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## Exploring English for pharmacy: A systematic literature review of pedagogical trends and challenges

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### Abstract

Effective English for Specific Purposes (ESP) programs adapted to pharmacy education are necessary, as evidenced by the growing importance of English in the worldwide pharmaceutical business. The pedagogical trends, difficulties, and best practices in teaching English for pharmacy during the past ten years (2014–2024) are examined in this comprehensive literature review. The review reveals significant topics by examining 14 studies from international databases, including curriculum development, pedagogical innovations, student perspectives, and English usage and needs analysis. The results indicate significant deficiencies in pharmacy professionals' technical vocabulary, oral communication, and scientific writing abilities, which impede their success in school and the workplace. This study aims to improve pharmacy graduates' communication skills in a field that is becoming increasingly globalized by serving as a roadmap for future research and curriculum design.

### Keywords

English for Pharmacy, ESP, systematic literature review

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## Introduction

In recent years, English has become more significant in pharmacy, particularly as globalization impacts medical practices. English is commonly regarded as the lingua franca of science and medicine because it enables communication between medical professionals of various linguistic backgrounds (Syakur et al., 2020). Because of this, pharmacists are in a good position to provide extremely beneficial and necessary resources for patient care. One ongoing problem is that, although academics and pharmacy executives have tried to enhance their clinical roles, research indicates that front-line pharmacists may not all agree that they are healthcare professionals (Kellar et al., 2021). Effective communication is crucial in pharmacies for patient safety and the successful transfer of pharmaceutical knowledge. The significant contribution that pharmacists make to their communities is through their knowledge and skills (Alshahrani et al., 2021).

The growing recognition of English as an essential ability in pharmacy justifies conducting a thorough literature study on English for pharmacy (Awalsu & Alsalimy, 2015). Pharmacists have to communicate with an extensive range of stakeholders as the healthcare industry changes, such as patients, healthcare professionals, and regulatory agencies, all of whom may speak English (Solihati & Rahayu, 2020). However, not many thorough evaluations summarize much research on the subject, even though English proficiency is widely recognized as important. This gap provides an opportunity to collect research results and give an improved understanding of the situation of English for pharmacy research nowadays (Suwandi & Wafa, 2020).

Additionally, how pharmacy education is provided has changed due to the quick development of technology and the globalization of healthcare (Nishioka et al., 2015). Digital resources and online learning platforms are becoming increasingly common, providing new opportunities for language learning (Khan, 2021). However, little is known about how these techniques help pharmacy students become more competent in English. Best practices and innovative methods of teaching languages that can be included in pharmacy curricula and consequently enhance students' educational experiences can be found through a systematic review (Srisuwan & Kardkarnklai, 2014).

Pharmacists are essential in health promotions such as immunization campaigns and patient education (Khan, 2017). In this context, communicating in English clearly and effectively has become even more important. A literature review might provide insight into how pharmacy education should develop to more effectively prepare students for these real-life situations and ensure they acquire the language proficiency needed to succeed in their current roles (Cahyo & Abbas, 2023).

Furthermore, the literature currently in publication usually focuses on general language acquisition rather than the needs of pharmacy students. In conclusion, the increasing importance of English in pharmacy emphasizes the value of thoroughly analyzing the appropriate literature. By examining earlier research, this review seeks to identify significant themes, trends, and gaps in the current body of knowledge. Ultimately, it seeks to contribute to developing workable strategies for improving pharmacy professionals' and students' English language abilities.

## Literature Review

The ESP will be effective for learners if the course and materials are developed based on the needs analysis of the students (Gu et al., 2019; Syakur et al., 2020). ESP is characterized by its responsiveness to learners' specific needs. The methodology is aligned with other language teaching models, shaping input, motivating learners, managing learning strategies, and promoting contextual use of language. Historically, ESP emerged in the 1960s when traditional English courses failed to meet the needs of language learners. The foundation of ESP lies in tailoring language teaching to the specific learning requirements of identified groups while also considering the socio-cultural contexts in which learners will use English. ESP is largely learner-centred, addressing the needs of adult learners in various fields like pharmacy, nursing, and technology. A key aspect of designing an ESP course is a syllabus based on a thorough needs analysis, which assesses students' specific language learning needs in their professional contexts. This analysis helps ensure that the language program is focused and relevant.

