
RESEARCH ARTICLE

Informing the Development of an English for IT Program: A Study on Student Perceptions and Language Skill Usage

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ABSTRACT

English proficiency is crucial for Information Technology (IT) students as it plays a vital role in their academic and professional success. This study aims to analyze IT students' perceptions of their English language skills, focusing on their self-assessed mastery levels, frequency of use, and perceived importance of listening, speaking, reading, and writing skills. The findings are intended to inform the development of an English for Specific Purposes (ESP) curriculum tailored to the linguistic demands of the IT field. A quantitative research design was employed, utilizing a survey method to collect data from IT students at Universitas Muhammadiyah Parepare. The data were gathered through a structured questionnaire distributed via Google Forms, encompassing Likert-scale items to measure students' perceptions of their English proficiency. Descriptive statistical analysis was conducted to examine the frequency of language skill usage, self-assessed mastery levels, and the perceived importance of each skill in academic and professional contexts. The results reveal that IT students frequently use their listening and reading skills for engaging with multimedia content and academic materials, whereas speaking and writing skills are primarily used in informal settings such as daily conversations and social media. However, students report lower confidence in performing formal communication tasks, such as delivering presentations and writing business correspondence. Despite recognizing the importance of all four language skills, students perceive listening and reading as more critical for their academic performance, while speaking and writing are viewed as essential for career advancement. These findings highlight the need for an ESP curriculum that bridges the gap between academic preparation and professional language demands by integrating industry-relevant content and practice-oriented instructional strategies. The study concludes that enhancing IT students' English proficiency requires targeted interventions that emphasize professional communication skills and real-world applications. The findings provide valuable insights for curriculum developers and educators in designing effective ESP programs that align with the evolving needs of IT students. Future research should explore the integration of technology-enhanced learning approaches and industry collaborations to further refine ESP instruction.

KEYWORDS

English for Specific Purposes (ESP), IT students, language proficiency, curriculum development

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1. Introduction

English has become an indispensable global lingua franca, particularly in the fields of Information Technology (IT) and engineering education. Proficiency in English is critical for IT students and professionals, as it facilitates access to technical documentation, participation in international collaborations, and career advancement in a highly competitive global market (Prasetya, 2021)(Garcia & De La Cruz, 2024). IT professionals require a strong command of English for various purposes, such as report writing, global communication, and understanding programming languages (Zaquinaula et al., 2024). Moreover, the importance of English extends beyond technical competencies to include intercultural communication, which is essential for effective collaboration in

multinational teams (Khomysyak, 2024). To meet these demands, educational institutions are increasingly integrating IT-specific terminology into English for Specific Purposes (ESP) curricula, fostering an environment conducive to enhancing students' linguistic competence (Tursunova Umidakhon, 2024) (Aimen & Khadim, 2024). In countries such as India, English serves as both a *lingua franca* and a library language, emphasizing its dual role in academia and industry (Shukla, 2024).

The growing importance of English in professional contexts has led to an increasing demand for ESP programs tailored to the unique linguistic requirements of IT students (Ahmad & AlShumrani, 2023) (Herrera et al., 2022). ESP emphasizes learner-centered approaches that address the specific needs of students in professional domains (Abdumalikovna, 2024b) (Abdumalikovna, 2024a). Effective ESP instruction employs innovative pedagogical strategies such as simulation-based learning, blended learning approaches, and project-based tasks to enhance both linguistic proficiency and professional competencies (Harahan, 2023) (Tursunova Umidakhon, 2024). These methods provide contextualized, interactive learning experiences that bridge the gap between theoretical knowledge and practical application (Dou, 2024) (Shalash, 2024). A successful ESP curriculum relies on thorough needs analysis, authentic materials, and learner-centered methodologies to prepare students for the communicative demands they will encounter in their professional careers (Shalash, 2024).

However, despite the well-documented benefits of ESP for IT students, several challenges persist. Traditional pedagogical approaches often fail to address the specialized linguistic needs of IT students, necessitating the adoption of more targeted and dynamic instructional methods (Fălăuș, 2017). Previous studies emphasize the importance of aligning ESP curricula with IT-specific terminology and professional communication skills (Balaei & Ahour, 2018) (Khamdamova et al., 2024). Simulation-based learning has been identified as an effective approach to bridging the gap between theoretical instruction and practical application (Harahan, 2023). Nevertheless, challenges such as maintaining student engagement, adapting to the rapidly evolving IT lexicon, and designing appropriate teaching materials remain prevalent (Enesi et al., 2021). Consequently, ESP courses must prioritize the development of professional communicative competence by integrating real-world scenarios and balancing language proficiency with technical vocabulary acquisition (Fofanov et al., 2010).

Despite the increasing emphasis on ESP in IT education, there remains a significant gap in understanding IT students' self-perceptions of their English language skills. Previous research has primarily focused on general language proficiency and professional language needs (Ahmad & AlShumrani, 2023) (Herrera et al., 2022), overlooking students' perceptions of their mastery levels and the frequency of language skill usage in both academic and professional settings. Additionally, most studies have taken an instructor-centered approach, neglecting the role of self-assessment in identifying students' specific linguistic challenges and preferences. Another notable gap in the literature is the limited exploration of technology-enhanced ESP instruction that aligns with the evolving needs of IT students. This study aims to address these gaps by providing empirical data on students' self-assessed mastery levels across the four core language skills—listening, speaking, reading, and writing—while assessing their perceived importance and frequency of use in the IT domain.

The primary objective of this research is to analyze IT students' perceptions of their English language skills, focusing on their self-assessed mastery levels in listening, speaking, reading, and writing, as well as the frequency of usage across academic and professional settings. Furthermore, the study aims to evaluate students' perceptions of the importance of these language skills for their future careers in IT. By aligning these insights with actual usage patterns and perceived significance, the research seeks to inform the development of a specialized English for IT course that strategically addresses students' linguistic needs through innovative instructional approaches.

This study offers a novel contribution to the ESP field by integrating students' self-assessment data with curriculum development insights, providing a holistic understanding of their linguistic needs within the IT domain. Unlike previous research that has focused on general language proficiency, this study provides a detailed analysis of students' engagement with English across multiple contexts, highlighting the critical gaps in formal and professional communication skills. By incorporating insights from technology-enhanced learning and multimedia resources, the study introduces new perspectives on instructional strategies that can enhance student engagement and learning outcomes in ESP for IT programs.

This study is significant as it addresses a crucial need within the domain of ESP for IT students, where English proficiency is increasingly recognized as a key factor for academic success and professional growth. The findings will contribute to the design of an ESP curriculum that aligns with the industry's unique linguistic demands and integrates innovative pedagogical approaches to foster greater engagement and relevance in learning experiences. By providing empirical insights into students' self-perceived competencies and usage patterns, this study aims to bridge the gap between theoretical instruction and real-world applications, offering a valuable resource for educators, curriculum designers, and policymakers.

