ESP NEEDS ANALYSIS OF PHARMACEUTICAL ENGLISH TERMINOLOGY LEARNING IN VOCATIONAL HIGH SCHOOL

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ABSTRACT

This study aimed to analyze the English vocabulary learning needs of the tenth-grade pharmacy students in a vocational high school setting, with particular focus on pharmaceutical terminology. Using a descriptive qualitative design, data were gathered through questionnaires, interviews with three English teachers, and analysis of the teaching module used at SMK Muhammadiyah Karanganyar, Pekalongan Regency. The findings showed that students faced major difficulties in pronunciation, lack of exposure to pharmaceutical terms, and limited integration of relevant vocabulary in classroom materials. Most of the English lessons still focused on general vocabulary, while students expressed strong interest in learning pharmacy-related content. Teachers implemented a variety of strategies such as digital media, project-based learning, and games; however, these approaches were still not aligned with specialized vocabulary needs. The teaching module also lacked pharmacy-related materials, emphasizing general procedural texts. These results underlined a mismatch between English instruction and the professional demands of pharmacy students. The study recommended the development of ESP-based teaching modules specifically tailored to the pharmaceutical field, along with teacher training to support more effective and relevant English learning for vocational pharmacy students.
Key Words : ESP, Needs Analysis, Pharmaceutical Terminology

ABSTRAK

Penelitian ini bertujuan untuk menganalisa kebutuhan pembelajaran kosakata Bahasa Inggris pada siswa kelas X jurusan Farmasi di sekolah menengah kejuruan, khususnya dalam penguasaan terminologi kefarmasian. Penelitian ini menggunakan metode deskriptif kualitatif dengan teknik pengumpulan data melalui angket, wawancara dengan tiga guru Bahasa Inggris, serta analisis modul ajar yang digunakan di SMK Muhammadiyah Karanganyar, Kabupaten Pekalongan. Hasil penelitian menunjukkan bahwa siswa mengalami kesulitan utama dalam pengucapan, kurangnya paparan terhadap istilah farmasi, serta minimnya integrasi kosakata relevan dalam materi pembelajaran. Pembelajaran Bahasa Inggris masih berfokus pada kosakata umum, padahal siswa menunjukkan minat tinggi terhadap materi yang berkaitan dengan farmasi. Para guru telah menerapkan berbagai strategi seperti penggunaan media digital, pembelajaran berbasis proyek, dan permainan, namun belum sepenuhnya mendukung kebutuhan kosakata khusus. Modul ajar juga belum memasukkan materi yang berkaitan dengan dunia kefarmasian, dan hanya menyajikan teks prosedur umum. Hasil ini menunjukkan ketidaksesuaian antara pengajaran Bahasa Inggris dan tuntutan profesional siswa jurusan Farmasi. Oleh karena itu, penelitian ini merekomendasikan pengembangan modul ajar berbasis ESP yang disesuaikan dengan bidang kefarmasian, serta pelatihan guru untuk mendukung pembelajaran Bahasa Inggris yang lebih efektif dan relevan di SMK Farmasi.
Kata Kunci: ESP, Analisis Kebutuhan, Terminologi Kefarmasian

INTRODUCTION

In today's globalized world, English has become the language of professional communication across industry sectors (Dewi et al., 2024). In Indonesia, English proficiency plays an increasingly critical role in shaping the career prospects of graduates, as it is often linked to better job opportunities and professional growth (Hidayat, 2024). The global need for pharmacists is steadily rising, yet several countries still encounter challenges in managing workforce distribution and planning to ensure that pharmacists are adequately trained and positioned to meet healthcare demands. This is particularly evident in Indonesia, where workforce planning gaps exist, impacting the effectiveness of pharmacy services (Meilianti et al., 2022). As pharmacy is a specialized vocational field requiring knowledge of drug preparation, effects, and administration, mastery of pharmaceutical terminology in English is crucial to support students' future professional tasks.

