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Profiling Basic English Proficiency Among Mechanical Engineering Students: Pedagogical Implications for EFL Classrooms

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Abstract:

English proficiency is a crucial competence for vocational higher education students, particularly in engineering fields where access to technical information and global communication increasingly relies on English. However, many first-semester students enter polytechnic institutions with limited basic English skills. This study aimed to describe the basic English proficiency of first-semester Mechanical Engineering students at Politeknik Negeri Bengkalis. A descriptive quantitative research design was employed, involving 131 students from five classes selected through total sampling. Data were collected using a basic English proficiency test focusing on fundamental grammar, simple sentence construction, and general vocabulary. The data were analyzed using descriptive statistics, including mean scores, score distribution, and proficiency levels.The findings revealed that students' overall English proficiency was low to moderate, with a mean score of 60.57. More than half of the participants were classified into very low and low proficiency categories, indicating insufficient mastery of foundational English skills. The results also showed considerable variation in students' performance, reflecting diverse educational backgrounds and unequal English exposure prior to entering higher education.

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Introduction

English proficiency has become a fundamental requirement in higher education, particularly in vocational and engineering contexts where students are expected to engage with academic texts, technical manuals, and global professional communication. In the era of globalization and Industry 4.0, English functions not

only as a medium of international communication but also as a key academic skill that supports students' learning processes and future employability. For students in Mechanical Engineering programs, the ability to understand and use English is essential for accessing technical references, operating manuals, and digital resources that are predominantly available in English.

Despite its importance, numerous studies have reported that many students in non-English majors enter higher education with inadequate basic English proficiency. This condition is especially evident in English as a Foreign Language (EFL) contexts, where exposure to English is limited and learning opportunities outside the classroom are scarce. Low proficiency in basic grammar, vocabulary, and sentence construction often hinders students' ability to participate actively in English learning activities and affects their overall academic performance. Recent studies indicate that insufficient foundational English skills remain a persistent issue among first-year university students, particularly those enrolled in vocational and engineering programs (Nguyen et al., 2021; Saito et al., 2022).

Basic English proficiency generally refers to learners' ability to understand and produce simple grammatical structures, construct basic sentences, and use common vocabulary appropriately in everyday and academic contexts. These foundational skills serve as the building blocks for more advanced language competence. However, research has shown that many EFL learners struggle with elementary grammatical concepts such as subject–verb agreement, tense usage, and sentence structure, which are critical for effective communication (Bui et al., 2020; Zhang et al., 2023). Weak mastery of these basic components may lead to low confidence, anxiety, and passive participation in EFL classrooms.

In vocational education settings, the challenge of low English proficiency is often compounded by curriculum demands that emphasize technical competencies while allocating limited instructional time for English. Several international studies have highlighted that engineering and vocational students frequently perceive English as important but feel unprepared to engage with English learning materials due to their limited basic skills (Rahman et al., 2021; Al-Ahdal et al., 2022). As a result, EFL instructors in vocational contexts face the challenge of teaching students with highly diverse proficiency levels, ranging from very low to relatively advanced.

Recent research in EFL pedagogy emphasizes the importance of understanding learners' initial proficiency profiles as a basis for effective instructional planning. Profiling students' basic English proficiency allows educators to identify common difficulties, adjust teaching strategies, and design learning materials that align with students' actual needs (Huang et al., 2020; Lee et al., 2024). Without empirical data on students' proficiency levels, English instruction risks being misaligned with learners' capabilities, which may reduce learning effectiveness and student engagement.

Although previous studies have examined English learning difficulties and needs among EFL learners, research that specifically profiles the basic English proficiency of Mechanical Engineering students in vocational higher education remains limited, particularly in the Indonesian polytechnic context. Most existing studies tend to focus either on general university students or on English for Specific Purposes (ESP) without first addressing students' foundational language competence. This indicates a gap in the literature regarding empirical descriptions of basic English

proficiency that can inform pedagogical decisions in EFL classrooms for vocational students.