2. Literature Review

2.1 English for Specific Purposes (ESP)

English for Specific Purposes (ESP) emerged in the 1960s as a response to the growing demand for specialized English language instruction in professional and academic domains (González Ramírez, 2015) (Bošković & Šetka Čilić, 2022). Unlike general English, ESP focuses on tailoring language education to meet learners' specific needs within their fields (Shalash, 2024) (Nur et al., 2024). Key concepts in ESP include needs analysis, authenticity, and learner-centeredness (Shalash, 2024) (Orr, 2015a). The field has evolved through several phases, including register analysis, discourse analysis, and genre analysis (Lesiak-Bielawska & Chopin,

2015). Recent developments in ESP research include corpus linguistics and ethnography (Bošković & Šetka Čilić, 2022). ESP has grown significantly in the past 20 years, with an increase in specialists, programs, and publications (Orr, 2015b). As the field continues to develop, it is expected to adopt a wide-angled approach, examining discursive, generic, social, and organizational structures of specialized texts and discourses (Salmani-Nodoushan, 2020).

2.2 The Role of English in Information Technology

English proficiency is crucial in the IT sector, serving as a lingua franca for global communication, collaboration, and innovation (Garcia & De La Cruz, 2024; Prasetya, 2021). It is essential for programming, technical documentation, and international discourse (Zaquinaula et al., 2024). IT professionals and students require specialized English skills for project reports, global communication, and technical terminology (Khamdamova et al., 2024; Prasetya, 2021). English proficiency impacts project outcomes and career prospects in the IT industry (Garcia & De La Cruz, 2024) (Shukla, 2024). Information technology enhances English learning through multimedia resources, e-assessment, and independent learning opportunities (Bukit, 2024). Universities are adapting their curricula to meet the English language needs of IT professionals, focusing on communicative competence and specialized content (Symonenko, 2020). Overall, English proficiency is indispensable for IT professionals to excel in a dynamic, globally interconnected industry (Prasetya, 2021) (Shukla, 2024).

2.3 Student Perceptions and Self-Assessment in Language Learning

Research consistently shows that student perceptions and self-assessment play crucial roles in language learning, particularly in English for Specific Purposes (ESP) contexts. Students who are aware of their linguistic strengths and weaknesses are better equipped to set realistic goals and take ownership of their learning process (Alharbi, 2022; Darginaviciene, 2017). Self-assessment empowers students to critically evaluate their language proficiency, promoting a deeper understanding of their learning needs (Yan et al., 2023) (Burkšaitienė, 2020). In ESP for IT students, self-assessment helps align language instruction with field-specific requirements (Sumarni et al., 2018). Studies have found that self-assessment positively influences students' speaking skills, participation, and overall confidence in language use (Herrera et al., 2022; Léger, 2009). Moreover, self-assessment fosters autonomy, critical thinking, and self-efficacy, making learners more active and focused in their approach to language learning (Harris, 1997). These findings highlight the importance of incorporating self-assessment in language learning programs to enhance student engagement and learning outcomes.

2.4 Frequency and Importance of Language Skill Usage in IT

The importance of both technical and non-technical skills for IT professionals is widely recognized in the literature. Communication skills, particularly in English, are crucial for success in the IT industry (Medlin et al., 2001; Prasetya, 2021) (Garcia & De La Cruz, 2024). IT professionals need to be proficient in reading, writing, listening, and speaking for various tasks such as technical documentation, coding, report writing, team meetings, and client interactions (Muharemagić, 2022) (Tokarcikova et al., 2020). Soft skills, including teamwork and communication, are considered as important as technical skills by both students and industry professionals (Patacsil & S. Tablatin, 2017). The ability to work cooperatively with different business functions is also emphasized (Medlin et al., 2001). For digital business students, speaking skills are prioritized over writing skills, reflecting the need for real-time interactions in the digital business environment (Romadhon, 2024). These findings highlight the need for educational institutions to align their curricula with the practical demands of the IT industry.

2.5 Challenges in Teaching English to IT Students

Teaching English to IT students presents unique challenges due to the specialized nature of the field. Traditional methods often fail to address the specific linguistic needs of IT students, who require proficiency in technical vocabulary and domain-specific texts (Kugai & Vyshnevskaya, 2023). To overcome these challenges, educators must adopt innovative approaches, integrating real-world IT scenarios and tasks into language instruction (Ahmad & AlShumrani, 2023). Simulation-based learning has shown effectiveness in providing immersive experiences that mimic professional environments (Harahan, 2023). Cognitive approaches, including mnemonic techniques, have proven successful in vocabulary acquisition (Borshchovetska et al., 2024). The rapid pace of technological change necessitates frequent updates to curricula and teaching materials (Volobueva & Stepanova, 2018). Effective strategies include focusing on integrated language skills, vocabulary, and communicative grammar embedded in IT content (Ahmad & AlShumrani, 2023), as well as incorporating professional knowledge and communication skills (Alautdinova, 2023; Enesi et al., 2021; Khamdamova et al., 2024).

2.6 Pedagogical Approaches to ESP in IT

Recent research emphasizes the importance of innovative pedagogical approaches in teaching English for Specific Purposes (ESP) to Information Technology (IT) students. Blended learning, which combines face-to-face instruction with digital tools, has proven effective in creating flexible and interactive learning environments (Kirovska-Simjanoska, 2020). Task-based and project-based learning methods, focusing on real-world IT scenarios, enhance language acquisition and develop critical thinking skills (Ahmad & AlShumrani, 2023). Simulation-based learning provides immersive experiences that mimic professional environments, improving student engagement and practical application of language skills (Harahan, 2023). Integrating IT terminology into ESP courses is crucial for professional success in the digital landscape (Khamdamova et al., 2024). A combination of competence-based, action-oriented, and blended-learning approaches is recommended to achieve desired learning outcomes (Topuzov et al., 2020). These

strategies help bridge the gap between language learning and professional competence, preparing IT students for the linguistic challenges of their field (Tursunova Umidakhon, 2024) (Abdumalikovna, 2024b).

