

LANGUAGE SKILLS IN ESP TEXTBOOKS AND STUDENTS' NEEDS: A COMPARATIVE ANALYSIS OF LANGUAGE SKILL PRIORITIES IN MEDICAL AND TECHNICAL FIELDS

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Abstract. *This study examines the perceptions of language skills in English for Specific Purposes (ESP) textbooks among students from medical and technical fields, based on a needs analysis. Focusing on data from evaluation scales and student feedback, the study highlights the perceived importance of reading, writing, listening, and speaking skills for academic and professional success. The findings reveal significant differences between the two fields, with medical students prioritizing speaking and writing for patient communication and documentation, while technical students emphasize reading and vocabulary knowledge for understanding manuals and research papers. Both groups identified listening as the most underrepresented skill in ESP textbooks, emphasizing a critical gap in addressing real-world demands. The paper provides recommendations for tailoring ESP materials to better meet the linguistic needs of these specialized disciplines, emphasizing the integration of field-specific tasks and multimodal resources. These insights contribute to the ongoing development of more effective ESP textbooks which better meet learners' needs.*

Key words: *English for specific purposes, needs analysis, ESP, tertiary education, university textbooks.*

1. INTRODUCTION

The role of ESP textbooks in equipping students with the necessary language skills for academic and professional or vocational success cannot be overstated. In specialized fields such as medicine and technology, where precise and direct communication is critical, the effectiveness of ESP materials hinges on their ability to address the unique linguistic demands of each discipline. For medical students, language proficiency is essential for tasks such as patient interactions, clinical documentation, and understanding medical literature along with pharmaceutical discourse. Similarly, technical students rely heavily on their ability to comprehend manuals, technical reports, and research articles, as well as to collaborate effectively in team-based industrial settings.

Despite the critical importance of language skills in these fields, ESP textbooks often fall short in addressing the specific needs of learners. Previous studies (Basturkmen, 2010; Hutchinson & Waters, 1987) have highlighted an overemphasis on vocabulary and

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reading comprehension at the expense of speaking, listening, and writing skills.¹ This imbalance raises concerns about the alignment of ESP materials with the real-world tasks that students encounter or are going to encounter in their professional environments and future jobs.

Needs analysis is a cornerstone of ESP curriculum development, providing a systematic approach to identifying the linguistic and communicative demands of specific disciplines. By focusing on the perceptions of students and their evaluations of language skills, this study aims to bridge the gap between textbook content and learner needs. Specifically, it examines how students in medical and technical fields perceive the importance of reading, writing, listening, and speaking skills, and how well these are represented in ESP textbooks. A crucial factor for the success of an ESP course is understanding the learners, their needs and the desired outcomes. This requires a comprehensive needs analysis as the foundational step, also referred to as "needs assessment." The primary purpose of needs analysis is to inform the design of an effective curriculum and learning materials by identifying why a specific group of learners requires language learning and what their objectives are.

The term "analysis of needs" was first introduced in language teaching by Michael West in 1926 (White, 2011). However, its importance was overlooked for several decades until it regained attention in the 1970s through the work of the Council of Europe. This team aimed to support adult learners in enhancing their English proficiency, specifically by adopting a communicative approach to language teaching (Johnson, 1982).

Since then, it has been recognized that achieving improved goals and outcomes in ESP instruction is impossible without a thorough needs analysis. This important step or precondition deserves attention and collaboration within the academic community, engaging not only policymakers but also educators and students. Once a solid foundation is established through needs analysis, discussions can then shift to evaluating coursebooks and teaching methods for ESP classes.

The theoretical framework for needs analysis in ESL was established decades ago and distinguishes between target needs (what learners require for academic or business contexts) and learning needs (what learners need to study to achieve their goals) (Hutchinson & Waters, 1987, p. 54). Many authors agree that needs analysis is essential for developing ESL materials and lessons (Igrutinović, 2012, p. 129) and should form the basis for evaluating ESL textbooks. It is a process that should ideally occur before starting a course, before selecting materials, and can also be conducted during and after the course (Belcher, 2006, p. 136). This centrality of needs analysis in ESL learning is widely accepted and emphasized by numerous authors (Hutchinson & Waters, 1987; Kočović Pajević & Josijević, 2022; Nunan, 1999; Yulia & Agustiani, 2019).