However, challenges arise as students may not always know what they need. Needs analysis often involves surveys or interviews with experienced teachers who can provide insights into the skills necessary for becoming proficient English-speaking pharmacists. Additionally, gathering input from stakeholders—such as administrators, patients, and employers—can further inform the course's development. Ultimately, a needs analysis clarifies the objectives of a language program, guiding curriculum developers in creating specific teaching goals. These goals are the foundation for lesson plans, materials, assessments, and activities, ensuring that the syllabus remains highly relevant to students' studies.

## *Curriculum development*

The research underscores the critical necessity for comprehensive curriculum development that aligns closely with industry requirements and expectations. Numerous studies have revealed that existing pharmacy curricula frequently fall short of emphasizing essential English skills, particularly focusing on technical vocabulary and effective communication strategies. This gap in the curriculum can hinder students' ability to engage confidently in the global pharmaceutical environment.

Effective English for Specific Purposes (ESP) curricula must seamlessly integrate language training with pharmacy-specific content to address these shortcomings. This integration is crucial for enhancing students' proficiency and confidence in utilizing English within professional contexts. By incorporating real-world scenarios and practical applications, such curricula can prepare students to understand complex pharmaceutical terminology and communicate effectively with colleagues, patients, and stakeholders in various professional settings.

Moreover, adopting a more holistic approach to curriculum design can facilitate the development of critical thinking and problem-solving skills, which are essential for today's dynamic healthcare landscape. As the pharmaceutical sector continues to evolve, a curriculum prioritizing language skills and industry-relevant knowledge will better equip students to meet

the demands of their future careers (Khan et al., 2020). This comprehensive framework will ultimately contribute to producing competent graduates who are well-prepared to thrive in an increasingly globalized field.

### *Pedagogical innovations*

Innovative teaching methodologies have emerged to address the various challenges faced in pharmacy education, aiming to enhance student engagement and learning outcomes. Among these methodologies, interactive approaches such as problem-based learning (PBL) and case studies have proven particularly effective. These strategies encourage students to actively participate in their learning process, actively fostering critical thinking and collaborative skills while facilitating the practical use of language in context (Brown & Green, 2019).

Moreover, integrating technology into the classroom has revolutionized the educational experience for pharmacy students. Tools such as online simulations and multimedia resources provide dynamic and immersive learning environments, allowing students to practice English in realistic scenarios that closely mirror professional situations. This technological incorporation enhances language acquisition and prepares students for the increasingly digital landscape of the pharmaceutical industry (Lee et al., 2022).

By leveraging these pedagogical innovations, educators can create a more engaging and effective learning atmosphere that not only meets the linguistic needs of students but also equips them with the necessary skills to navigate their future careers successfully. Such a forward-thinking approach to teaching in pharmacy education will ultimately contribute to developing competent professionals who thrive in diverse and complex healthcare settings.

### *Student perspectives*

Understanding student perspectives is essential for the effectiveness and success of English for Specific Purposes (ESP) programs, particularly in pharmacy education. Research indicates that many pharmacy students frequently express feelings of unpreparedness when it comes to meeting the linguistic demands of their future careers. They often cite significant deficiencies in key areas, such as oral communication and scientific writing skills, which are crucial for effective practice in the pharmaceutical field (Ahmed & Mustafa, 2023).

To address these pressing concerns, it is imperative to implement targeted training programs that specifically focus on enhancing these skills. Tailoring instruction to meet the unique needs of pharmacy students can substantially improve their academic performance and professional readiness. For instance, incorporating practical exercises that simulate real-world scenarios—such as patient interactions, presentations, and report writing—can provide students with valuable opportunities to develop their communication abilities in context.

Furthermore, actively seeking and incorporating feedback from students about their learning experiences can inform the continuous improvement of ESP curricula. By fostering an environment where students feel empowered to express their challenges and expectations, educators can adapt their teaching strategies to better align with student needs. Addressing

these linguistic concerns through comprehensive training will boost students' confidence and competence and enhance their overall effectiveness as future healthcare professionals.