2.7 Implications for Curriculum Development

The research papers collectively emphasize the importance of aligning English for Specific Purposes (ESP) curricula with the needs of IT students and industry demands. Studies highlight speaking and reading as crucial skills for IT students' future careers (Ulla & Winitkun, 2017). Innovative pedagogical approaches, such as simulation-based learning and task-based instruction, are recommended to enhance student engagement and practical application of language skills (Ahmad & AlShumrani, 2023) (Harahan, 2023). The integration of Bloom's taxonomy in curriculum design is suggested to promote higher-order thinking skills (Doronina et al., 2024). Collaboration between academia and industry is emphasized to bridge the gap between classroom learning and workplace requirements (Fareen, 2018; Lo & Sanjaya, 2015). Researchers stress the importance of conducting needs analyses to inform curriculum development and ensure relevance to both student and industry needs (Fareen, 2018; Tursunova Umidakhon, 2024). These findings underscore the necessity of a responsive and flexible ESP curriculum for IT students.

3. Methodology

The research design for this study is quantitative, aimed at providing a comprehensive analysis of IT students' perceptions of their English language skills, the frequency with which these skills are utilized, and their opinions on the importance of these skills in their academic and professional lives. The study employs a cross-sectional survey method, allowing for the collection of data at a single point in time from the sample, thereby ensuring the generalizability of the findings. This design is chosen for its ability to capture a broad spectrum of student experiences and perceptions, making it suitable for informing curriculum development in English for IT programs

3.1 Respondents

The respondents of this study consist of undergraduate IT students enrolled in various courses at Universitas Muhammadiyah Parepare. The selection of respondents is based on purposive sampling, targeting those who have completed at least one semester of study, ensuring that they have sufficient exposure to both English language courses and IT-related content. The sample size is determined to ensure statistical power and representativeness, aiming to capture diverse perspectives from students with varying levels of English proficiency and experience in using English in academic and professional settings.

3.2 Instrument of the Research

The primary instrument used in this study is a structured questionnaire, specifically designed to elicit detailed responses regarding students' self-assessment of their English language skills, the frequency of skill usage, and their perceptions of the importance of these skills. The questionnaire includes a combination of Likert-scale items, multiple-choice questions, and open-ended responses, allowing for both quantitative and qualitative data collection. The instrument is developed based on established language assessment frameworks and validated through a pilot study to ensure reliability and validity.

3.3 Procedure of Collecting Data

Data collection is conducted using Google Forms, a flexible and efficient tool for administering the questionnaire electronically. The form is distributed to the selected respondents via email and course management platforms, ensuring accessibility and convenience. Prior to completing the questionnaire, respondents are provided with detailed instructions and an explanation of the study's purpose, along with assurances of confidentiality and anonymity.

3.4 Technique of Data Analysis

The data analysis technique used in this study is quantitative descriptive analysis, focusing on the frequency of use, mastery level, and perceived importance of English language skills among IT students. The data collected via Google Forms is first subjected to data cleaning to ensure accuracy and completeness. Descriptive statistics, including means and standard deviations, are calculated to summarize students' perceptions across the four language skills: listening, speaking, reading, and writing. For the frequency of usage and mastery level, the responses are analyzed to identify trends and patterns, with particular attention paid to the differences in frequency and mastery across various contexts, such as academic and professional settings. The mean scores provide an overview of the average frequency of usage and self-assessed mastery, while the standard deviation indicates the variability in students' responses.

The visual representation of data, bar charts, is used to facilitate the interpretation of results, as illustrated by the charts provided for listening and speaking skills. These visuals help to quickly convey the frequency of use and provide a clear comparison between different language skills.

4. Results and Discussion

4.1 Result

4.1.1 Students' perceptions about the level of frequency of use of English language skills

4.1.1.1 Frequency of Using Listening Skill

Listening skills play a critical role in the academic and professional development of IT students, as they are essential for understanding lectures, engaging with multimedia content, and participating in discussions within their field. The ability to effectively comprehend spoken English is particularly vital in the context of IT, where students must process complex technical information through various audio and video sources, such as online tutorials, lectures, and industry-related content. Figure 1 presents an analysis of the frequency with which IT students utilize different listening activities in English, providing insights into the contexts where these skills are most commonly applied and identifying areas where further development may be needed. By examining students' engagement with different listening tasks, this analysis aims to highlight strengths and potential challenges, ultimately informing instructional strategies to enhance listening proficiency in both academic and professional settings.

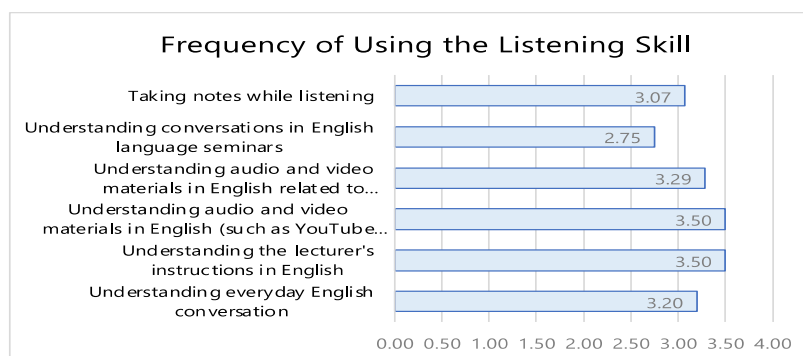


Figure 1. Frequency of Using Listening Skill

The data in Figure 1 reveals that students frequently engage with audio and video materials related to their field, such as YouTube and TV programs, as well as instructional content provided by their lecturers, both scoring the highest mean frequency of 3.50. This indicates a strong engagement with multimedia resources and academic instructions in English. Additionally, students report a moderate frequency in understanding everyday English conversations (3.20) and taking notes while listening (3.07), suggesting that these skills are regularly practiced, though slightly less emphasized compared to media and instructional content. Conversely, understanding conversations in English language seminars is the least frequently used skill, with a mean score of 2.75, indicating that formal academic discussions in English may be less common or more challenging for the students. These findings suggest that while students are regularly exposed to English in practical and media-related contexts, there may be gaps in exposure to formal academic discourse, which could inform the development of targeted listening skill interventions in the English for IT. The data suggests that IT students frequently engage with English through multimedia resources, such as videos and online platforms, and rely heavily on English for understanding instructional content from their lecturers. This indicates that these students are accustomed to using English in practical and academic contexts that are closely related to their field of study. However, the lower frequency of engagement in formal academic discussions, such as English language seminars, highlights a potential area where students may feel less confident or have fewer opportunities to practice. This disparity points to the need for more targeted support in developing students' ability to participate in formal academic discourse, which could be crucial for their future academic and professional success in the IT field.

4.1.1.2 Frequency of Using Speaking Skill

Speaking skills are fundamental for IT students as they facilitate effective communication in both academic and professional environments. Proficiency in speaking English allows students to engage in discussions, present ideas, and collaborate with peers and professionals in a globalized industry. In the context of IT education, students are required to articulate complex concepts clearly, participate in discussions, and interact with international stakeholders, making speaking skills an essential component of their language development. Figure 2 provides an overview of the frequency with which IT students utilize their speaking skills in different contexts, offering valuable insights into their confidence levels and the areas where they are most and least engaged. This analysis aims to identify strengths and potential gaps in students' speaking proficiency, which can inform targeted interventions to enhance their communicative competence in both informal and formal settings.

