

Charting Specific Paths: A Decade of English for Specific Purposes Research (2015-2024)

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Abstract

Research on English for Specific Purposes (ESP) has grown rapidly over the last decade, yet systematic mapping of its intellectual structure, thematic patterns, and global contributions remains limited. Despite the proliferation of studies on curriculum design, needs analysis, genre pedagogy, and technology-enhanced learning, there is still no consolidated overview that captures how ESP scholarship has evolved and where it is heading. To address this gap, this study applies bibliometric analysis to 381 publications on ESP indexed in the Web of Science Core Collection between 2015 and 2024. Performance analysis was employed to identify the most influential authors, journals, institutions, and countries; co-citation mapping was conducted to uncover foundational works and theoretical orientations; and keyword co-occurrence analysis was used to reveal emerging themes and research priorities. The findings indicate that five co-citation clusters – genre-based theory, curriculum design, data-driven instruction, English Medium Instruction (EMI) integration, and learner motivation – constitute the intellectual foundations of ESP. Meanwhile, co-occurrence analysis identifies five thematic clusters centered on learner-centered pedagogy, corpus-informed vocabulary learning, business and higher education contexts, digital integration, and needs-based instructional design. These results highlight the field's transition from traditional linguistic concerns toward affective learner dimensions, technology-mediated learning, and transdisciplinary applications. By systematically mapping the ESP research ecosystem, this study contributes an evidence-based overview that benefits scholars, educators, and policymakers. It emphasizes ESP's increasing institutionalization in higher education, its role in workforce preparation, and its alignment with Sustainable Development Goal 4 (Quality Education), thereby offering a roadmap for future research and practice.

Keywords: English for Specific Purposes (ESP), needs analysis, corpus-based learning, academic literacy, genre-based pedagogy

1. Introduction

English for Specific Purposes (ESP) has become a vibrant and developing subfield of English Language Teaching (ELT) over the last 10 years, attracting more scholarly attention because of its multidisciplinary nature and practical relevance. An strategy that is learner-centered and concentrates on fostering communication competence in a particular field, such as commerce, medicine, law, engineering, or academia, is known as ESP. The English for Academic Purposes (EAP) and English for Occupational Purposes (EOP) frameworks serve as the foundation for ESP, which has grown to be essential in meeting the language requirements of diverse academic and professional contexts. According to Chen et al. (2024), the need for language training that is particular to disciplinary and occupational contexts has increased due to the quick globalization of education, the growth of international programs, and the increasing mobility of professionals and students.

As a result, ESP has transformed from a side issue to a common element of language instruction in both industrialized and developing nations. ESP-related publications have increased over the past decade, reflecting this spike in interest and indicating a change in applied linguistics research objectives (Tan et al., 2023; Yang et al., 2023). Aspects of ESP such as curriculum design, needs analysis, genre-based teaching, discourse analysis, assessment tools, and the incorporation of digital technology have all been studied by academics (Assassi & Rouaghe, 2024); (Wulandari, 2023). These studies offer useful frameworks for implementation in the classroom in addition to theoretical advancements. The research landscape in ESP has not yet been thoroughly mapped, despite the expansion of the literature, especially with regard to comprehending its intellectual structure, regional distribution, and theme evolution (Xue et al., 2022).

However, much of the current scholarship remains fragmented across domains such as English for Academic Purposes (EAP), English for Occupational Purposes (EOP), and discipline-specific applications. This fragmentation creates difficulties in identifying overarching

theoretical foundations, global contributors, and evolving trends. Existing reviews tend to be narrative or regional in scope (Xue et al., 2022; Assassi & Rouaghe, 2024), which limits their generalizability. A comprehensive bibliometric study is therefore required to bridge this gap.

Therefore, a bibliometric study provides a useful lens through which to evaluate the direction and impact of ESP research, pinpoint important sources and contributors, and discover new trends and areas for future research. ESP's importance in today's academic environment stems from its alignment with universities' objectives to generate graduates who are linguistically prepared for work in their disciplines. The need for focused language training keeps rising as fields become more specialized and communication becomes more mediated in English, especially in globalized contexts. ESP improves learners' academic and professional achievement by bridging the gap between general language ability and domain-specific communication abilities (Ivančević-Otanjac, 2021). Furthermore, the incorporation of ESP into industry training programs and university curricula highlights its importance as a crucial element of institutional policy and international cooperation in addition to its value as a pedagogical instrument.