This paper presents a focused analysis of data from medical and technical students, shedding light on their unique linguistic priorities and the gaps in current ESP materials. The findings offer practical recommendations for textbook developers and educators to enhance the relevance and effectiveness of ESP textbooks.

¹ Although vocabulary or lexis is not part of language skills, its importance is vital for ESP and it cannot be separated from reading skill, hence it is also part of the analysis.

2. LITERATURE REVIEW AND PREVIOUS STUDIES

ESP textbooks serve as essential tools in preparing students for the linguistic challenges of their academic and professional pursuits. Unlike general English textbooks, ESP materials are tailored to specific fields, incorporating specialized vocabulary and contextualized tasks to meet the needs of learners in disciplines such as medicine, engineering, and natural sciences. According to Hutchinson and Waters (1987), the defining characteristic of ESP is its focus on the "why" and "what" of language learning, i.e. the specific purposes for which English is needed.

In medical fields, textbooks often emphasize technical terminology and reading comprehension, enabling students to interpret research articles, case studies, and clinical guidelines. However, these materials frequently neglect interactive skills such as speaking and listening, which are crucial for patient communication and teamwork in healthcare settings (Ferguson, 2013). Similarly, technical textbooks prioritize reading and vocabulary for understanding technical manuals and specifications but often underrepresent collaborative and communicative tasks (Chuying, 2024).

Needs analysis is a fundamental step in the design of ESP curricula, ensuring that instructional materials align with the specific linguistic and communicative requirements of learners. It involves identifying the target tasks that students need to perform in their academic or professional environments and mapping these tasks to relevant language skills. As noted by Basturkmen (Basturkmen, 2010), effective ESP materials should be rooted in a thorough understanding of learners' goals and the contexts in which they will use English, focusing on their concrete future tasks within their professions.

Several studies have employed needs analysis to evaluate the effectiveness of ESP textbooks. For instance, studies in the medical field have highlighted the importance of including role-plays and simulations to develop speaking and listening skills (Dudley-Evans & St. John, 1998). In technical disciplines, research has emphasized the need for textbooks to include multimodal resources, such as diagrams, videos, and interactive exercises, to facilitate the understanding of complex technical concepts (Hyland, 2006).

Language skills, reading, writing, listening, and speaking, form the core of any ESP curriculum (although it can be also said for General English curriculum). The relative importance of these skills varies across disciplines. For example, reading is often prioritized in technical fields due to the need to comprehend manuals and research papers, while medical fields place greater emphasis on speaking and writing for effective patient communication. Despite these variations, listening is consistently identified as an underrepresented skill in ESP textbooks, limiting students' ability to engage in authentic professional interactions (Chen, 2011).

Studies have also noted significant gaps in the integration of language skills within ESP materials. Textbooks often compartmentalize skills, providing separate exercises for reading, writing, listening, and speaking, rather than integrating them into cohesive, task-based activities. This type of approach fails to reflect the interconnected nature of language use in professional settings, where multiple skills are often required simultaneously (Hyland, 2006).

3. METHODOLOGY: PARTICIPANTS, INSTRUMENTS AND DATA ANALYSIS

This study employs a quantitative, cross-sectional research design to investigate the perceived importance of language skills among students enrolled in English for Specific Purposes (ESP) courses in the medical (M) and technical (T) fields. A comparative approach was used to identify differences in students' perceptions of reading, writing, listening, and speaking skills in relation to their field of study.

The study relies on survey-based data collection, by using a structured evaluation scale to quantify students' assessments of language skills. The use of a 7-point Likert scale provides a nuanced measurement of perceived importance, allowing for a more detailed comparison between the two disciplines. The values on the scale were from 1: absolutely not important, to 7: absolutely important.