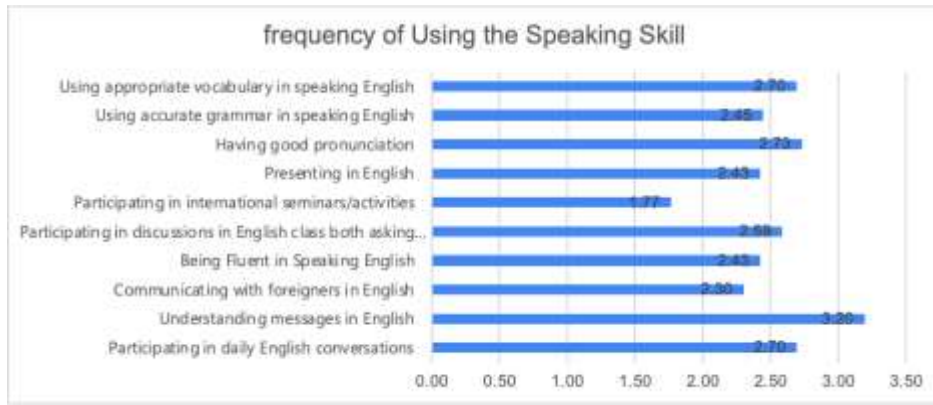


Figure 2 Frequency of Using the Speaking Skill

The data in Figure 2 reveals that students most frequently engage in understanding and responding to English messages, as well as participating in daily English conversations, suggesting a practical and routine use of spoken English in their daily lives. Additionally, students often use appropriate vocabulary and good pronunciation, indicating a solid foundational knowledge in speaking skills. However, there is less frequent engagement in more formal and challenging contexts, such as participating in international discussions or presenting in English, pointing to potential areas for further development. This pattern suggests that while students are confident in everyday communication, they may require additional support and opportunities to practice speaking in more formal or professional settings, which are critical for their academic and career advancement in the IT field.

4.1.1.3 Frequency of Using Reading Skill

Reading skills are essential for IT students as they play a crucial role in their academic and professional success. Strong reading proficiency enables students to comprehend technical documentation, academic texts, and digital content, which are integral to their learning and career development in the IT field. The ability to process and analyze written information allows students to stay updated with the latest technological advancements, understand programming documentation, and engage with research-based materials effectively. Figure 3 presents an analysis of the frequency with which IT students utilize different reading skills in English, shedding light on their engagement with various types of texts. This analysis provides insights into the students' strengths in practical and academic reading tasks while also highlighting areas that may require additional support to enhance their comprehension and critical analysis abilities in specialized contexts.

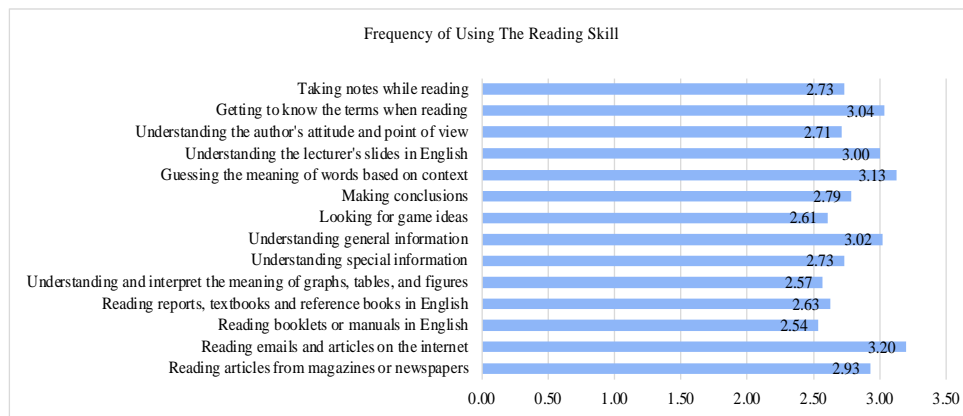


Figure 3 The Frequency of Using Reading Skill

The data in Figure reveals that students frequently engage in tasks requiring practical comprehension, such as understanding emails, articles on the internet, and interpreting the meaning of graphs, tables, and figures. Additionally, students often focus on understanding the lecturer's slides, which indicates their reliance on reading comprehension in academic settings. The relatively high frequency in guessing the meaning of words based on context and understanding the author's attitude and point of view suggests that students are actively developing strategies to interpret complex texts. However, tasks like making conclusions and understanding special information show slightly less frequent engagement, pointing to areas where students might benefit from additional practice or support. This distribution of reading activities highlights the students' strengths in everyday and academic reading tasks, while also indicating potential areas for further improvement to enhance their overall reading proficiency in specialized contexts relevant to their IT studies.

4.1.1.4 Frequency of Using Writing Skill

Writing skills are a critical component of language proficiency for IT students, as they are essential for academic success and professional communication. Proficiency in writing enables students to effectively convey ideas, document technical processes, and produce well-structured reports, which are fundamental in both their studies and future careers. In the IT field, the ability to write clearly and concisely is particularly important for tasks such as preparing documentation, writing reports, and communicating with international stakeholders. Figure 4 presents an analysis of the frequency with which IT students engage in different writing activities in English, offering insights into their writing habits and areas that require further development. This analysis aims to identify the students' strengths in everyday and informal writing tasks while also highlighting potential gaps in more formal and specialized writing, which could inform targeted instructional strategies to enhance their overall writing proficiency.