### *English usage and needs analysis*

Needs analysis refers to the processes involved in collecting information about the needs of a particular group of learners in occupational or academic fields. A common purpose of needs analysis is to identify students' learning needs. The identified and interpreted data become the basis for further development, such as teaching materials, learning activities, course evaluation, etc. With a substantial contribution to ESP, needs analysis is viewed as a cornerstone and the first step before making other decisions in developing an ESP curriculum (Dudley-Evans & St. John, 1998). Need analysis research shows to help teachers, curriculum developments, and syllabus design to make English meaningful for students in the future (Mo'in vaziri, 2014).

Needs analysis obtained both subjective and objective information: data from questionnaires, tests, interviews, and observation. Needs analysis involves identifying the language learning requirements of students based on the specific contexts in which they will use the language. It encompasses understanding the target audience, the objectives for which the language is needed, the types of communication involved (such as written or spoken, formal or informal), and the required proficiency levels.

This analysis is crucial for curriculum development and must be completed before creating a syllabus for language instruction. According to Pushpanathan (2013), there are two main types of language teaching needs: target and learning. Target needs refer to what learners must accomplish in real-life situations where they will use the language, whether in academic, professional, or other contexts. Analyzing these situations' communicative and linguistic demands is a key step in needs analysis. Target needs can be broken down into three aspects:

- Necessities are the essential language skills and knowledge required to operate effectively in the target situation.
- Lacks represent the gap between what learners already know and what they need to know.
- Wants to reflect the learners' desires regarding their language education.

Data for this analysis can be collected through questionnaires, interviews, observations, and informal discussions, focusing on learners' expectations and the language features relevant to their situations. Learning needs pertain to how students approach learning, informed by current curricular standards. Needs analysis is the foundation for developing ESP courses and materials tailored to specific student situations. It clarifies students' necessities, lacks, and wants regarding their English for Specific Purposes (ESP) courses.

Research has shown that teaching English in pharmacy as a specialized English course poses several challenges (Solihati & Rahayu, 2020). Instructors often face difficulties such as unfamiliarity with the subject matter, students limited English proficiency, large class sizes, inadequate resources, and incomplete departmental syllabi. Even when syllabi and resources are available, they frequently do not align with students' needs for developing language skills specific to pharmacy. This study aims to analyze the needs of private university students in

Indonesia regarding English for pharmacy, providing insights for future ESP research and materials development.

A thorough needs analysis is essential for identifying the specific English skills required in pharmacy. Research indicates that pharmacy professionals frequently encounter challenges related to technical vocabulary, patient communication, and academic writing (Wilson et al., 2021). Educators can tailor their programs to better prepare students for real-world applications by focusing on these areas.

The systematic literature review emphasizes the urgent need for enhanced ESP programs in pharmacy education. Addressing curriculum deficiencies, adopting innovative pedagogical practices, and incorporating student feedback are crucial for developing practical communication skills among pharmacy graduates. This review serves as a roadmap for future research and curriculum design, aiming to equip students with the necessary tools to thrive in an increasingly globalized pharmaceutical landscape.

### *Vocabulary learning for pharmacy degree*

Vocabulary acquisition is critical to any language learning process, and mastering specialized vocabulary is essential in ESP contexts. Students are expected to utilize specific terminology to communicate effectively within their field. Feedback from students indicates that specialized vocabulary in pharmacy is a primary expectation from this ESP course. Vocabulary exercises are integrated throughout the course to enhance receptive and productive vocabulary, enabling students to recognize and understand terms while using them in speaking and writing.

Typically, learners have a larger receptive vocabulary than a productive one, and these two types of vocabulary are correlated (Webb, 2008). Much of the technical vocabulary in English is derived from Graeco-Latin roots, making it more recognizable for native Spanish speakers in written contexts. However, specialized vocabulary includes common words that acquire specific meanings in academic or professional settings, such as "dissolve" (Coxhead, 2017). Warburton (2015) noted that distinguishing between general and specialized languages can be particularly challenging for first-year undergraduates.