By focusing on tertiary-level students who actively use ESP textbooks, this research contributes to a better understanding of discipline-specific language needs, which is critical for evaluating and improving ESP materials in higher education.

When it comes to participants, the study includes 122 students from two academic disciplines: 60 medical students and 62 technical students, all of whom were enrolled in ESP courses at the time of data collection. The participants were drawn from tertiary-level institutions where ESP textbooks are integrated into the curriculum. The study was conducted at the University of Kragujevac (Faculty of Medical Sciences in Kragujevac and Faculty of Technical Sciences in Čačak). A purposive sampling strategy was employed to ensure that only students actively engaged in ESP courses participated in the study. The inclusion criteria required that students should be enrolled in an ESP course tailored to their specific field (medical or technical) and be exposed to ESP textbooks and instructional materials for at least one semester. The students provided informed consent to participate in the study. Respondents were assured of anonymity and confidentiality, and they had the right to withdraw from the study at any point. To minimize response bias, students were informed that there were no right or wrong answers and were encouraged to answer honestly based on their individual experiences with ESP materials.

The instruments included an evaluation scale as a primary instrument. It was actually a structured evaluation scale designed to measure students' perceived importance of four key language skills in their ESP courses: reading, writing, listening, and speaking.

Each skill was assessed by using a 7-point Likert scale, which allows for a fine-grained analysis of students' preferences and enables statistical comparison between medical and technical fields.

To ensure the validity of the instrument, the evaluation scale was adapted from a previous study on ESP textbook evaluation and language skill importance. Expert feedback from ESP instructors and applied linguists was obtained to refine the scale and confirm its suitability for both medical and technical contexts. A pilot study was conducted with a small sample of 15 students (not included in the final dataset) to test the reliability of the scale. Cronbach's alpha was calculated for internal consistency, with a reliability coefficient of $\alpha = 0.87$, indicating high reliability.

Semi-structured interview was conducted with 15 students where they were free to elaborate on their answers and give additional feedback on their textbooks. The only question that was structured was: "What are the advantages and what are the disadvantages of your textbook in terms of language skills" and additional questions were asked depending on their answers.

Data collection was conducted over a period of three weeks during regularly scheduled ESP classes to ensure maximum participation. Participants completed the evaluation scale either in person (paper-based) or via an online survey platform (for students who were not attending classes at a time, due to illness or some other factor, but who were enrolled in the classes).

The collected data were analyzed by using SPSS (Statistical Package for the Social Sciences) version 26. The first stage of analysis involved computing descriptive statistics, including: mean (M): to determine the average importance rating for each language skill, standard deviation (SD): to assess the variability in students' responses. Additionally, inferential statistics was conducted to determine whether there were significant differences between the medical (M) and technical (T) groups, more precisely, the following statistical tests were conducted: independent samples t-test: to compare mean ratings of language skills between the two groups and effect size (Cohen's *d*) to measure the magnitude of differences.

Findings from the statistical analyses were interpreted in relation to previous research on ESP language skills, with a focus on how discipline-specific needs influence students' perceptions of language skill importance. The results were then used to generate recommendations for improving ESP textbook design and instruction.

4. RESULTS

4.1. Overall Importance of Language Skills

When it comes to overall perception of students and perceived needs regarding language skills, it can be observed that reading is equally critical for both fields, as it supports understanding field-specific texts like medical journals or technical manuals (Table 1).

Writing is somewhat less prioritized in both fields but is still necessary for tasks like reporting (medical documentation or technical reporting) (Table 1).

Listening is very significant for both fields due to the reliance on following instructions, lectures, or conversations in professional contexts (Table 1).

Speaking is essential, with medical students focusing on patient communication and technical students emphasizing collaborative and field-relevant discussions (Table 1).

To be more detailed, we are going to focus on specific aspects of each skill and each group of students in the following part.

The descriptive statistics revealed that reading and vocabulary are consistently rated as the most important skills across both fields, while listening received comparatively lower scores. These findings align with previous studies indicating that ESP textbooks often prioritize passive language skills, such as reading and vocabulary acquisition, at the expense of interactive and productive skills (Basturkmen, 2010; Hyland, 2006).