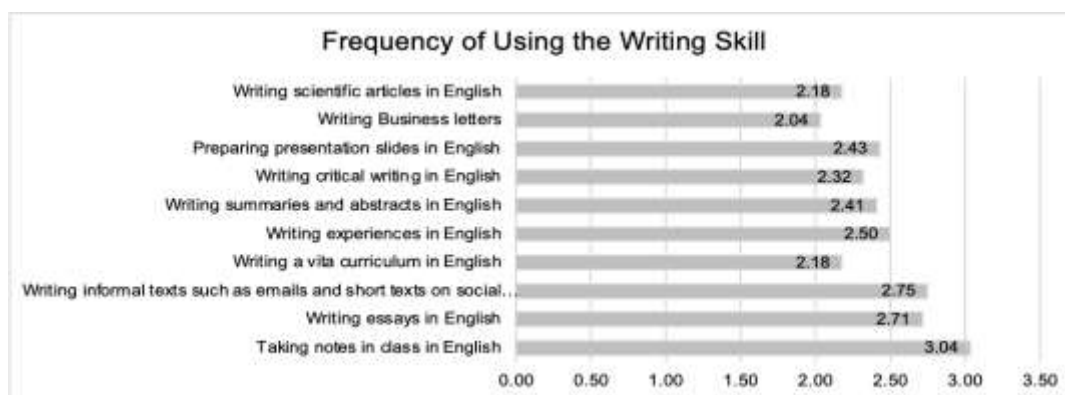


Figure 4. Frequency of Using Writing Skill

The data in Figure 4 shows that students most frequently take notes in class and write informal texts such as emails and short messages on social media. These activities are indicative of the everyday writing tasks that are essential in both academic and casual communication contexts. On the other hand, tasks that require more specialized writing skills, such as writing business letters, scientific articles, and curriculum vitae, are performed less frequently. The moderate engagement in tasks like writing essays, summaries, and presentation slides suggests that students are somewhat involved in academic and professional writing, but there may be a gap in their use of more advanced writing skills that are crucial for their professional development in the IT field. This distribution suggests a need for targeted instruction to enhance students' proficiency in more complex and formal writing tasks.

4.1.2 Students' Self Assessment on the mastery level of their English Skills

4.1.2.1 The Students' Self Assessment on the mastery level of their English Listening Skill

Assessing students' perceptions of their listening skill mastery provides valuable insights into their confidence and competence in handling different listening tasks. Figure 5 below presents students' self-assessment of their mastery levels in listening skills, highlighting their perceived strengths and areas that require further development. This evaluation is critical for designing targeted interventions and instructional strategies to enhance students' listening proficiency in both general and academic domains.

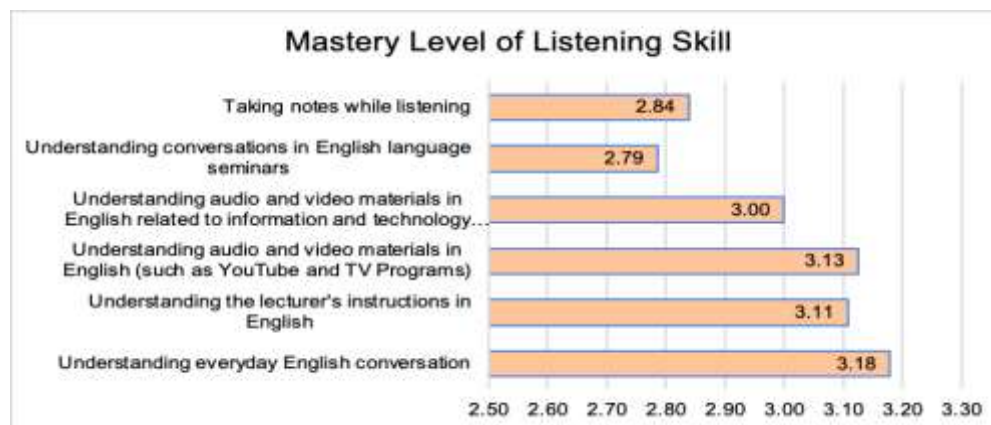


Figure 5. The Students Self Assessment on their Mastery Level of Listening Skill

The data in Figure 5 illustrates students' self-assessment of their mastery levels in various aspects of listening skills, showcasing variations in their perceived competencies across different contexts. Among the skills assessed, students reported the highest mastery in understanding everyday English conversations, indicating their comfort and familiarity with informal and practical language use. This is closely followed by their ability to comprehend audio and video materials in English, such as YouTube and TV programs, as well as understanding lecturers' instructions in English, suggesting adequate exposure to multimedia content and academic listening tasks. However, slightly lower levels of mastery are observed in understanding English audio and video materials specifically related to information and technology, indicating a potential challenge in dealing with domain-specific content. The lowest perceived competencies are noted in understanding conversations during English language seminars and taking notes while listening, highlighting difficulties in more complex and academically demanding listening tasks. These findings emphasize the need for targeted strategies to strengthen students' listening proficiency, particularly in academic and specialized contexts, to bridge the gap between informal and professional listening demands.

4.1.2.2 The Students' Self-Assessment on the mastery level of their English Speaking Skill

Assessing students' self-perceived mastery of speaking skills sheds light on their confidence and abilities in various speaking-related tasks, ranging from casual conversations to formal presentations. Understanding these perceptions is instrumental in identifying specific areas where learners excel or struggle, thereby guiding educators in designing tailored instructional approaches to improve speaking proficiency.



Figure 6. The Students Self-Assessment on their Mastery Level of Speaking Skill

The data in Figure 6 reveals students' self-assessed mastery levels of various speaking tasks. Among the evaluated aspects, "Understanding messages in English" received the highest rating, with a mean score of 3.14, indicating a stronger perceived ability to comprehend spoken English. "Participating in daily English conversations" followed closely at 2.89, highlighting confidence in informal communication. Conversely, tasks such as "Participating in international seminars/activities" and "Using accurate grammar in speaking English" scored the lowest, at 2.16 and 2.59 respectively, reflecting challenges in formal or grammatically precise contexts. Other aspects, including "Presenting in English" (2.66) and "Being fluent in speaking English" (2.64), indicate moderate proficiency. These findings underscore the need for targeted interventions, particularly in areas requiring formal and advanced speaking skills, to enhance overall communicative competence.

4.1.2.3 The Students' Self Assessment on the mastery level of their English Reading Skill

Reading skills are fundamental to academic success and professional growth, as they enable learners to comprehend, analyze, and interpret written information effectively. Analyzing students' self-assessed mastery levels of reading tasks provides valuable insights into their strengths and areas for improvement in handling different reading-related activities. This evaluation supports the development of targeted strategies to enhance students' reading comprehension and analytical abilities across various contexts.



Figure 7. The Students Self-Assessment on their Mastery Level of Reading Skill

The data in Figure 7 highlights students' perceptions of their reading skill mastery, revealing varying levels of confidence across different tasks. The highest-rated aspect is "Reading emails and articles on the internet," with a mean score of 3.14, reflecting strong confidence in digital reading tasks. This is closely followed by "Understanding the lecturer's slides in English" (3.04) and "Reading articles from magazines or newspapers" (3.00), indicating a good level of proficiency in academic and general reading. Conversely, the lowest-rated task is "Understanding and interpreting the meaning of graphs, tables, and figures," with a mean score of 2.71, suggesting challenges in interpreting visual data. Other tasks, such as "Getting to know the terms when reading" and "Understanding general information," scored moderately at 2.93, while "Making conclusions" and "Looking for game ideas" received similar ratings of 2.82 and 2.79, respectively. These findings suggest a need to strengthen students' abilities in critical and analytical reading tasks, particularly those involving complex or graphical content.