To address these challenges, consultations with content lecturers help harmonize the terminology used across different subjects, minimizing confusion. While students will use technical English to gain specialized knowledge and communicate in academic settings, they are still learners of English. Thus, the course aims to equip students with strategies for active vocabulary learning, enhancing their productive skills and fostering autonomy in vocabulary acquisition.

The course also emphasizes dictionary literacy as a key vocabulary-learning strategy. With easy access to scientific English and various dictionary resources online, students face new challenges regarding the reliability of these sources. Non-native speakers increasingly rely on monolingual learner dictionaries catering to those studying specific fields, such as medicine and pharmacy (Abbasi et al., 2019).

Many students lack familiarity with dictionaries designed for English learners, so significant attention is given to these resources. This unfamiliarity is not surprising, considering recent literature emphasizing the importance of dictionary skills, which are often neglected in

teaching. To address this, the course promotes the effective use of web-based lexicographic resources to help students identify quality tools that meet their linguistic needs efficiently.

By highlighting the importance of various aspects of words—including pronunciation, grammatical information, usage labels, collocations, and regional variations—the course aims to empower students to master their language skills independently. Exercises are designed to help students analyze and utilize different types of information found in dictionaries, enhancing their understanding of connotation and pragmatic use.

Some vocabulary exercises utilize authentic patient information leaflets, allowing students to engage with real-world materials. For example, students may identify dosage forms from patient instructions and extract relevant vocabulary to explain their use. Furthermore, the course emphasizes word formation, enabling students to build on their existing knowledge and expand their pharmacy-related vocabulary. Exercises may involve exploring common prefixes used in medical vocabulary, helping students recognize and create new terms. In summary, the course is crafted to address the specific vocabulary needs of pharmacy students while promoting effective learning strategies that will benefit them both academically and professionally.

## **Methodology**

A systematic literature review, a method used in this study, is a scientific research methodology that looks at published books and papers on a particular subject. This study's primary focus was the ESP in pharmacy. When looking for papers, various internationally available platforms were employed, such as Scopus, ResearchGate, and Google Scholar. Researchers searched for papers using words like English for pharmacy and ESP. The search results were analysed using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), which included planning, identifying publications, assessing their acceptability, and conducting analysis to support specific conclusions.

### ***Inclusion and exclusion in literature selection***

Five criteria served as the foundation for the literature selection procedure followed in this study. First, choose the research data from publications, including theses, journal articles, proceedings, conferences, and book reviews. However, this study was limited to journal proceedings and papers. Second, the researchers used publishing data covering only the last ten years, from 2014 to 2024, including themes like English for Pharmacy and ESP. Third, Scopus, ResearchGate, and Google Scholar are the databases that researchers have selected from worldwide databases. Fourth, the researcher's literature search process uses Publish or Perish, a third program that may map literature based on specific themes and historical eras. Fifth, the researcher employed English when searching for topics since the researcher wanted to get thorough information regarding the pedagogical trends and challenges of English for pharmacy.

### ***Eligibility screening and assessment***

The appropriateness of the journal articles found using several keywords, specifically ESP and English for pharmacy, across three international databases (Scopus, ResearchGate,