The ESP landscape has changed even more as a result of technological developments and the move toward digital learning environments. More individualized and data-driven approaches to instruction are now possible thanks to the rise of online platforms, corpus-based learning, and AI-driven language tools (Kristianti et al., 2023). Furthermore, the COVID-19 epidemic sped up the acceptance of remote learning, which led scholars and professionals to reconsider how ESP courses are delivered and how successful virtual language learning modalities are (Al Baekani et al., 2023). In the context of ESP, this has resulted in a growing interest in learner autonomy, hybrid pedagogies, and digital literacy.

The goal of this bibliometric analysis is to methodically review the corpus of work on ESP that has been published in the last ten years, with an emphasis on identifying significant authors, well-known publishing houses, important research topics, and collaborative trends. In order to give a thorough picture of the evolution of the topic, this study uses performance analysis, co-citation analysis, and keyword co-occurrence analysis, drawing data from reliable academic sources. In addition to demonstrating ESP's current scholarly significance, this study's intellectual landscape mapping helps shape future research priorities, curriculum design, and policy-making. To help educators, researchers, and decision-makers comprehend the changing role of ESP in a multilingual, multicultural, and highly specialized global academic context, the insights gathered.

This study is guided by the following questions:

1. Who are the most influential authors, sources, and institutions in ESP research between 2015-2024?
2. What are the main intellectual foundations of ESP research as revealed through co-citation analysis?
3. What thematic directions and emerging trends can be identified through co-occurrence analysis?

2. Method

English for Specific Purposes (ESP) research over the last decade is comprehensively examined in this study using a bibliometric approach. A strong quantitative technique for locating trends, patterns, and structural connections in a corpus of academic literature is bibliometric analysis. It provides information about the evolution of a field, the major contributors, the most important sources, and the thematic directions that are now influencing discourse (Tan et al., 2023; Yang et al., 2023). By using this method, the study seeks to give a thorough account of the evolution of ESP and its scholarly importance in modern education.

The Web of Science (WoS) Core Collection, a well-known and reputable academic database that provides excellent, peer-reviewed journal articles, serves as the main data source for this investigation (Wider et al., 2014). Because of its strict indexing guidelines and interoperability with bibliometric tool – specifically, VOSviewer – which are widely used in current ESP bibliometric research, Web of Science was selected (Tan et al., 2023; Xue et al., 2022). Using keywords like "English for Specific Purposes," "ESP," "disciplinary English," "academic English," and similar terms, the search technique was created to find papers that were explicitly about English for Specific Purposes. To ensure a targeted analysis of current research trends, the search was restricted to publications published between 2014 and 2024.

Performance analysis, co-citation analysis, and co-occurrence analysis are the three steps of the bibliometric analysis process. The study assesses the impact and productivity of ESP literature in the performance analysis phase using a number of important metrics. These consist of the quantity of documents and citations arranged according to documents, authors, organizations, nations, and sources (journals). The most significant organizations advancing ESP scholarship are identified by this study (Chen et al., 2024).

A co-citation study is carried out to investigate the field's intellectual structure after performance analysis. In order to identify clusters of similar studies that serve as the basic knowledge base for ESP research, co-citation analysis looks at how frequently pairs of publications are mentioned together (Yang et al., 2023). This approach aids in highlighting significant works, methodological developments, and theoretical frameworks that have influenced the field over time. A co-occurrence analysis of author keywords is the last step. This method provides a thematic overview of the study subjects that predominate in ESP studies by identifying the phrases that occur most frequently and their correlations within the dataset (Tan et al., 2023). Co-occurrence analysis reflects changes in research emphasis and educational aims by revealing new subject clusters and areas of interest.

2.1 Search Strategy

A systematic and structured strategy was taken to ensure that only pertinent and excellent material was included in this bibliometric analysis of English for Specific Purposes (ESP). The primary source of information was the Web of Science (WoS) Core Collection, a popular database noted for its rigorous indexing of peer-reviewed academic documents. Created to cover the years 2015–2024, the search approach focused on recent developments and trends in ESP research. All relevant content was found by using the search keyword "English for specific purpose*". The wildcard symbol (*) was used to make sure that the search returned pages that had both the singular and plural variants of the phrase, such as "purpose" and "purposes," in order to optimize the first results.