Reading received an overall mean score of 5.60, with medical students rating it slightly higher than technical students. This reflects the importance of reading comprehension for understanding medical research articles, clinical reports, and case studies in the medical field, as well as for interpreting technical manuals, engineering blueprints, and academic papers in the technical domain.

Vocabulary was rated similarly high, with a mean of 5.61. The results suggest that both groups recognize the importance of technical terminology in their professional

communication. However, students also noted a lack of explicit vocabulary development activities, such as contextualized exercises or field-specific glossaries, which could enhance their lexical acquisition.

In contrast, listening and speaking skills were perceived as the most underrepresented in ESP textbooks, although they were rated as important.

Listening had the lowest overall mean score (4.85), with students from both fields expressing dissatisfaction with the lack of authentic listening materials. Medical students emphasized the absence of realistic dialogues, such as patient-doctor interactions, while technical students noted the need for listening activities related to workplace discussions, such as team meetings or professional presentations.

Speaking scored slightly higher (5.01), but medical students in particular highlighted the need for more role-playing activities that simulate clinical consultations or realistic discussions with patients or their colleagues, while technical students pointed to the necessity of developing oral presentation and teamwork communication skills.

Writing skills were rated moderately, with an overall mean of 5.35. Medical students valued writing for its role in clinical documentation and research reporting, whereas technical students found writing important for drafting technical reports and project documentation.

Table 1 Summary of students' needs analysis results

Language Skill	Medical Students (Mean)	Technical Students (Mean)	Overall Mean
Reading	5.45	5.75	5.60
Vocabulary	5.52	5.70	5.61
Writing	5.38	5.33	5.35
Speaking	5.35	4.68	5.01
Listening	5.10	4.60	4.85

4.2. Comparison Between Medical and Technical Students

The independent-samples t-tests revealed statistically significant differences between the two groups in their evaluations of language skills. When it comes to speaking and listening, medical students rated speaking ($M = 5.35$, $SD = 1.21$) and listening ($M = 5.10$, $SD = 1.19$) significantly higher than technical students (Speaking: $M = 4.68$, $SD = 1.15$; Listening: $M = 4.60$, $SD = 1.25$), $p < .05$. This suggests that medical students perceive these skills as more essential for their professional communication, particularly in patient interactions and interdisciplinary teamwork.

As for reading and vocabulary, technical students placed a higher emphasis on reading ($M = 5.75$, $SD = 1.09$) and vocabulary ($M = 5.70$, $SD = 1.05$) compared to medical students (Reading: $M = 5.45$, $SD = 1.14$; Vocabulary: $M = 5.52$, $SD = 1.07$), $p < .05$. This aligns with the nature of their field, where the ability to interpret technical documents, research papers, and engineering specifications is crucial.

Writing was evaluated similarly by the students from both group and no significant difference was found between the two groups in their ratings of writing skills ($p > .05$), suggesting that both recognize its importance for professional documentation, albeit with different applications.

4.3. Gaps in ESP textbooks

The analysis highlights several key gaps in ESP textbooks for both disciplines.

Limited representation of listening skills was the first thing that students from both groups revealed during their interview. The findings from previous studies confirm that listening is the most neglected skill in ESP materials (Lee, 2024; Zhang, 2020). Medical students noted the absence of structured listening exercises for patient interactions, while technical students reported a lack of exposure to industry-specific spoken discourse.

Underrepresentation of speaking tasks is another drawback of ESP textbooks that students noted. Despite its practical importance, speaking skills were not adequately covered in textbooks. The lack of role-playing exercises, oral presentation activities, and collaborative problem-solving tasks limits students' opportunities to practice spoken communication and prepare for realistic situations in their future jobs.

Imbalance in skill integration was also evident and emphasized. The textbooks tend to separate language skills and exercises and tasks related to them, rather than integrate them in realistic, task-based scenarios. This fragmented approach does not reflect the interconnected nature of professional communication in either field.