The novelty of this study lies in its focus on profiling basic English proficiency as a pedagogical foundation rather than merely reporting test scores. By emphasizing the implications of proficiency profiles for EFL classroom practices, this study contributes to the growing body of research that connects assessment results with instructional improvement in vocational education contexts. The findings are expected to provide practical insights for EFL instructors and curriculum developers in designing more effective English instruction for engineering students.

Therefore, this study aims to profile the basic English proficiency of Mechanical Engineering students in a vocational higher education institution and to discuss the pedagogical implications of the findings for EFL classrooms. Specifically, this research seeks to describe students' proficiency levels in basic grammar, sentence construction, and vocabulary, and to highlight how these profiles can inform more responsive and effective EFL teaching practices in vocational education.

Methods

This study employed a descriptive quantitative research design to examine the basic English proficiency of first-semester Mechanical Engineering students at Politeknik Negeri Bengkalis. A descriptive quantitative approach was selected because it is appropriate for portraying existing conditions, mapping learners' language proficiency, and describing students' performance objectively without manipulating variables. Such an approach is widely used in EFL research to obtain an empirical profile of learners' initial language competence, particularly in vocational and non-English major contexts.

Participants

The participants consisted of all first-semester students enrolled in the compulsory English course in the Mechanical Engineering Department at Politeknik Negeri Bengkalis. Five parallel classes participated in this study, with the number of students in each class ranging from 25 to 30. In total, 131 students were involved. Total sampling was applied in this study, meaning that the entire population of first-semester Mechanical Engineering students was included. This technique was chosen to ensure that the data accurately represented the real proficiency profile of students at this academic level and to avoid sampling bias.

Instrument

The research instrument was a basic English proficiency test designed to measure students' foundational language skills. The test focused on three main components: (1) basic grammar, particularly the correct use of *is*, *am*, and *are*; (2) simple sentence construction; and (3) general English vocabulary commonly used in everyday and academic contexts. The test consisted of multiple-choice and short-answer items to capture both recognition and limited production skills. The test content was developed based on previous EFL studies that emphasize common difficulties experienced by beginner and low-proficiency learners in vocational education settings. To ensure content validity, the test items were reviewed by English language teaching experts who have experience in EFL instruction and assessment at the tertiary level. The reviewers evaluated the relevance, clarity, and

appropriateness of each item for first-semester vocational students. Revisions were made based on their feedback before the test was finalized.

Data Collection

Data collection was conducted during regular class sessions to ensure a natural academic setting. The test was administered under standardized conditions, with clear instructions provided orally and in written form. To avoid misunderstanding, brief clarification was allowed in the students' first language regarding test procedures, but not regarding the test content. Students completed the test individually within the allocated time. All answer sheets were collected immediately after the test session.

Data Analysis

Students' test responses were scored using a consistent scoring rubric. The collected scores were then analyzed using descriptive statistics, including minimum and maximum scores, mean, median, standard deviation, and score distribution. To provide a clearer interpretation of students' proficiency, the scores were categorized into four proficiency levels: very low, low, moderate, and high.

The classification of proficiency levels was adapted from educational measurement principles proposed by Brown (2004) and Hughes (2003), which recommend score-band categorization to interpret language test results in EFL contexts. The proficiency level criteria used in this study are presented in Table 1.

Table 1. Classification of Basic English Proficiency Levels (Adapted from Brown, 2004; Hughes, 2003)

Proficiency Level	Score Range	Description
Very Low	0–40	Students demonstrate very limited control of basic grammar, vocabulary, and sentence structure; frequent errors significantly hinder comprehension.
Low	41–60	Students show partial understanding of basic English forms but still experience frequent grammatical and structural difficulties.
Moderate	61–75	Students are able to use basic grammar and vocabulary with reasonable accuracy, although errors still occur in more complex sentence constructions.
High	76–100	Students demonstrate good control of basic English structures and vocabulary and are able to construct simple sentences effectively.