Despite the recognized importance of English in this sector, vocational high school (SMK) graduates in Indonesia continue to struggle with English proficiency. This problem contributes to unemployment among graduates, which largely comes from the mismatch between what is taught in school and what industry needs (Ariansyah et al., 2024). Vocational pharmacy students, in particular, recognize the relevance of English but are still underserved by a curriculum that still emphasizes general English over their major specific English (Tenney et al., 2020). According to Hutchinson and Waters (1987, p. 19) ESP is a learner-centered approach to language learning designed based the specific needs of learners, regardless of the language or teaching methodology used. While Dudley-Evans and St John (1998, p. 14) ESP teachers also need to have a great deal of flexibility, be willing to listen to learners.

In reality, implementation in vocational schools remains limited due to resource shortages, lack of trained teachers, and inadequate materials (Suharno et al., 2020). This challenge is further underscored by Richards (2001, p. 99), who highlights that curriculum success heavily depends on teacher capacity and institutional support. The urgency of addressing this issue was confirmed through an interview conducted in February 2025 with an English teacher at SMK Muhammadiyah Karanganyar, Pekalongan Regency, Central Java. The teacher stated that English instruction within the pharmacy major was not yet prioritized, with low student interest and minimal integration of pharmaceutical terminology in classroom practice. Most learners demonstrated passive engagement and struggled to see the relevance of English to their vocational studies. This mismatch exemplifies the critical gap between language instruction and the practical demands of the pharmaceutical industry, as Nation (2001, p. 189) emphasizes that “specialised vocabulary should be treated like high frequency vocabulary. That is, it should be taught and studied in a variety of complementary ways.” In vocational settings such as pharmacy, where specialized terms are often both frequent and discipline-specific, learners should be guided to recognize the connection between general and technical meanings to enhance retention and application.

While previous studies have explored ESP needs in various vocational fields. On vocational high school (SMK) level, Srinawati (2019) stated pharmacy students struggling with medical vocabulary and pronunciation, highlighting a need for ESP integration. At level Diploma, Syakur et al. (2020) stated that vocabulary and speaking were top priorities for ESP courses. In higher vocational institutions, Cahyo and Abbas (2023) identified challenges in English for Specific Purposes (ESP) learning for pharmacy students, specifically noting limited learning resources and a lack of specialized vocabulary among students. Similarly, Solihati and Rahayu (2020) emphasized low confidence in pharmacy vocabulary, particularly in speaking and pronunciation, within ESP frameworks. These studies demonstrated a consistent gap in ESP implementation and highlighted the need for focused vocabulary development in pharmacy-specific English particularly in vocational high school settings, which remain under researched.

This study focused on exploring three main aspects: (1) the challenges faced by tenth-grade pharmacy students in learning English vocabulary, particularly pharmaceutical terminology; (2) the strategies employed by teachers to enhance students’ mastery of such terminology; and (3) the extent to which the current English instruction aligns with the specific needs of pharmacy students at SMK Muhammadiyah Karanganyar, Pekalongan Regency. Through a focused needs analysis, this research

aims to provide practical insights for the development of targeted ESP-based materials and more effective instructional approaches within the context of vocational pharmacy education.

The significance of this study was in its potential to inform curriculum development and teaching practices that were better aligned with the students needs for pharmaceutical terminology in English learning of pharmacy major in vocational high school. The findings could provide practical guidance for educators, curriculum developers, and policy makers who aim to improve English language teaching in vocational schools, particularly for pharmacy programs. By identifying the need for pharmacy-specific vocabulary instruction, this study highlighted how implementing ESP in the future could strengthen students' understanding of pharmaceutical terminology, this study may contribute to better academic outcomes and better career readiness.