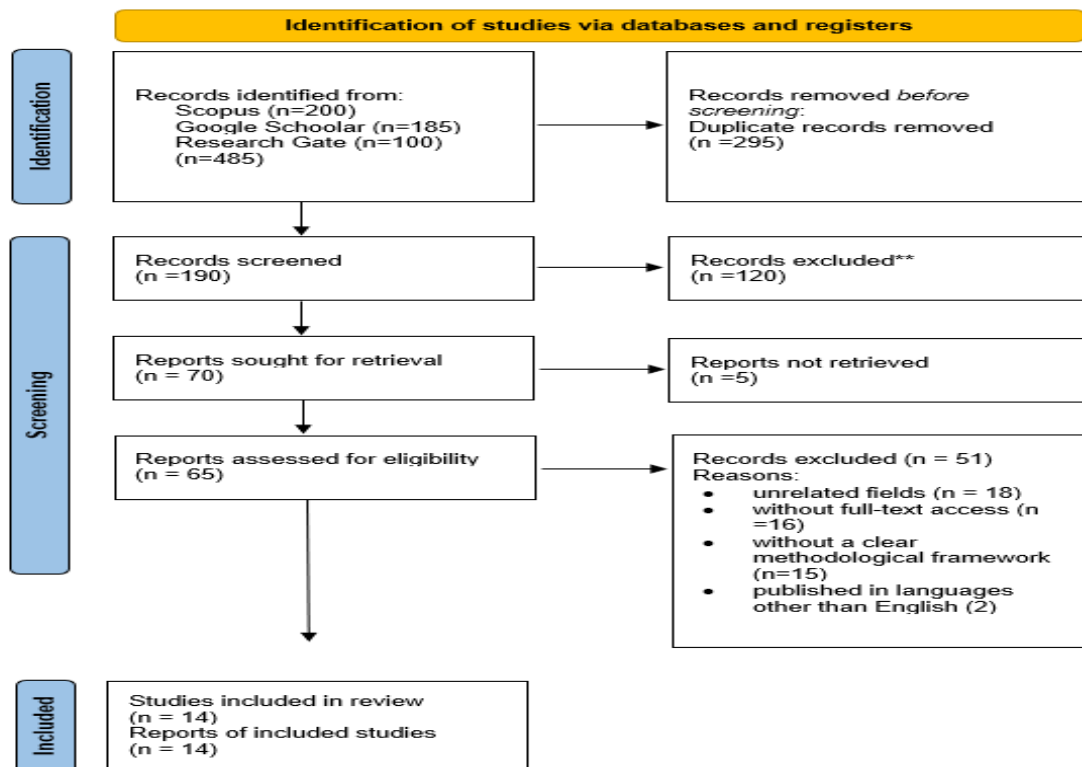
and Google Scholar) is the basis for filtering and evaluation. The third application, publish or perish, was used in the researcher's search. Three international databases (Scopus, ResearchGate, and Google Scholar) generated 486 results from the data search on December 13, 2024. Researchers then filtered the data by altering themes, keywords, and titles according to the study's aim, generating 14.

**PRISMA analysis**

The researchers used PRISMA analysis to classify documents. They started by doing preliminary research across three international databases: Google Scholar, ResearchGate, and Scopus. Four hundred eighty-six data points from journal articles published between 2014 and 2024 were found using the initial search data based on topics; conferences, book reviews, and final student assignments were not included in this data.

Out of the 486 studies, 200 articles were eliminated due to their lack of relevance, while 207 articles shared the same title. There were then 60 articles that qualified. Five articles from the Google Scholar database, six from the Scopus database, and three from ResearchGate were among the fifteen that were accepted after the articles were deemed complete. Below is the summary of the database's identification.

**Figure 1.** *The identification of studies via databases and registers*



## Findings and Discussion

### *Themes and objectives*

Four main topics come up from research on English for pharmacy that focus on how learning a language connects to working in pharmacy. The first topic, English Usage and Needs Analysis, aims to understand the unique communication needs of pharmacy professionals and students. Studies like English usage and problems of industrial pharmacists and ESP and students' needs in learning English for pharmacy highlight the challenges faced by people in pharmacy jobs and schools, showing the need for English courses tailored to these specific requirements. According to Sharkiya (2023), research such as Students' Perception of ESP Materials in Indonesian Vocational Schools and feedback from pharmacy students gives valuable insights into learning challenges and the usefulness of educational materials.

Each study presents important findings that are beneficial to the field and employs a variety of approaches. Need analysis has been a famous method to determine the specific needs of pharmacy professionals and students via surveys, interviews, and questionnaires. For instance, similar methods were implemented to identify critical language skills in a study of pharmacy students at Prof. Dr. Moestopo's Medical Vocational High School. The study explored the ESP curriculum for pharmacy, which identified the effectiveness of the current curriculum for EFL students and is an example of curriculum evaluation that relied on input from stakeholders. Those methods show a strong and comprehensive dedication to comprehending and addressing language instruction in the pharmacy area (Kerr et al., 2021).

