



## AN ANALYSIS OF STUDENT NECESSITIES IN ENGLISH FOR INFORMATICS AND COMPUTER ENGINEERING AT HASANUDDIN UNIVERSITY

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### Abstract

*This research analyzes students' needs in using English in the Informatics and Computer Engineering study programs at Hasanuddin University. This research aims to identify students' specific needs for English and provide recommendations for developing the English for Specific Purposes (ESP) curriculum. The research method uses a quantitative approach by distributing questionnaires to fourth-semester students. The results of the analysis show that the majority of students (82.8%) consider English to be very important in the field of informatics engineering, with high use of English in the study of lecture material. In an academic context, reading and writing, especially in the form of coding, are the most needed skills. Students also emphasized the importance of speaking and listening skills for technical communication, with 55.2% stating that speaking skills were very necessary. These findings underscore the need to develop ESP courses that include authentic materials and interactive activities that can improve students' English skills in technical contexts. With a better understanding of students' English language needs, educators can design more effective curricula, supporting students' academic and professional success in informatics and computer engineering.*

**Keywords:** ESP, Need Analysis, Learning Needs

### INTRODUCTION

In the rapidly evolving era of technological development, proficiency in the English language has become a pivotal component for students pursuing degrees in informatics and computer engineering. The necessity for effective communication in English spans across various dimensions, including academic success, professional advancement, and global collaboration. Understanding and addressing the specific English language needs of these students is crucial to preparing them for the demands of their field. Previous studies have underscored the importance of tailoring English for Specific Purposes (ESP) curricula to meet the unique requirements of informatics and computer engineering students (Rifiyanti & Dewi, 2022). The complexity of technical subjects necessitates not only a strong command of technical vocabulary but also the ability to effectively communicate complex ideas in a clear and precise manner (Nimasari, 2018).

Susana and Iswara (2019) conducted a needs analysis for informatics engineering students to identify their specific English language requirements and inform the development of teaching materials. Their study revealed that students place a high priority on improving their speaking and writing skills, particularly in technical contexts. This finding underscores the importance of creating ESP courses that not only focus on

linguistic accuracy but also on the practical application of language skills in real-world scenarios. By incorporating authentic materials and interactive activities, educators can foster a more dynamic and engaging learning environment that enhances students' language proficiency and confidence (Susana & Iswara, 2019).

Informatics and computer engineering students face unique challenges in mastering English due to the highly technical nature of their field. The complexity of technical subjects requires a deep understanding of specialized terminology and the ability to communicate complex ideas clearly and concisely. Therefore, ESP courses for these students must be meticulously designed to address these challenges and provide comprehensive language support. Nimasari, Mufanti, and Gestant (2019) emphasize the importance of following pedagogical standardized procedures in developing ESP materials for informatics engineering. Their research highlights the need for a structured approach that incorporates needs analysis results and aligns with best practices in language teaching.

One of the findings in the field is the emphasis on the practical application of language skills. For example, the integration of project-based learning and simulations in ESP courses has shown significant benefits in enhancing students' ability to use English in technical contexts. This method not only improves language skills but also boosts students' confidence in using English for professional purposes. The use of authentic materials, such as technical manuals, research articles, and industry reports, allows students to engage with real-world texts that they are likely to encounter in their careers (Putri, 2018). Furthermore, project-based learning aligns with the real-world demands that students will face in their professional lives. By working on projects that mimic actual industry challenges, students can develop both their technical and language skills in tandem. This dual-focus approach ensures that students are not only competent in their technical abilities but also proficient in communicating their ideas, findings, and solutions effectively in English (Rifiyanti & Dewi, 2022). This hands-on experience is invaluable, as it prepares students for the collaborative and communicative nature of the modern workplace (Nasution et al., 2020).

Studies have shown that as the technological landscape evolves, so do the language requirements of students. By staying attuned to these changes, educators can adapt their teaching strategies to better prepare students for the challenges they will face in the global job market (Susana & Iswara, 2019). Andas et al. provide insights into the specific language skills that are most relevant and necessary for students in their field. For instance, if new technologies or methodologies emerge, the language associated with these developments must be incorporated into the curriculum. This proactive approach ensures that students are always learning the most pertinent and up-to-date language skills.

Addressing the specific English language needs of informatics and computer engineering students is essential for their academic and professional success. By incorporating findings from needs analysis studies and employing innovative teaching methods, educators can develop ESP curricula that not only meet the linguistic demands of these students but also equip them with the skills necessary to excel in their field. This holistic approach to language education ensures that students are well-prepared to navigate the complexities of the technological world and contribute effectively to their disciplines.