METHODOLOGY

This study employed a descriptive qualitative method to identify the challenges faced by students, to analyze the strategies used by teachers, and to find out the alignment of current English instruction with the technical vocabulary pharmaceutical terminology needs of tenth-grade Pharmacy students at Vocational High School/SMK Muhammadiyah Karanganyar, Pekalongan Regency, Central Java. According to Ayton (2023), a qualitative descriptive research is an important and appropriate design for research questions that seek to gain insights into a particular area, by providing a comprehensive summary of events and focusing on answering the questions of who, what, where, and how. The study involved three English teachers and 32 tenth-grade students from the Pharmacy major. Data were collected through three instruments: a closed-ended questionnaire distributed via Google Forms. Google Form offers an easy and efficient way to collect data directly from respondents (Pujianti & Prasetyawati, 2025). Semi-structured interviews with teachers, and document analysis of English teaching module, particularly those used in Procedure Text lessons. The data were analyzed using the interactive model by Miles and Huberman (1984), as cited in Sugiyono (2013, pp. 246–253), which consists of data reduction, data display, and conclusion drawing/verification. To ensure the trustworthiness of the data, this study used both data triangulation and methodological triangulation (Denzin, 1978; Patton, 2002) Although the questionnaire used quantitative indicators such as percentages, the results were used as descriptive support for the qualitative interpretation, not for statistical generalization.

FINDING AND DISCUSSSION

This section presents the findings derived from the questionnaires, interviews, and document analysis in response statements of the problems Due to limitations in article space, questionnaire results are described without pie charts or tables.

Finding From Questionnaire

Challenges in Learning Pharmaceutical Terminology

1. Pronunciation and Application Challenges

   The majority of students (53.1%) stated that pronunciation was the most challenging aspect of learning English. This finding aligns with Srinawati (2019), who stated that pharmacy students struggle with medical vocabulary and pronunciation, highlighting a need for ESP

integration. According to Thornbury (2002, p. 27), "words that are difficult to pronounce are more difficult to learn", especially when they contain sounds unfamiliar to learners. Additionally, 21.9% of students struggled to use vocabulary correctly in sentence construction, showing a gap in active language use. In contrast, memorizing and spelling were reported as less significant difficulties (12.5% each). This shows the urgent need for instruction that emphasizes pronunciation and practical use over rote memorization. A supporting teacher interview highlighted *"As for me, I prioritize speaking practice every day..."* reflecting a focus on integrating speaking and pronunciation practice into lessons.

2. Type of Vocabulary That Poses the Most Difficulty

   Around 43.8% of students stated all vocabulary types difficult, while 28.1% stated to vocabulary in procedure texts, and 21.9% stated pharmaceutical terminology as specialized vocabulary. This finding is consistent with Syakur et al. (2020), who stated that vocabulary and speaking were top priorities for ESP courses. Hutchinson and Waters (1987) emphasized that ESP must be learner-centered and based on specific language needs. These findings show the relevance of ESP in vocational education, and that students are facing a gap between their curriculum and vocational language needs. This is corroborated by a teacher's statement: *"I'm not really sure about pharmacy students, maybe they lack confidence, but in terms of speaking participation..."* indicating uncertainty and lack of support for specialized vocabulary. Only 6.3% had trouble with general vocabulary, suggesting sufficient basic vocabulary knowledge.

3. Limited Exposure to Technical Vocabulary

   Fifty percent of students admitted to never having learned pharmaceutical terminology in class such as general drug names, simple pharmacy instructions (e.g., take twice a day), or content related to pharmacy-specific materials. This signals a disconnect between students' needs and the curriculum, echoing the findings of Cahyo and Abbas (2023), who identified challenges in ESP learning for pharmacy students. Meanwhile, 28.1% stated having encountered such materials but only to a limited extent. Another 18.8% were unsure whether the materials they learned were related to pharmacy. Only 3.1% stated meaningful exposure to pharmacy-related materials. The teaching module review confirmed this: content remains general (e.g., "How to Make Nasi Goreng," "How to Wear a Tie"), using general action verbs unrelated to pharmacy field.