4.1.2.4 The Students' Self Assessment on the mastery level of their English Writing Skill

Writing is a critical skill for academic achievement and professional communication, particularly in contexts where English is used as a medium of instruction or business interaction. Understanding students' perceptions of their mastery of various writing tasks can inform the development of effective instructional strategies and tailored support. Evaluating these perceptions highlights their strengths and areas that require further attention, ultimately contributing to improved writing competency.



Figure 8. The Students Self-Assessment on their Mastery Level of Writing Skill

The data in Figure 8 illustrates students' self-assessed mastery levels of various writing skills required for academic, professional, and practical contexts. The scores are represented on a scale, with higher scores indicating greater perceived proficiency. Tasks are categorized into basic, practical, professional, and critical writing activities.

From the figure, it is evident that students rate their ability to take notes in class the highest (3.05), reflecting confidence in fundamental academic writing skills. Similarly, writing informal texts (2.95) and recounting experiences (2.91) demonstrate students' comfort with every day and reflective writing. In contrast, professional and academic writing tasks, such as writing business letters (2.48) and scientific articles (2.55), receive relatively low scores, indicating challenges in formal writing contexts. The task "Writing

critical writing in English" is marked at 0.00, suggesting a significant gap, potentially due to unfamiliarity or limited practice in critical analysis and writing. Overall, the figure highlights areas where students excel and areas requiring targeted instruction to develop advanced and professional writing competencies.

4.1.3 Students' Perception about the Importance the English Skills

4.1.3.1 The Students' Perception about the Importance the English Listening Skills

The data in Figure 9 depicts students' perceptions of the importance of various listening skills in English, with ratings based on their perceived relevance to academic and daily communication contexts. The ratings range from 3.55 to 3.84, indicating that all listed skills are deemed significantly important by the students.

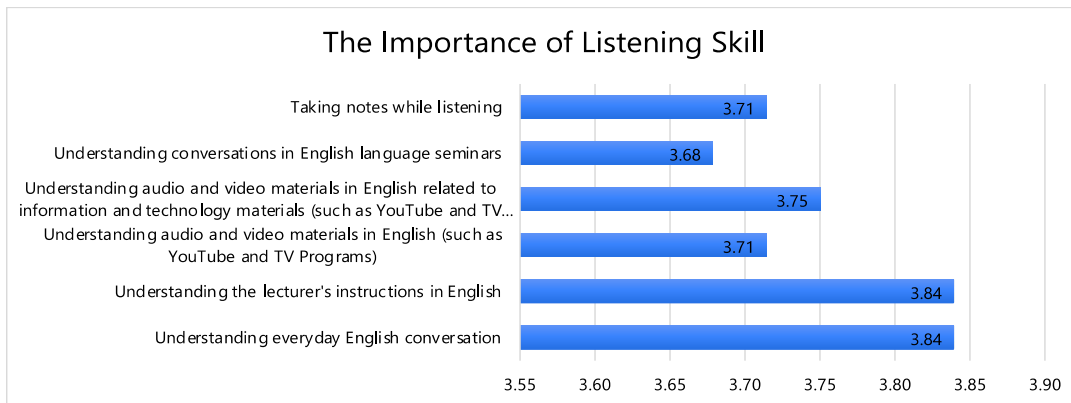


Figure 9. The Students' Perception about the Importance of The Listening Skill

The highest-rated skills are "Understanding the lecturer's instructions in English" and "Understanding everyday English conversation," both scoring 3.84. These results underscore the critical role of listening skills in both academic and practical interactions, reflecting students' recognition of the need to comprehend spoken English effectively in diverse contexts. Skills such as "Understanding audio and video materials in English" (3.75) and "Taking notes while listening" (3.71) are also considered highly important, especially in academic and professional settings that require active engagement with multimedia and lectures. The relatively lower score for "Understanding conversations in English language seminars" (3.68) suggests slightly less emphasis on formal seminar participation compared to other tasks.

Overall, the data highlights the students' awareness of listening as a foundational skill for academic success and real-world communication, emphasizing the need to prioritize these skills in English language teaching.

4.1.3.2 The Students' Perception about the Importance the English Speaking Skills

The data in Figure 10 presents students' perceptions of the importance of various speaking skills in English within both academic and professional contexts. The ratings, which range from 3.54 to 3.86, indicate that students consider all listed speaking skills to be of high importance, albeit with varying degrees of emphasis.

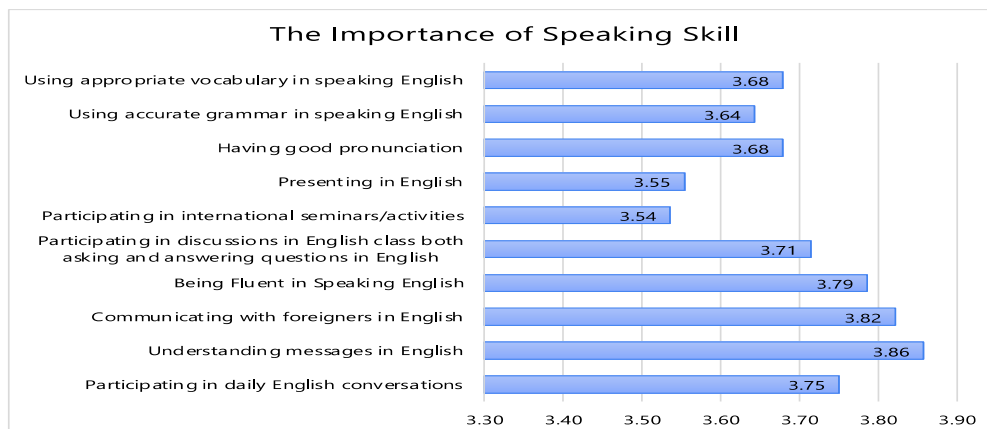


Figure 10. The Students' Perception about the Importance of The Speaking Skill

The highest-rated speaking skill is "Understanding messages in English," with a score of 3.86, highlighting students' recognition of the necessity of comprehending spoken communication effectively in their academic and professional lives. This is closely followed

by "Communicating with foreigners in English" (3.82) and "Being fluent in speaking English" (3.79), underscoring the perceived importance of fluency and international communication, which are critical for IT students operating in global environments. On the other hand, "Participating in international seminars/activities" and "Presenting in English" received the lowest ratings at 3.54 and 3.55, respectively, suggesting that while these skills are considered important, they may not be perceived as immediately relevant or frequently required by students compared to other speaking tasks.

Overall, the data highlights the students' strong awareness of the importance of effective spoken communication in diverse contexts, with particular emphasis on fluency, vocabulary usage, and practical communication in daily and international settings. These findings suggest the need for language instruction that prioritizes practical and interactive speaking opportunities to prepare students for real-world communication challenges.