## 1. English for Specific Purposes

Hutchinson & Waters (1987) define ESP as an approach to language teaching in which all decisions regarding content and method are based on the learners' reasons for learning. Robinson (1991) viewed ESP as an enterprise involving education, training, and practice, drawing upon three major realisms of knowledge: language, pedagogy, and students' or participants' specialist areas of interest. Richards & Rodger (2001) saw ESP as a movement that seeks to serve the language needs of learners who need English to carry out specific roles (e.g., student, engineer, nurse) and who need to acquire content and real-world skills through the medium of it rather than master the language for its sake.

The more detailed definition of ESP comes from Strevens (1998), who defined ESP as a particular case of the general category of special-purpose language teaching. He further revealed that the definition of ESP is needed to distinguish between four absolute and two variable characteristics. The four absolute characteristics of ESP consist of English language teaching, which are:

- a. Design to meet the specific needs of the learners,
- b. Related to content (i.e., in its themes and topics) to particular disciplines, occupations, and activities,
- c. Centered on the language appropriate to those activities in syntax, lexis, discourse, semantics, etc, and analysis of this discourse, and
- d. Differentiated from General English.

Based on the definitions given, ESP is understood to be about preparing learners to use English within academic, professional, or workplace environments, where the language is going to be used. In ESP, English is learned not for its own sake or for the sake of gaining a general education but to smooth the path to entry to greater linguistic efficiency in particular environments (Basturkmen, 2006).

## 2. Needs Analysis in ESP

Needs analysis is a fundamental component of ESP course design. It involves identifying the specific linguistic needs of learners to tailor instructional materials and teaching methods accordingly. According to Hutchinson and Waters (1987), needs analysis helps in understanding what learners need to achieve and what they lack in terms of language skills. This process ensures that the ESP curriculum is relevant and effective in addressing the unique demands of the student's field of study.

Nimasari (2018) conducted a comprehensive needs analysis for informatics engineering students at Muhammadiyah University of Ponorogo. The study highlighted the importance of developing language skills that are directly applicable to technical contexts, such as understanding technical texts, participating in technical discussions, and writing technical reports (Nimasari, 2018).

## 3. Importance of English Proficiency in Informatics and Computer Engineering

The role of English in the global technology sector is undeniable. English serves as the primary medium for international communication, research dissemination, and technical documentation. As a result, proficiency in English is critical for students in informatics and computer engineering to access the latest research, collaborate globally, and effectively

communicate technical information. Rifiyanti and Dewi (2022) emphasize that a well-structured English for Specific Purposes (ESP) syllabus is essential for meeting the linguistic needs of students in technical fields, as it helps them develop the necessary skills for academic and professional success.

This article aims to analyze and address the English language needs of informatics and computer engineering students in the current technological landscape, providing insights and recommendations for educators and curriculum developers to enhance the learning experience and outcomes for these students.

## METHOD

To systematically investigate the English language needs of informatics and computer engineering students in the era of technological development, a quantitative research methodology was employed. Data collection was carried out by distributing structured questionnaires to fourth-semester students enrolled in these disciplines. The questionnaire was meticulously designed to capture comprehensive information about the students' language skills, preferences, and specific challenges related to their academic and professional contexts. The use of quantitative methods aimed to provide objective, statistically significant insights into the specific English language requirements of the target student population.

The questionnaires were administered using Google Forms, a digital tool that facilitated easy distribution and efficient data collection. This platform enabled respondents to complete the survey at their convenience, ensuring a higher response rate and more accurate data. The digital format also streamlined the process of aggregating and analyzing the data, allowing for a thorough examination of the student's responses. By employing this quantitative approach and leveraging digital tools, the study aimed to obtain reliable and actionable insights that could inform the development of tailored English for Specific Purposes (ESP) curricula for informatics and computer engineering students.

## RESULTS AND DISCUSSION

### 1. Result

Using a questionnaire, the researcher in this study gathered information on the needs, weaknesses, and wants of the students. Nonetheless, the explanation of the need analysis's findings on students' requirements will be the exclusive subject of this essay. The following 10 questions are used in this study to determine the English language requirements of Hasanuddin University students studying Informatics and Computer Engineering:

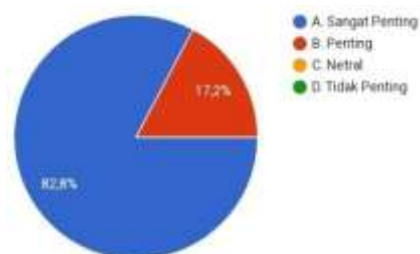


Figure 1. Importance of English in Informatics Engineering

In the first picture with the question "How important do you think it is to learn English in Informatics Engineering?" found that there were 82.8% of students chose the answer very important and another 17.2% answered important.