Table 1. Inclusion Criteria

WoS Database	Criteria
Time period	2015 to 2024
Search keywords	"English for specific purpose*"
Document Types	Article
Languages	English
Open Access	All Open Access

The decision to rely solely on the Web of Science (WoS) Core Collection was based on its rigorous indexing standards and replicability for bibliometric studies. The Web of Science database produced 1,735 records in total from the first search. However, a number of inclusion and exclusion criteria were used to clean up the dataset and make sure it met the goals of this investigation. Only publications that were categorized as research papers were taken into consideration; the publications had to be published in English; all open access documents had to be included; and the articles had to be published between 2015 and 2024. These standards were designed to guarantee uniformity, usability, and pertinence throughout the chosen corpus.

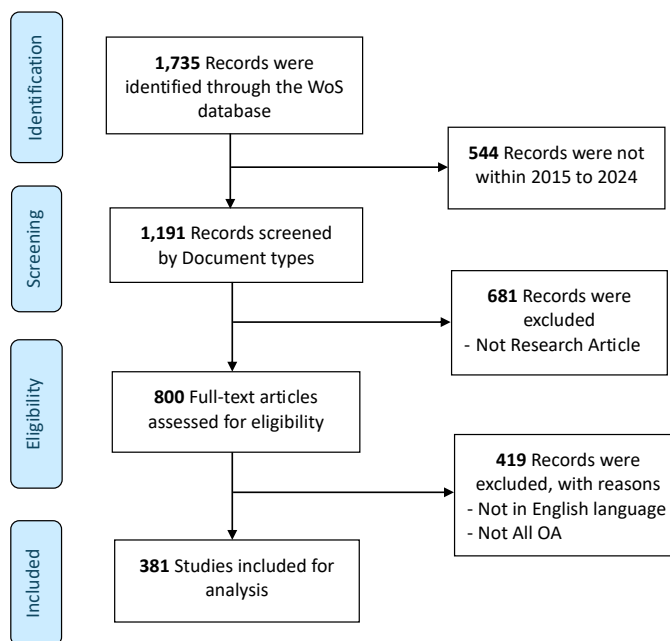


Figure 1. PRISMA Flowchart

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart provides a clear illustration of the selection procedure. In the first stage of identification, 1,735 records were obtained. Following that, 544 records were eliminated due to their publication outside of the 2015-2024 timeframe. 681 of the 1,191 items that remained were eliminated throughout the screening process because they did not fit the criteria for being research publications. 800 full-text articles remained for evaluation of eligibility. At this point, an additional 419 papers were disqualified for two primary reasons: either they were not open access or they were not written in English, which rendered them unfit for transparent and repeatable analysis. A total of 381 articles were finalized and included in the bibliometric analysis following this stringent screening and eligibility procedure.

The trend analysis of these 381 chosen publications provides valuable insights into the development of ESP research in the past ten years. The analytical overview indicates that each article has an average of 3.98 citations. ESP articles have a moderate but steady academic effect, according to this statistic, which indicates that the topic is still relevant to scholars and is being cited in related studies. The graphical depiction in Figure 2 shows a distinct increase trajectory in publication volume over the ten-year period, despite the fact that precise year-by-year publishing counts were not specified in the text. Interestingly, output has been rising since 2018, reaching a peak in 2020 and 2022. A number of convergent variables, including the global expansion of English Medium Instruction (EMI) programs, the expanding need for English competence in professional domains, and the growing focus on discipline-specific communication skills in both academia

and industry, may be responsible for these gains.

Additionally, the COVID-19 epidemic most likely hastened the global trend towards virtual education and digital learning, which in turn fueled increased scholarly interest in ESP during this time. As educational institutions and professional training programs attempted to adjust to new delivery methods, the applicability of ESP grew to encompass mobile-assisted learning, virtual simulations, and technology-enhanced language instruction. Publication activity in the subject has been further stimulated by these advances, which have expanded the theme emphasis of ESP research and drawn interdisciplinary collaborations.