4.1.3.3 The Students' Perception about the Importance the English Reading Skills

Figure 11 presents students' perceptions of the importance of various reading skills in English, reflecting their views on the significance of different reading-related tasks for academic and professional success. The ratings, which range from 3.66 to 3.82, suggest that all listed reading skills are considered important, with some aspects being prioritized more than others.

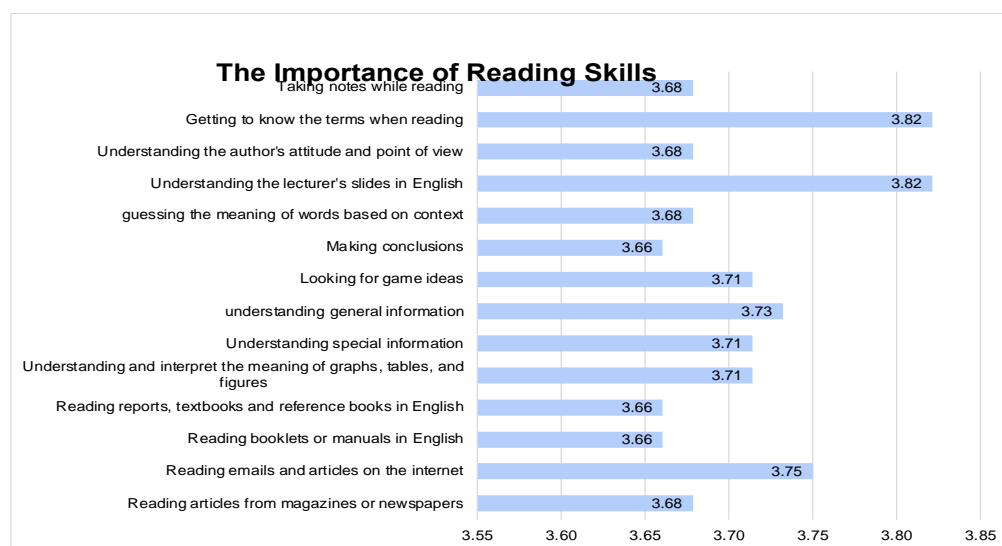


Figure 11. The Students' Perception about the Importance of The Reading Skill

The highest-rated skills include "Getting to know the terms when reading" and "Understanding the lecturer's slides in English," both scoring 3.82. This indicates that students recognize the importance of acquiring domain-specific vocabulary and comprehending lecture materials as essential for their academic progress. "Reading emails and articles on the internet" (3.75) also received a high rating, reflecting the practical relevance of digital literacy in their daily lives. Other skills, such as "Understanding special information" and "Looking for game ideas," scored slightly lower at 3.71, suggesting a recognition of their importance but possibly lower frequency of use in academic settings.

Overall, the data highlights that students perceive reading skills related to academic and professional development as highly important, particularly in areas that directly impact their studies and future careers. These findings suggest the need for targeted instructional approaches to strengthen students' ability to process academic texts, understand technical vocabulary, and interpret digital content effectively.

4.1.3.1 The Students' Perception about the Importance the English Writing Skills

The data in Figure 12 presents students' perceptions regarding the importance of various writing skills in English, highlighting their views on the significance of different writing tasks for academic and professional purposes. The ratings, which range from 3.52 to 3.68, suggest that all listed writing skills are considered important, with certain tasks being perceived as more critical than others.

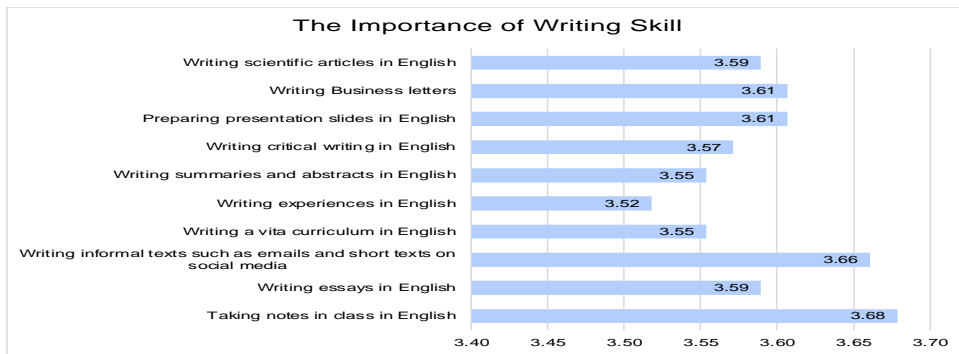


Figure 12. The Students' Perception about the Importance of The Writing Skill

The highest-rated skill is "Taking notes in class in English" (3.68), indicating that students recognize the importance of effective note-taking for academic success. "Writing informal texts such as emails and short texts on social media" (3.66) follows closely, reflecting the practical necessity of informal communication in their daily academic and social interactions. Writing professional documents, such as "Writing business letters" and "Preparing presentation slides in English," both received a rating of 3.61, signifying the perceived relevance of these skills for future career prospects. In contrast, "Writing experiences in English" received the lowest rating (3.52), suggesting that students may not view reflective or personal writing as a priority compared to other academic and professional tasks.

Overall, the data indicates that students place a high value on writing skills that directly impact their academic performance and future career development. The findings suggest the need for instructional strategies that emphasize both practical and professional writing skills to ensure that students are well-prepared for the communication demands of their academic and professional environments.

4.2 Discussion

4.2.1 Main Findings

Based on the analysis of students' perceptions regarding the frequency of use, self-assessed mastery, and perceived importance of English language skills (listening, speaking, reading, and writing), the following key findings have emerged.

[1] Listening Skills

Frequent Usage: Students frequently engage in listening activities through multimedia platforms (e.g., YouTube and TV programs) and academic content such as lecturers' instructions. However, formal contexts, such as English language seminars, are used less frequently, indicating a gap in exposure to formal academic listening.

Perceived Mastery: Students feel more confident in understanding everyday conversations and multimedia content but report lower mastery in note-taking and specialized IT-related listening materials.

Perceived Importance: Students recognize listening skills as highly important, especially in academic contexts, highlighting their reliance on listening to understand lectures and multimedia resources.

[2] Speaking Skills

Frequent Usage: Daily English conversations and understanding spoken messages are the most commonly used speaking tasks, whereas formal speaking engagements such as participating in international seminars and presentations occur less frequently.

Perceived Mastery: Students report moderate confidence in general speaking tasks but face challenges in formal communication, particularly in using accurate grammar and participating in professional discussions.

Perceived Importance: Speaking skills are considered crucial, particularly in professional communication, fluency, and vocabulary usage, although formal speaking engagements are perceived as less critical.