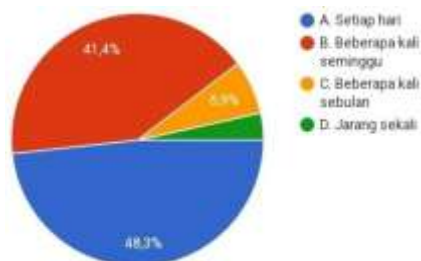


Figure 2. Frequency of English Use in Study

In the second picture with the question "How often do you use English in studying Informatics Engineering course materials?" found that there were 48.3% of students who chose the answer every day, 41.4% answered several times a week, 6.9% answered several times a month, and the remaining 3.4% answered rarely.

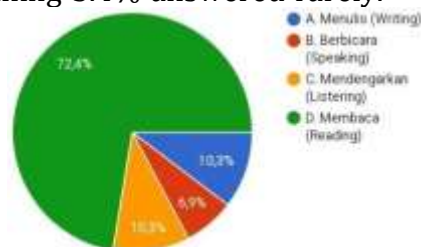


Figure 3. Most Needed English Skill

Furthermore, in the figure when asked the question "In an academic context, what do you need in Informatics Engineering?", it was found that there were 72.4% of students chose the answer reading, 10.3% answered listening, 10.3% answered writing, and the remaining 6.9% answered speaking.

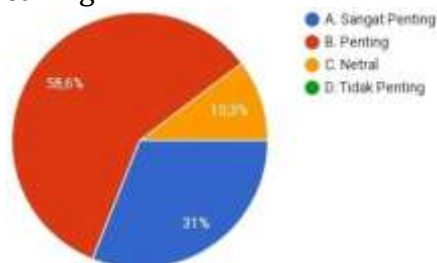


Figure 4. Importance of Grammar

Then in the fourth picture with the question "In your opinion, is understanding grammar important in Informatics Engineering majors?" found that there were 58.6% of students chose the important answer, 31% answered very importantly, and the remaining 10.3% answered neutral.

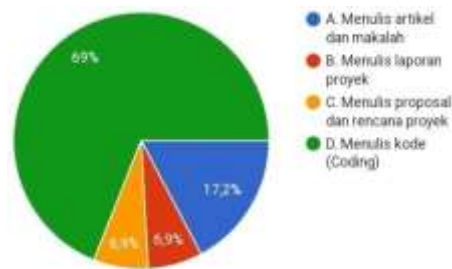


Figure 5. Writing Needs (e.g., Coding)

Furthermore, the fifth figure with the question "In Informatics Engineering, what do you need in writing?" found that there were 69% of students chose the answer coding, 17.2% answered writing articles and papers, 6.9% answered writing project reports, and the remaining 6.9% answered writing proposals and project plans.

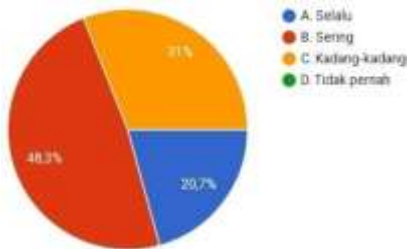


Figure 6. English Use in Programming

The sixth picture with the question "How often do you use English to write code or comments in your program?" found that there were 48.3% of students who chose the answer often, 31% answered sometimes, and the remaining 20.7% answered always.

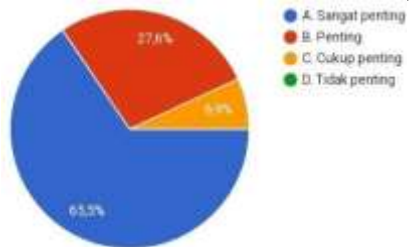


Figure 7. Importance of Reading Scientific Texts in English

The seventh picture with the question "In your opinion, how important is it to have the ability to read scientific texts in English for your studies?" found that there were 65.5% of students chose the answer very important, 27.6% answered important, and the remaining 6.9% answered quite important.

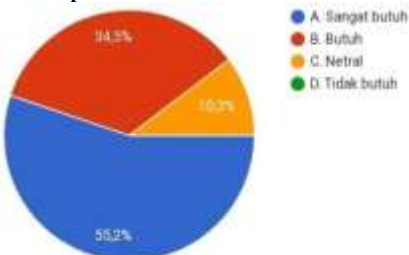


Figure 8. Necessity of Speaking Skills

In the eighth picture with the question "Do you need speaking skills in the Informatics Engineering department?" found that there were 55.2% of students chose the answer very necessary, 34.5% answered necessary, and another 10.3% answered neutral.