4. Causes of Challenges in Understanding Terminology

   Half of the students stated unfamiliarity with terms due to lack of prior exposure. Others mentioned that the terms were never explicitly taught (25%). Additionally, 18.8% of students did not understand the meaning of the terms and were unsure where to begin learning them, while 6.3% stated that the terms were too long and difficult to memorize. These reflect the need for contextual, explicit teaching of ESP vocabulary, as proposed by Hutchinson and Waters (1987). A teacher affirmed: *"...specifically related to medicine or pharmacy, that hasn't been included yet."*

5. Student Strategies in Dealing with Unfamiliar Terms

   The majority of respondents, 50%, relied on Google or online dictionaries, while 40.6% asked the teacher, 6.3% asked their peers, and 3.1% chose to skip the unfamiliar terms entirely. This demonstrates a strong inclination toward independent learning but also points to a lack of structured strategies taught by teachers. A teacher confirmed: *"...no student wants to carry those big dictionaries, Mbak. So they just use their phone and open Google Translate..."*

while another stated misuse of tech tools: *"...they use Google Lens... scan a whole paragraph and just hit enter..."*

6. Absence of Relevant Assignments

   A striking 84.4% of students stated that they had never received any exercises or assignments related to pharmaceutical terminology. In vocational education, contextualized tasks and practice are essential for the internalization of specialized vocabulary. A small proportion of students 9.4% stated that they had received written exercises, while 6.3% recalled oral or presentation-based assignments related to pharmaceutical terminology. A teacher stated: *"But for something specific like that, I haven't really tried it. Maybe some time ago for procedure texts. As for pharmacy-related content, I gave students the freedom to choose because I'm not really familiar with that major. In the end, many of them made procedures like how to make ointment, how to make powder medicine, things like that."*

7. Absence of Work-Related Integrartion

   The majority of 62.5% of students stated that there had never been any linkage between English lessons and the pharmaceutical work field. This indicates that the instruction tends to be generic and does not reflect the realities or vocational needs of Pharmacy students. Only a small proportion of students stated having experienced such integration: 18.8% stated it was briefly mentioned, 12.5% stated the mention of pharmaceutical terms such as drug or medical equipment names, and 6.3% stated experiencing real-world examples or simulations.

8. Usefulness of Pharmacy Examples

   The questionnaire results revealed that students experienced different levels of support when teachers included examples from the pharmacy field during English lessons. A total of 37.5% of students indicated that they felt adequately helped, 34.4% answered that they were occasionally helped, 18.8% reported not feeling helped at all, and only 9.4% felt greatly helped. These findings suggest that, although contextual examples related to pharmacy have been incorporated at certain times, their use has not been consistent or sufficiently emphasized. This condition contributes to the ongoing challenges faced by students in learning pharmaceutical terminology as part of their technical vocabulary in English.

9. Relevance of Teaching Materials

   Based on the questionnaire results, 43.8% of students stated that the English materials they were currently studying were not relevant at all to the Pharmacy major, while another 43.8% stated that the materials were only slightly related. Only 9.4% felt that the materials were somewhat relevant, and just 3.1% considered them to be highly aligned with their major. The very small percentage in the "highly relevant" category suggests that the teaching materials remain general in nature and have not yet accommodated the specific learning needs of Pharmacy students. One supporting example of this issue is the English teaching module used by the teacher, which includes content on Procedure Text.

10. Student Preferences for Relevant Content

    The majority of students (65.6%) stated strong interest in learning all aspects of pharmacy terminology related. This indicates a clear need for relevant and applicable materials that align with students' vocational high school goals. Additionally, 18.8% of students were interested in learning how to communicate with customers in a pharmacy setting, highlighting their awareness of the importance of functional communication skills. Meanwhile, 12.5% wanted to understand how to explain prescriptions or dosages, and 3.1% were interested in

learning drug names and medical equipment functions in English. These varied responses reflect students' awareness of the importance of mastering contextual and functional English technical vocabulary pharmaceutical terminology to support their future professional competence.