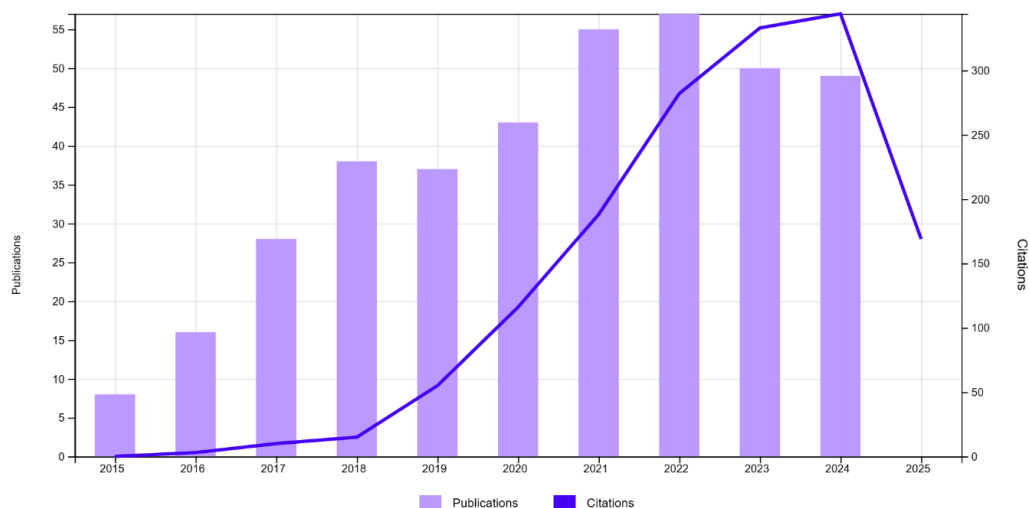


Figure 2. Quantity of publications and citations between 2015 and 2024

Overall, the trend analysis confirms that ESP is still a thriving and developing field in English language instruction and applied linguistics. The consistent citation metrics and increasing publication volume trend demonstrate ESP's widespread practical usefulness and scholarly interest. This expansion highlights the value of performing a bibliometric analysis to map the key figures, developing ideas, and intellectual framework that characterize the field of ESP today.

3. Results

3.1 Performance Analysis

A key element of bibliometric research is performance analysis, which provides information about the output and academic influence of studies conducted in a certain field. Performance analysis aids in identifying the most significant papers, prolific writers, high-impact journals, contributing organizations, and top nations in the English for Specific Purposes (ESP) environment during the previous ten years. This analysis looks at citation metrics and publication counts to identify trends in academic engagement, new research hotspots, and influential figures influencing the course of ESP scholarship. A thorough analysis of these performance metrics is given in the sections that follow, emphasizing the organizations and papers that have had a major impact on the field from 2015 to 2024.

3.1.1 Performance by Documents

An examination of the most referenced papers in the ESP field provides important new information on the most important publications of the previous ten years. With an astounding 188 citations, the most cited paper, "What drives success in English medium taught courses?" by Rose et al. (2020), demonstrated its significant influence on research on English Medium Instruction (EMI) and its relationship to ESP. With 90 citations, Xie and Curle (2022) come next, highlighting the increasing interest in the EMI context in China. These articles point to a change in research focus toward examining how ESP supports academic achievement in EMI settings, particularly in areas where English is not the primary language.

The conceptual development and critical analysis within the ESP area are also highlighted in other highly recognized publications as Schmidt-Unterberger (2018) and Hyland (2022). It is interesting to note that studies like Wu and Miller (2020) and Talaván and Lertola (2016) show growing interest in technology-enhanced ESP learning, with an emphasis on mobile-assisted peer feedback and audio description, respectively. The range of subjects covered – from data-driven learning to academic literacies – illustrates ESP's applicability and breadth in both the professional and educational spheres. Notably, the citations support the interdisciplinary appeal of ESP by reflecting both theoretical advancements and real-world advances.

3.1.2 Performance by Sources

According to the source analysis, ESP research is published in a wide variety of journals, some of which stand out as important channels for ESP scholarship to be shared. With 47 articles and 87 citations, the Journal of Teaching English for Specific and Academic Purposes

stands out as the most active, demonstrating its crucial role in developing ESP scholarship and teaching. Even though this journal is the most prolific, the ESP Today-Journal of English for Specific Purposes at Tertiary Level has a higher citation-to-publication ratio and indicates its effect on contemporary ESP discussions with 109 citations from just 14 papers.