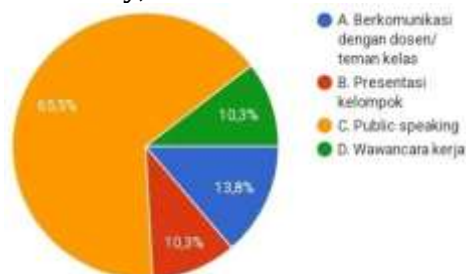


Figure 9. Speaking Needs (e.g., Public Speaking, Communication)

In the ninth picture with the question "In Informatics Engineering, what do you need in speaking?" found that there were 65.5% of students who chose the answer very public speaking, 13.8% answered communicating with lecturers/classmates, 10.3% answered group presentations and another 10.3% answered job interviews.

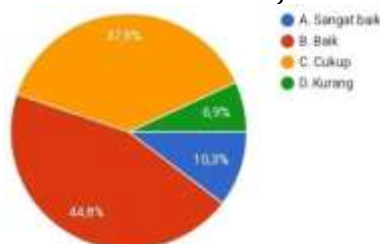


Figure 10. Comprehension of English Course Material

The tenth figure with the question "How well do you understand the course material presented in English?" found that there were 44.8% of students chose the answer well, 37.9% answered moderately, 10.3% answered very well and another 6.9% answered less.

## 2. Discussions

The previous section presented the findings from a questionnaire aimed at identifying the English language needs of Informatics and Computer Engineering students at Hasanuddin University. This discussion will elaborate on the key points from the ten questions used in the needs analysis as follows:

### 1. Students' Awareness of English Importance

The data shows that 82.8% of students consider English very important in the field of Informatics Engineering, and the remaining 17.2% consider it important. This reflects high awareness of the language's relevance, particularly in accessing global resources, understanding programming documentation, and participating in international research or academic discourse.

### 2. Frequency of English Use in Academic Settings

Nearly half of the students (48.3%) reported using English every day to study their course materials, with 41.4% using it several times a week. This frequency implies that English is deeply embedded in their academic routine, especially when engaging with textbooks, technical papers, and online tutorials, which are predominantly in English.

### 3. Reading as the Most Required Skill

When asked about the most needed English skill in academic contexts, 72.4% of students selected reading, significantly more than other skills like listening, writing, or speaking. This shows that students primarily use English to read articles, code documentation, and other written academic resources.

### 4. Perceptions of Grammar Relevance

The responses indicate that grammar remains a significant concern, with 58.6% choosing "important" and 31% "very important". While grammar may not be directly linked to coding, it is essential for writing clear documentation, reports, and proposals in academic and professional settings.

### 5. English in Writing and Coding Contexts

A majority of students (69%) identified coding as the primary writing activity where English is needed. Others mentioned writing articles, reports, and proposals. Additionally, 48.3% of students often use English for writing code or comments, and 20.7% do so always. This aligns with the fact that programming languages and professional coding environments primarily use English syntax and terminology.

### 6. Need for Reading Scientific Texts

A combined 93.1% of students consider reading scientific texts in English to be important or very important. This further reinforces the earlier finding that reading is the core skill, as many key academic sources in engineering fields are written in English.

### 7. Role of Speaking Skills in Informatics

Even though speaking was not ranked as the top skill, 55.2% of students rated it as very necessary and 34.5% as necessary. The main speaking contexts mentioned were public speaking (65.5%), followed by academic communication and presentations. This suggests a growing need for oral communication, especially for seminars, collaborations, and job-related activities.

### 8. Students' Comprehension of English Materials

Only 10.3% of students felt they understood English course materials very well, while most rated their understanding as well (44.8%) or moderate (37.9%). This highlights an opportunity for improved English instruction, particularly in developing students' reading and comprehension strategies.



## CONCLUSION

This study highlights the crucial role of English for informatics and computer engineering students at Hasanuddin University. A large majority (82.8%) recognize English as very important for their academic and professional success. Many students use English daily, especially for reading technical materials and writing code, with reading (72.4%), writing (69%), and grammar (58.6%) identified as key skills. Speaking skills, particularly for presentations and communication, are also valued. These findings underscore the need for an ESP curriculum that balances linguistic accuracy with practical application. By integrating real-world tasks and interactive learning, educators can better support students in developing both competence and confidence in using English for their field.

## ACKNOWLEDGMENT

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Your input not only enriched the data but also provided meaningful insights into the real English language needs of students in the field of informatics and computer engineering. The researcher is truly grateful for the time and effort you have dedicated to supporting this academic work.

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