Insufficient contextualization of vocabulary can be observed, as well. While students rated vocabulary highly as very important for them, they also indicated that its presentation in textbooks lacks real-world applicability. More contextualized and interactive vocabulary exercises would better align with students' professional needs.

5. DISCUSSION

The findings reveal significant gaps and opportunities in the design of ESP textbooks for medical and technical students. While the textbooks effectively address the need for specialized vocabulary and reading skills, their limited focus on speaking, listening, and writing skills presents a challenge to learners' overall linguistic development. This imbalance reflects broader trends in ESP material design, as noted by Basturkmen (Basturkmen, 2010), where vocabulary and reading often overshadow the development of interactive and productive skills. Such an emphasis, while beneficial for passive language acquisition, can limit students' ability to apply their knowledge in real-world professional settings, which require a balance of all four language skills.

5.1. Medical Field: The need for authentic and interactive learning

Medical students emphasized the necessity of realistic, scenario-based materials to simulate patient consultations and discussions. These findings support earlier research highlighting the importance of communicative competence in medical English (Orr, 2019; Ferguson, 2013). Effective communication between healthcare professionals and patients relies heavily on speaking and listening skills, yet the analysis indicates a lack of structured opportunities for students to develop these competencies within their textbooks. The absence of audio materials, role-playing exercises, and spoken interaction in ESP textbooks for medical students suggests a gap between curriculum content and real-world communicative demands.

Moreover, clinical documentation is a crucial aspect of medical practice, requiring precision in both writing and understanding medical terminology. However, the findings

suggest that writing skills receive less emphasis compared to reading. This discrepancy may result in difficulties when students transition from academic settings to professional environments, where accurate medical documentation and written communication with colleagues are essential. The lack of structured writing tasks in medical ESP textbooks suggests an area for further development, potentially through the integration of case study analyses and guided writing exercises.

These results align with Ferguson's (Ferguson, 2013) argument that ESP textbooks for medical fields should prioritize real-world applications to bridge the gap between classroom learning and professional practice. Future textbook development could benefit from incorporating medical simulations, patient interviews, and interdisciplinary teamwork exercises to mirror authentic healthcare communication scenarios.

5.2. Technical Field: The role of multimodal resources and applied communication

Similarly, technical students highlighted the importance of integrating multimodal resources, such as diagrams and flowcharts, to facilitate the comprehension of technical concepts and simulate potential future tasks in their professional surroundings. Their focus on reading and vocabulary highlights the critical role of these skills in understanding technical documentation and collaborating on projects. This finding is consistent with previous studies (Hutchinson & Waters, 1987; Woodrow, 2018) that emphasize the necessity of precise terminology and comprehension of written instructions in technical fields.

However, the absence of collaborative speaking tasks and contextualized writing exercises suggests the need for textbooks to incorporate more interactive and task-based activities. The technical field requires professionals to engage in team-based problem-solving, workplace negotiations, and technical report writing, yet the current textbooks appear to neglect these interactive and communicative aspects. The lack of emphasis on speaking and writing within ESP textbooks for technical students may hinder their ability to effectively communicate complex information in professional environments.

This gap is particularly significant given the increasing globalization of technical industries, where engineers and IT professionals frequently collaborate across linguistic and cultural boundaries. Effective technical communication involves not only understanding complex documentation but also articulating ideas clearly in meetings, presentations, and written reports. The findings suggest that ESP textbooks for technical fields should integrate more communicative tasks, such as structured debates, peer-reviewed technical writing assignments, and collaborative problem-solving activities. These additions would better prepare students for workplace realities and foster the development of practical communication skills.

5.3. Implications for ESP Textbook Development

The findings underscore the need for ESP textbook design to move beyond traditional vocabulary and reading focused approaches to a more balanced and skills-integrated model. While specialized vocabulary is undeniably crucial for professional communication, textbooks must also address the real-world demands of spoken interaction, listening comprehension, and professional writing. The emphasis on reading and terminology at the expense of speaking and writing reflects a traditional approach that does not fully align with modern workplace expectations, nor is perceived as important by students themselves.