It is interesting to note that interdisciplinary magazines like *Advanced teaching* and the *Arab World English Journal* are also heavily featured, indicating that ESP's impact extends beyond conventional language teaching channels. The field's interest in multifaceted and technological challenges in language learning is further demonstrated by the existence of periodicals like *Information Technologies and Learning Tools* and *Revista Romaneasca Pentru Educatie Multidimensionala*. The inclusion of journals with fewer citations, such as the *International Journal of English Linguistics* and *LLT Journal*, indicates that the field is published across general linguistics and educational technology platforms.

3.1.3 Performance by Authors

Analysis at the author level provides insight into the major players actively influencing the direction of ESP research. Leading the field with five publications and 23 citations is Synekop, O., who consistently produces work. Stojković, N., Durovic, Z., and Dmitrenko, N., who each contributed several studies, come in close succession. The quantity of documents indicates active interaction with ESP literature, presumably spanning a variety of subtopics such curriculum development, academic literacies, and applied linguistics, even though their citation counts differ.

With a notable Total Link Strength (11), which indicates regular co-citation and collaboration – a sign of incorporation into larger ESP research networks – Dmitrenko, N. stands out. In a similar vein, Lytovchenko, I. and Simonova, I. demonstrate encouraging influence by combining co-authorship patterns, document count, and citation impact. Despite making several contributions, certain authors, such as Giron-Garcia, C. and Sligeriene, J., have less citations, which may indicate that they are concentrating on specialized topics or that they are new to the field, where citation accumulation is still happening.

3.1.4 Performance by Organizations

The National Technical University of Ukraine is the most productive university, contributing 18 papers and receiving 79 citations, according to institutional analysis, which shows that ESP scholarship is broadly dispersed among a variety of European and Asian universities. Ukraine is a major contributor to ESP research, especially in the fields of engineering and academic literacy, as evidenced by this prominence. The University of Montenegro, University Jaume I in Spain, and Islamic Azad University in Iran are other noteworthy contributors, each of whom produced six documents. Despite having varying citation counts, it is evident that these schools have made ESP a strategic research investment.

Remarkably, while having small publication numbers, Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University and Kyiv National Linguistic University both have high Total Link Strengths, indicating academic importance and collaborative networks. Although the prevalence of Ukrainian and Eastern European universities in this list suggests a regional cluster of ESP research productivity, the presence of Stockholm University also implies involvement from Western European schools.

3.1.5 Performance by Countries

Ukraine has 59 documents and 172 citations, the most at the national level, solidifying its standing as a regional leader in ESP research. Both institutional investment and the growing need for English proficiency in Ukrainian professional and higher education sectors are responsible for the nation's impressive performance. However, out of 43 documents, Spain has the greatest citation count (195), suggesting that Spanish ESP publications are getting greater scholarly attention per piece. This could be because Spanish universities are known for their English-taught programs and because Spanish ESP publications follow global trends.

With 35 publications and 144 citations, China also does well, highlighting its expanding influence in the global ESP scene, particularly with regard to EMI and educational reform. Countries with growing higher education systems and a keen interest in professional English instruction, such as Saudi Arabia, Malaysia, Russia, and Indonesia, are also active contributors. Although it has contributed fewer documents (11), the United States' participation indicates its continued significance in establishing theoretical and methodological standards in ESP, despite the fact that a large portion of the practical focus has moved to environments where English is not the primary language.

This shift in research output suggests that ESP is no longer dominated by Anglophone contexts but increasingly shaped by contributions from non-native English regions such as Ukraine, Spain, and China. This demonstrates how ESP research is now deeply connected to global higher education reforms, mobility programs, and English Medium Instruction (EMI), thereby reflecting the democratization of academic publishing.

3.2 Co-Citation Analysis

Co-citation analysis, which looks at how frequently pairs of papers are mentioned together, provides a potent way to reveal the intellectual structure of a field of study. This approach aids in identifying the seminal works, dominant theoretical frameworks, and developing scholarly discussions that influence English for Specific Purposes (ESP). The theoretical core of the ESP field is comprised of the top 10 co-cited works, which offer transdisciplinary and fundamental ideas that continue to influence current research. The most often referenced works are Hutchinson and Waters (1987) and Dudley-Evans and St John (1998), which is indicative of their pivotal role in creating the

fundamental ideas of learner-centered education, needs analysis, and syllabus design.

