental content words (nouns/verbs) and more complex lexical dimensions (collocations/adjectives/adverbs) suggest that traditional, generic vocabulary rote-learning is insufficient. Lecturers and curriculum designers at STMIK PPKIA Tarakanita Rahmawati must shift toward data-driven and corpus-based instructional materials. This outcome aligns with contemporary research showing that EFL learners frequently neglect grammatical modifiers because they prioritize core semantic entities during reading comprehension tasks (Vilkaitė-Lozdienė & Shintani, 2022). Explicit pedagogical interventions targeting collocations and the precise contextual functions of modifiers are highly recommended to bridge the empirical gaps identified in this study.

CONCLUSION

Based on the empirical findings and subsequent analysis, this study concludes that the vocabulary mastery of second-semester students at STMIK PPKIA Tarakanita Rahmawati is highly polarized. Although a substantial number of students achieved an "Excellent" rating, a significant proportion remains clustered in the "Fair," "Poor," and "Very Poor" categories. This wide gap indicates that a large segment of the student body lacks the lexical competence required to engage comfortably with technical and academic English resources.

The item-by-item analysis reveals a distinct hierarchy of lexical difficulty. Students demonstrated strong proficiency in receptive vocabulary dimensions, such as identifying synonyms and antonyms, and showed a solid command of primary content words (nouns and verbs). This success is largely driven by their regular exposure to technical terms in IT coursework. However, their proficiency dropped considerably in contextual and relational categories, specifically word collocations, adjectives, and adverbs. Modifiers and phrase pairings presented the greatest challenge, exposing a lack of depth in students' lexical knowledge. This deficiency leads to superficial mental representations of words, which can hinder their ability to interpret complex software documentation or communicate accurately in professional settings.

Therefore, this study recommends a shift away from traditional, isolated word memorization in the institution's English curriculum. Language instructors should implement corpus-based learning strategies and contextual exercises that explicitly target collocations and the syntactic functions of modifiers (adjectives and adverbs). Designing specialized English for Specific Purposes (ESP) materials tailored to computer science contexts will help bridge these lexical gaps. This targeted approach will better prepare students to meet the communication demands of the global digital era.

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