This categorization allowed for a comprehensive description of students' basic English proficiency and facilitated pedagogical interpretation of the findings. Internal consistency reliability was examined through item analysis, and test items with low discrimination or ambiguous wording were revised prior to final data interpretation.

Results

The descriptive statistical analysis revealed considerable variation in students' basic English proficiency across proficiency levels. To provide a clearer pedagogical interpretation, students' performance is discussed based on four proficiency categories: very low, low, moderate, and high.

Very Low Proficiency Level

Students classified in the very low proficiency category demonstrated severe limitations in basic English competence. Their responses indicated minimal understanding of fundamental grammatical structures, particularly in the use of *is*, *am*, and *are*. Many students in this group were unable to construct complete simple sentences and frequently produced fragmented or ungrammatical expressions. Vocabulary knowledge was also extremely limited, which restricted their ability to comprehend basic instructions and express simple ideas. These findings suggest that students at this level require intensive remedial instruction focusing on the most basic elements of English grammar and vocabulary before engaging in more structured EFL learning activities.

Low Proficiency Level

Students in the low proficiency category showed partial understanding of basic English forms but continued to experience frequent grammatical inaccuracies. Although some students were able to recognize correct grammatical patterns, they often failed to apply them consistently in sentence construction. Errors related to subject–verb agreement and word order were common. Vocabulary use was limited to familiar words, and students often relied on guessing strategies when encountering unfamiliar terms. Pedagogically, this group would benefit from structured practice, repetition, and guided sentence-building activities to reinforce foundational language skills.

Moderate Proficiency Level

Students categorized as having moderate proficiency demonstrated a functional level of basic English competence. They were generally able to use basic grammatical structures correctly and construct simple sentences with reasonable accuracy. However, occasional errors were still observed, particularly when sentences became longer or slightly more complex. Vocabulary knowledge at this level was sufficient for understanding common classroom instructions and basic texts, though expressive ability remained limited. These students are considered ready for gradual exposure to more contextualized EFL activities, provided that continued reinforcement of basic grammar is maintained.

High Proficiency Level

Students in the high proficiency category exhibited good control of basic English grammar, sentence structure, and vocabulary. Their responses showed consistent accuracy in the use of simple grammatical forms and the ability to produce coherent simple sentences. Vocabulary usage was more varied and appropriate, allowing for clearer expression of ideas. Although this group represented a smaller proportion of the participants, they demonstrated readiness for more advanced English learning, including the introduction of English for Specific Purposes (ESP) content related to Mechanical Engineering.

To provide a clearer visualization of students' basic English proficiency levels, the distribution of students across proficiency categories is presented in a pie chart. The chart illustrates the proportion of students classified into very low, low, moderate, and high proficiency levels based on their test scores.