11. Out-of-Class Exposure

    Many students Based on the questionnaire results, 43.8% of students stated that they had encountered English pharmaceutical terms through online sources such as articles, videos, or social media. Additionally, 21.9% came across them in books, and 9.4% from medicine packaging or prescriptions. Meanwhile, 25% of students reported never encountering such terminology from any out-of-class sources. These findings highlight that students' exposure to pharmaceutical terminology largely occurred outside formal instruction. This suggests that English for Specific Purposes (ESP), particularly English for Pharmacy, has not yet been sufficiently incorporated into classroom materials, despite its relevance to students' vocational field.

Finding From Interview

According to the current English teaching instruction for tenth-grade students majoring in Pharmacy at SMK Muhammadiyah Karanganyar, vocabulary learning was still oriented towards English in general rather than technical vocabulary, i.e. pharmaceutical terminology required in the field. This is largely due to the fact that students were in the first year of their vocational program and are still adjusting to the basics of the major. Teachers generally focused on improving students' confidence, participation and general English vocabulary before introducing pharmacy terms. Some reasons for the absence of ESP (English for Specific Purposes) teaching included limited teaching time, the absence of pharmacy-specific English materials, and teachers' workload in handling multiple majors. In some cases, English materials were selected based on what can be applied across different major to ensure efficiency. As a result, the current instruction did not fully reflect the ideal role of an ESP practitioner, which, according to Dudley-Evans and St John (1998, p. 14), required a deep understanding of the subject area and flexibility to listen to learners and adapt to their specific needs.

Despite the lack of explicit specialized vocabulary in pharmacy instruction, teachers had used several strategies that helped lay the foundation for future mastery of such terminology. One of the key strategies applied by a teacher was the use of multimedia-based learning, especially digital platforms such as Quizizz, videos, songs, and dialogue-based texts to create interactive and engaging learning experiences. This indicated a conscious attempt to integrate technology enhanced learning in a way that was relevant and engaging for students. Mercanoğlu and Yüksel (2022), stated that digital gaming platforms were effective for learning medical terminology among pharmacy students. The teacher also mentioned using Discovery Learning and Project-Based Learning (PBL) strategies, which were known to foster active engagement. In a vocational setting, PBL could be particularly powerful if the project themes are aligned with pharmacy-related scenarios (e.g., creating a drug label, simulating patient counseling, or reading prescription instructions). Teacher consistently included reading and speaking practices as part of their daily routines, especially through the use of dialogue texts and short narrative passages. After reading, students were encouraged to translate and retell the content using their own

words. As explained by Nation (2001, p. 135), "...retelling gives learners the chance to productively retrieve the vocabulary and ideally make generative use of it." This not only enhances comprehension but also supports vocabulary retention through contextual usage. These techniques help students acquire vocabulary through context, allowing them to internalize meanings more effectively.

Another teacher mentioned using vocabulary cards, where each card contained a word that students must then use in a sentence. This method supported the contextual use of vocabulary, which can be useful if, in the future, the specialized vocabulary presented included terms from the pharmacy field. The teacher also initiated lessons with a ten-minute conversation routine in every classes, which helps to develop students' fluency and confidence in speaking English. This strategy was very in line with the principles of effective technical vocabulary learning presented by Nation (2001, p. 74). Nation emphasizes that repetition is essential to strengthen word knowledge and enable fluent access. The same teacher also expressed constraints in using digital platforms like Quizizz due to unequal access to internet quotas among students, revealing a digital divide that affected the consistency of technology-based instruction. These strategies reflected the effort to make vocabulary learning more enjoyable and interactive, even if the content has not yet been aligned with the specific needs of pharmacy students.