One potential solution is to incorporate blended learning approaches that combine textbook materials with digital and interactive components. Online platforms, video-based learning, and virtual simulations could complement textbook content, providing students with opportunities to practice spoken and written communication in a structured yet flexible manner. Ted talks, for example, have been praised for multiple benefits in ESP teaching, with proper instructional design (Rudneva, 2023). Research suggests that digital resources can enhance engagement and skill acquisition in ESP contexts (Lazebna & Prykhodko, 2021), making them a valuable addition to textbook-based instruction.

Additionally, the inclusion of authentic professional discourse, such as workplace emails, recorded meetings, and expert interviews, could offer students a more immersive and applicable learning experience. Task-based learning (TBL) and project-based learning (PBL) frameworks, which have been successfully implemented in other ESP contexts (Ellis, 2006; Long, 2005), could further enhance the effectiveness of ESP textbooks by emphasizing practical, goal-oriented activities.

6. CONCLUSION

This study highlights the critical role of ESP textbooks in preparing students for the linguistic demands of their academic and professional pursuits. While current materials provide a solid foundation in vocabulary and reading skills, they often fall short in addressing the equally important areas of speaking, listening, and writing. The findings reveal significant differences in the linguistic priorities of medical and technical students, underscoring the need for tailored approaches to ESP material design. Given that language needs vary by discipline, it is essential that ESP textbooks reflect the real-world communication challenges students will face in their respective professions.

For medical students, the integration of scenario-based exercises, such as role-plays, simulated patient interactions, and case studies, can enhance their ability to communicate effectively in healthcare settings. The lack of structured speaking and listening tasks in existing materials hinders the development of these essential skills, which are critical for doctor-patient communication, interdisciplinary collaboration, and accurate medical documentation. Addressing this gap through the inclusion of authentic conversations, medical dialogues, and problem-based learning activities can help bridge the disconnect between academic instruction and professional expectations.

Technical students, on the other hand, would benefit from textbooks that include multimodal resources, such as flowcharts, infographics, and interactive problem-solving tasks, to support their analytical and communicative competencies. The emphasis on reading comprehension and technical vocabulary in existing materials reflects the textual nature of many technical professions, yet the exclusion of collaborative speaking and writing tasks limits students' ability to participate in teamwork, present findings, and write structured technical reports. Encouraging peer collaboration and integrating discipline-specific communicative tasks, such as group discussions, workplace simulations, and structured report writing, would contribute to a more holistic language learning experience.

Across both fields, the inclusion of authentic audio materials is essential to address the current gaps in listening skills. Many professional interactions, whether in hospitals, laboratories, or engineering firms, require active engagement with spoken language, including understanding instructions, responding to client inquiries, and participating in

technical discussions. The absence of structured listening activities in ESP textbooks presents a major obstacle to developing this skill. Future materials should incorporate real-world audio resources, such as recorded professional conversations, podcasts, and industry-specific dialogues, to expose students to the types of discourse they will encounter in their careers. In any case, it is crucial for students to acquire knowledge and skills to serve them professionally, but also personally (Rebenko, 2020), since ESP is oriented towards building competencies that go beyond the linguistic aspect.

To meet these needs, textbook developers should adopt a needs-driven approach, incorporating feedback from students, educators, and industry professionals to create materials that are both relevant and practical. Rather than relying on generic content, ESP textbooks should be designed with a learner-centered focus, ensuring that they align with students' career aspirations and professional requirements.

Future research should explore the long-term impact of tailored ESP materials on students' language proficiency and professional success. It would also be useful to repeat the research with bigger sample and with including students from different scientific fields, since this is one of the main limitations of the study. Additionally, ESP teachers' perspective can contribute a lot to these issues, so future research could add them and expand the sample in that way, as well. By addressing these areas, teachers and textbook authors can ensure that ESP materials continue to evolve in response to the changing needs of learners and industries and areas that would work in, equipping them with the linguistic competencies necessary for success in their fields and future jobs and specific purposes of their tasks.

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