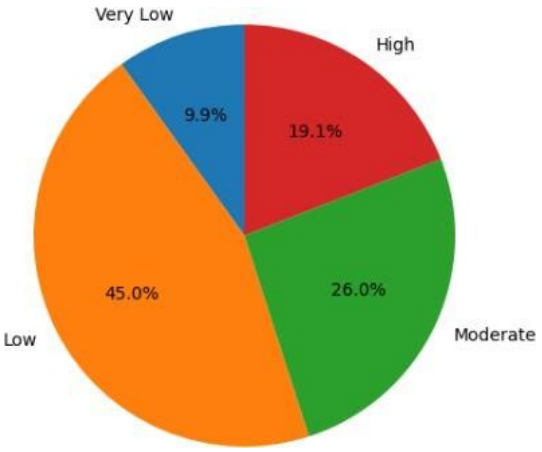

Figure 1. Distribution of students' basic English proficiency level

As illustrated in the pie chart, students' basic English proficiency was unevenly distributed across proficiency levels. More than half of the students were classified into the very low and low proficiency categories, indicating limited mastery of basic English skills among first-semester Mechanical Engineering students. The descriptive statistical analysis supports this distribution, with a mean score of 60.57, suggesting that students' overall English proficiency ranged from low to moderate. The variation in scores reflects diverse educational backgrounds and differing levels of English exposure prior to entering higher education. Common difficulties identified from students' responses included incorrect use of basic grammatical structures, problems in constructing simple sentences, and limited vocabulary knowledge. These findings indicate that mixed-ability classrooms are common in vocational EFL settings, highlighting the need to strengthen basic English instruction in the early semesters to support students' academic success and confidence in English learning.

This result also confirms that limited foundational English competence remains a persistent issue among vocational students in EFL contexts. Such a condition is consistent with previous studies reporting that students from non-English majors often enter higher education without sufficient mastery of basic grammar, sentence construction, and vocabulary (Nguyen et al., 2021; Al-Ahdal et al., 2022). From a theoretical perspective, basic language proficiency plays a crucial role as the foundation for further language development. According to language learning theory, learners must first acquire fundamental grammatical structures and core vocabulary before they are able to process more complex linguistic input (Ellis, 2020). The dominance of students in the very low and low proficiency categories suggests that many learners have not yet developed the necessary linguistic foundation to support higher-level English learning. This condition may limit their ability to benefit from communicative or task-based EFL instruction, which often assumes a minimum level of basic language competence. The analysis of students' responses revealed that common difficulties were related to the incorrect use of basic

grammatical forms, particularly subject–verb agreement, problems in constructing simple sentences, and limited vocabulary knowledge. These findings align with previous EFL research indicating that grammar remains a major challenge for learners in vocational education settings (Bui et al., 2020; Zhang et al., 2023). Brown (2007) emphasizes that persistent grammatical errors at the basic level often result from incomplete internalization of language rules, especially when learners have limited exposure to meaningful language input.

The presence of students in the moderate and high proficiency categories, although smaller in number, indicates that learners' English proficiency levels are highly heterogeneous. This supports the notion that mixed-ability classrooms are a common feature of EFL instruction in vocational higher education. According to differentiated instruction theory, learners with varying proficiency levels require different types of support and instructional pacing to achieve optimal learning outcomes (Tomlinson, 2017). When instruction progresses too quickly toward technical or English for Specific Purposes (ESP) content, students with weak foundational skills may experience cognitive overload and reduced learning engagement.

Previous studies have also highlighted that vocational students often struggle with ESP materials due to insufficient general English proficiency (Rahman et al., 2021; Lee et al., 2024). The findings of the present study reinforce this argument by showing that many students lack the basic linguistic competence required to engage effectively with more specialized English content. Therefore, strengthening basic English skills in the early semesters is pedagogically important to ensure that students are adequately prepared for ESP-oriented instruction in later stages of their studies.

Conclusion

This study described the basic English proficiency of first-semester Mechanical Engineering students at Politeknik Negeri Bengkalis. The findings revealed that students' overall proficiency was low to moderate, with more than half of the participants categorized into very low and low proficiency levels. Difficulties in basic grammar, simple sentence construction, and vocabulary were the most prominent issues. These findings emphasize the importance of reinforcing foundational English instruction in the early stages of vocational education. English courses should prioritize basic language skills before introducing more advanced or technical English content. Establishing a strong foundation in basic English is essential to prepare students for subsequent academic and professional demands.

Suggestion

This study shows that first-semester Mechanical Engineering students have varied levels of basic English proficiency, with many students demonstrating limited mastery of fundamental language skills. The findings indicate that differences in students' educational backgrounds and prior English exposure influence their performance in basic grammar, sentence construction, and vocabulary use. Understanding these proficiency profiles can help lecturers recognize students' actual learning conditions at the beginning of their academic studies. Such awareness is important for supporting more effective English learning processes in vocational EFL classrooms.

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