[3] Reading Skills

Frequent Usage: Students frequently engage with online content, academic slides, and general articles but report less frequent use of analytical reading tasks such as interpreting graphs, making conclusions, and understanding specialized information.

Perceived Mastery: Students feel confident in reading digital content and academic materials but acknowledge difficulties in critical reading and analytical tasks.

Perceived Importance: Reading is perceived as important, particularly in understanding academic materials and technical terms, with slightly less emphasis on analytical and specialized content interpretation.

[4] Writing Skills

Frequent Usage: Students frequently engage in informal writing tasks, such as taking notes and writing emails, while more specialized tasks such as writing business letters and scientific articles are performed less often.

Perceived Mastery: Students express confidence in informal writing but report lower proficiency in professional and academic writing, particularly in critical writing and business communication.

Perceived Importance: Writing skills are recognized as important, with emphasis on note-taking and informal writing, while formal writing tasks are viewed as less critical.

The findings suggest that IT students are more comfortable using English in informal and practical contexts, such as daily communication and online interactions, while their engagement and perceived competence in formal, academic, and professional language use remain relatively lower. This highlights the need for targeted interventions to strengthen students' proficiency in formal academic and professional language tasks, ensuring they are well-prepared for their future careers.

4.2.2 Impact

The findings of this study have significant implications for English for Specific Purposes (ESP) curriculum development in the field of Information Technology (IT). The results demonstrate that IT students primarily engage with English in informal and practical contexts, such as multimedia resources and everyday communication, while their exposure to formal academic and professional communication remains limited. This indicates that students may struggle with essential academic and workplace demands, such as participating in international discussions, writing formal reports, and understanding complex technical materials. These findings align with previous studies (e.g., Prasetya, 2021; Garcia & De La Cruz, 2024), which emphasize the critical role of English in global IT collaboration and technical documentation. Addressing these gaps is crucial to equipping students with the necessary skills to thrive in a highly competitive and globalized IT industry.

Furthermore, the study reinforces the importance of aligning English language instruction with students' professional needs. Research by Khamdamova et al. (2024) and Ahmad & AlShumrani (2023) has highlighted the effectiveness of ESP programs that incorporate specialized vocabulary and real-world applications. The current findings underscore the necessity for educators to integrate domain-specific content and practical language tasks into their teaching methodologies, ensuring that students develop both general and specialized communicative competence.

4.2.2 Practical Implications

The practical implications of this study are particularly relevant for educators, curriculum developers, and policymakers involved in ESP for IT programs. First, the findings suggest that curriculum designers should prioritize interactive, task-based approaches that replicate real-world IT communication scenarios. This includes project-based learning activities, collaborative group work, and the use of authentic IT-related materials, such as documentation, emails, and reports. Incorporating digital tools and platforms, such as simulation-based learning (Harahan, 2023), can enhance student engagement and provide hands-on experiences that mirror workplace requirements.

Additionally, educators should adopt a blended learning approach to provide students with both face-to-face and online opportunities to practice their language skills. This aligns with recommendations by Tursunova Umidakhon (2024), who advocates for a combination of traditional instruction with digital resources to foster independent learning and technical language proficiency. The integration of industry professionals and subject-matter experts into the teaching process can further bridge the gap between academia and industry expectations, ensuring that students are well-prepared for their professional careers.

4.2.3 Limitations of the Study

Despite its valuable contributions, this study has certain limitations that should be considered. Firstly, the study was conducted within a single institution, which may limit the generalizability of the findings to other educational contexts. Future research should consider expanding the sample to include students from diverse institutions and regions to obtain a more comprehensive understanding of IT students' English language needs.

Secondly, the study relied on self-reported data, which may be subject to bias or inaccuracies in students' perceptions of their language proficiency. While self-assessment is a widely used tool in ESP research (Yan et al., 2023; Burkšaitienė, 2020), it would be beneficial to complement it with objective assessments, such as language proficiency tests or instructor evaluations, to obtain a more balanced view of students' actual competencies.

Lastly, the study focused primarily on student perceptions without incorporating insights from industry professionals or English language instructors. Including multiple stakeholders in future research could provide a more holistic perspective on the English language demands faced by IT graduates in the workplace.

4.2.4 Recommendations for Future Research

Based on the findings and limitations of this study, several recommendations for future research are proposed. First, future studies should employ a longitudinal research design to track the development of students' English language skills over time and assess the effectiveness of specific instructional interventions. This approach would provide deeper insights into the long-term impact of ESP programs on students' language proficiency and career readiness.

Second, future research should explore the integration of technology-enhanced language learning tools, such as artificial intelligence (AI) and machine learning-based applications, to support IT students in developing their language skills. Given the increasing digitalization of the IT industry, investigating the effectiveness of such tools in improving specific language competencies would be highly beneficial.

Furthermore, future research should conduct a comprehensive needs analysis that includes feedback from IT professionals and employers to ensure that ESP curricula align with industry expectations. This would help in designing targeted interventions that focus on the most critical language skills required for workplace success.

Finally, qualitative research methods, such as interviews and focus group discussions, should be incorporated to gain deeper insights into the challenges students face in applying their English skills in real-life contexts. A mixed-methods approach combining quantitative and qualitative data would provide a more comprehensive understanding of students' needs and inform evidence-based curriculum development.

5. Conclusion

This study provides valuable insights into IT students' perceptions of their English language skills, focusing on their frequency of use, self-assessed mastery levels, and perceived importance across academic and professional contexts. The findings indicate that students frequently utilize English skills in informal and practical settings, such as engaging with multimedia content and participating in daily conversations, while formal and professional applications, such as academic writing and international communication, are less frequently practiced. This suggests a gap in students' exposure to specialized and professional language use, which requires targeted pedagogical interventions.

In terms of self-assessed mastery, students generally perceive themselves as competent in everyday communication tasks, particularly in listening and reading skills. However, they report lower confidence in speaking and writing tasks that involve formal and professional contexts, highlighting the need for skill development in structured academic and workplace communication. The study also reveals that students recognize the importance of all four language skills, with listening and reading considered essential for academic success, while speaking and writing are viewed as critical for professional advancement.

The findings suggest that an ESP curriculum tailored to IT students should incorporate real-world tasks, industry-relevant content, and technology-enhanced instructional methods to address the specific linguistic needs identified in this study. Emphasizing the development of professional communication competencies and providing opportunities for authentic language practice will better prepare students for the demands of the global IT industry.

Overall, this study contributes to the existing body of knowledge by offering empirical evidence that can inform the design and development of English for IT courses. Future research should explore the integration of adaptive learning technologies and industry collaborations to further enhance language instruction and support students' career readiness in an evolving technological landscape.

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