### *Trends in English for pharmacy education*

Based on the ESP research trends analysis, the importance of adapting ESP to the needs of pharmacy is developing. Research frequently emphasizes the importance of integrating English language instruction into the technical requirements of academic and pharmaceutical settings. Professional pharmacists in Thailand, for example, are not proficient in technical terminology or speaking and writing skills. The study entitled An ESP course in a CLIL Context shows how combining language and subject matter improves student engagement and comprehension.

Furthermore, curriculum development is becoming increasingly affected by student feedback, as demonstrated in learning science English for the first time and an evaluation on English for pharmacy class, emphasizing the need for context-driven and student-centered materials. These trends indicate an evolution in pedagogical innovation, technology, and global techniques in teaching English to pharmacy (Adrian et al., 2015).

Finally, improving English for Pharmacy education requires creating resources and curricula. Two studies that focus on creating textbooks and curricula that include scientific communication skills, patient interaction, and pharmaceutical terminology are developing an English syllabus for pharmacy students and an English for Specific Purposes (ESP) textbook for pharmacy students using online teaching. Investigating the relevance of ESP materials in Indonesian Vocational Schools is one study that demonstrates the importance of evaluating

and enhancing existing resources to meet evolving educational needs. Collectively, these trends demonstrate the dynamic and interdisciplinary nature of English for pharmacy education, which aims to equip students with the language proficiency required for academic and professional success in the global pharmaceutical industry (Gillette et al., 2017).

### ***Challenges in English for pharmacy***

Pharmacy students frequently find it challenging to understand the technical and context-specific language needed for academic and professional goals, according to research like ESP and students' needs in learning English for pharmacy and learning science English for the first time. Another significant issue is the misalignment between curricula and real-world needs, as evidenced by studies like revisiting the ESP curriculum for pharmacy and need analysis of English for pharmacy students, which show that many ESP courses do not address the professional and practical linguistic competencies that pharmacy students need (Jin et al., 2019). This disconnect gets worse by out-of-date or irrelevant teaching materials, as noted in investigating the relevance of ESP Materials in Indonesian Vocational Schools, and educators struggle to balance teaching linguistic skills with the technical content of pharmacy, as noted in English for pharmacy: An ESP Course in a CLIL Context. Pedagogical and technological limitations further complicate English for pharmacy education (Hussain et al., 2021).

However, funding, poor teacher preparation, and inappropriate material implementation are problems encountered in many institutions. Based on student feedback, they prefer an interactive, real-life context and lecture based on studies such as an evaluation of English for pharmacy class and a study on students' needs in learning English for pharmacy. To overcome this problem, integrated strategies are needed by adopting innovative pedagogies, curriculum alignment with industry standards, and specific teacher training and institutional support (Tan et al., 2024).

### **Conclusion and Recommendations**

The literature review on English for pharmacy indicated the importance of adapting ESP courses to address professional pharmacists' and students' particular linguistic requirements. Various studies stated that deficiencies in scientific writing skills, speaking, and terminology are critical to success in the workplace and the classroom. This literature review also emphasizes how teaching English to pharmacy requires creative pedagogical strategies and the incorporation of international trends. The advantages of using digital tools and implementing Content and Language Integrated Learning (CLIL) frameworks to improve student engagement and learning outcomes are demonstrated by studies like the Teaching of Pharmacy in Saudi Arabia: Relevance of English and Digital Pedagogy and English for Pharmacy: An ESP course in a CLIL context. As seen in an evaluation of English for pharmacy class and learning science English for the first time, where student feedback demanded more pertinent, interactive, and context-driven instructional materials, the results further emphasize the significance of student-centered teaching.

The literature concludes that pharmacy programs urgently need to implement context-specific, technology-enhanced, and adaptive ESP courses. Cooperation between educators,

business experts, and students is essential for language training to close the gap between academic learning and practical professional requirements. By adopting these approaches, institutions can better equip pharmacy graduates to cope with the global pharmaceutical industry's linguistic and communication. The study showed that pharmacy programs urgently need to implement ESP courses suited to situations, technologically advanced, and flexible enough to meet the demands of students. Students and lecturers should work together to bridge the gap between academic instruction and real-world professional expectations. By implementing these methods, pharmacy graduates can better prepare to face the linguistic and communication demands of the global pharmaceutical industry.

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