Meanwhile, the third teacher implemented interactive games, including crosswords, compound word-image matching, and word search puzzles, although still general in content often supported by PowerPoint presentations. These strategies aimed to make vocabulary learning enjoyable and boosted students' recognition of new words. She stated that while the students responded positively to games, these methods relied heavily on students' diverse motivations. These findings resonated with Solihati and Rahayu (2020), who emphasized that pharmacy students often lacked confidence in using technical vocabulary, which could lead to reliance on technology for assistance rather than developing their vocabulary skills through structured learning. This highlighted the need for more effective instructional strategies that not only taught vocabulary but also built students' confidence in using it. The teacher also mentioned the need to adapt materials when students advanced to more specialized tracks in clinical or industrial pharmacy in eleventh grade. At that point, students would need to master technical vocabulary relevant to drug labeling, patient communication, and technical documentation. This perspective supported the findings of Basri et al. (2020), who highlighted the urgency of developing English language materials that are in line with the demands of the workforce for pharmacy graduates.

Despite the diversity of media and teaching methods, the main limitation lay in the absence of English learning materials that focused on pharmacy majors. The learning materials currently used were designed for general English teaching and did not include pharmaceutical terminology that would help students prepare for the language demands of their future profession. Teachers also faced practical obstacles such as lack of specific materials, limited student motivation, and no training for teachers related to the ESP curriculum. Teachers are a key factor in the succesful implementation of curriculum changes (Richards, 2001, p. 99). To address these challenges, it was essential to develop ESP curriculum that were tailored specifically to the needs of pharmacy students and aligned with their professional requirements.

Finding From Teaching Module

The current teaching module, used in the 10th-grade Pharmacy major at Muhammadiyah Karanganyar Vocational High School, presented structured and engaging instruction focusing on procedure texts. However, when examined through the lens of specialized vocabulary development and relevance to pharmaceutical terminology, the module showed a considerable gap in aligning with the specific needs of Pharmacy students. The learning objectives primarily aimed to develop students' cognitive and language skills related to general procedural texts such as identifying, explaining, analyzing, and creating procedure texts without any specific reference to pharmaceutical content. While this supported foundational literacy, it does not meet the linguistic demands of Pharmacy students who will require competence in understanding and using technical vocabulary within clinical or laboratory contexts.

The module's materials were built around general procedure texts such as How to Wear a Tie, How to Make Thai Tea, and How to Create a Shutdown Button in Windows, which were useful for developing general reading strategies and introducing action verbs. However, these materials lacked contextual relevance to pharmaceutical tasks such as compounding medications, giving drug instructions, or handling laboratorium tools.

In terms of vocabulary, the module introduced basic verbs such as make, boil, take, and cook, all of which were part of general vocabulary commonly found in everyday procedural language. While the English subject currently focused on general language skills, it did not yet address pharmaceutical terminology such as capsule, tablet, syrup, mortar and pestle. These terms were part of specialized vocabulary essential for pharmacy students to understand instructions, texts, and tools in the field. Such terminology spanned various domains, including dosage instructions (e.g., take one tablet twice a day), dosage forms (e.g., pill, gel, ointment), and pharmaceutical equipment (e.g., mortar and pestle). The material of the mortar and pestle determined its effectiveness for specific compounds based on porosity, hardness, and reactivity (Hoda, 2025). All of which were absent from the current instructional content. Even simple instructions such as take before meals or shake well before use, which were typical in pharmacy practice, were not modeled in the materials.

Classroom activities were student-centered and varied, involving multimedia videos, group discussions, and reflective practice. Digital media used in the module such as YouTube videos and mobile-based learning created an interactive environment that engaged learners. These were pedagogically strong and aligned with TPACK (Technological Pedagogical Content Knowledge, which integrated technology, pedagogy, and content knowledge), yet none of these activities were situated within the context of pharmacy. Yet, none of these activities are situated within the context of pharmacy. Tasks such as role-playing a pharmacist giving instructions, reading drug labels, or interpreting prescriptions could have been more relevant for these students. The gap between learning activity and target occupational practice limited the extent to which vocabulary learning supported learners' real needs.

CONCLUSION

The study concludes that English instruction in the pharmacy major at vocational high school has not yet addressed students' specific needs for pharmaceutical terminology. The absence of relevant

materials, limited teacher support, and minimal integration with vocational content hinder students' vocabulary development. Future research is recommended to design and implement ESP-based modules that align more closely with pharmaceutical practices and industry demands.

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