Their works are commonly cited together due to their complementary emphasis on theory and pedagogical application, which contributes to the establishment of ESP as an academic and applied subject. The close connection between ESP and discourse communities and communication skills in academic and professional contexts is established by Swales and Swales (1990) and Bhatia (1993) in their important contributions to genre analysis. Their work makes it possible to examine actual texts, which is one of the main features of ESP training today.

Table 2. Co-citations (Top 10 Articles)

Rank	Authors	Title	Citations	Total Link Strength
1	Hutchinson & Waters (1987)	English for specific purposes.	64	176
2	Dudley-Evans & St John (1998)	Developments in English for Specific Purposes: A Multi-Disciplinary Approach.	50	178
3	Swales & Swales (1990)	Genre analysis.	24	67
4	Robinson (1991)	ESP Today: A Practitioner's Guide.	21	85
5	Council of Europe (2001)	Common European framework of reference for languages: Learning, teaching, assessment.	19	33
6	Belcher (2006)	English for specific purposes: Teaching to perceived needs and imagined futures in worlds of work, study, and everyday life.	18	68
7	Bhatia (1993)	Analysing Genre: Language Use in Professional Settings.	15	45
8	Munby (1978)	Communicative Syllabus Design.	14	81
9	Hyland (2006)	English for Academic Purposes: An Advanced Resource Book.	14	66
10	Vygotsky (1978)	Mind in society: The development of higher psychological processes.	14	21

By presenting early examples of communicative syllabus design and practitioner-focused coaching, Robinson (1991) and Munby (1978) contribute historical depth. By recognizing learners' imagined futures and their changing communication needs in international environments, Belcher (2006) broadens the definition of ESP. The necessity of uniform language descriptors in ESP evaluation and curricular alignment is further supported by the Common European Framework of Reference (CEFR) (Council of Europe, 2001).

Furthermore, Hyland (2006) promotes English for Academic Purposes (EAP), a crucial area of ESP, by providing a framework for teaching academic writing that is rich in resources. Last but not least, Vygotsky (1978), whose sociocultural theory emphasizes the significance of context, interaction, and scaffolding in language acquisition, is widely acknowledged despite not being an ESP-specific study. These texts collectively create a network of interconnected citations that illustrates how ESP has developed from a specialized educational issue to a multidisciplinary, research-driven field with wide-ranging educational and global implications.

3.2.1 Co-Citation Analysis by Clusters

This study identifies five unique subject clusters by examining the most often co-cited publications. These clusters each reflect a key strand of ESP research, ranging from curriculum design and genre theory to EMI integration, vocabulary learning, and learner motivation. In addition to reflecting significant turning points in the history of ESP development, these clusters show how interdisciplinary the discipline is, with applied linguistics interacting with digital communication, psychology, and education. Each cluster is explained in detail in the sections that follow, which also emphasize the important publications and how they have all contributed to the development of ESP scholarship.

With a focus on genre theory, multimodality, and qualitative research, Cluster 1 includes foundational works that support the theoretical and methodological foundations of ESP. The foundation for genre-based techniques that are essential to academic and professional ESP was established by Swales and Swales (1990) and Bhatia (1993), two important texts. Their writings view genre as a social and communicative construct as much as a structural entity. The Common European Framework of Reference (CEFR), which reflects ESP's relationship to more general language assessment standards, is also highlighted. Vygotsky's (1978) inclusion indicates a socio-constructivist perspective on language development, which has impacted ESP pedagogical strategies. Methodological foundations are provided by recent works such as Creswell (2015) and Braun and Clarke (2021), especially in the areas of thematic and instructional research design. Multimodal and digital literacies are introduced by Kress (2010) and Prensky (2001), emphasizing the expanding confluence of ESP with digital communication and social semiotics. The philosophical and methodological foundations of ESP are represented by this cluster, which shows how genre analysis, sociocultural theory, and changing literacy models that take into account 21st-century communication patterns have a significant influence on ESP research.

The pedagogical and curriculum design underpinnings of ESP are reflected in Cluster 2, which is influenced by classic literature that have long influenced language teaching methods. Dudley-Evans and St John (1998), whose multifaceted theory of ESP incorporates linguistic, social, and pragmatic viewpoints, is at the center of this cluster. This is supplemented by Munby (1978), whose work on communicative syllabus design continues to have an impact on needs-based curriculum creation, and Robinson (1991), an early practical guide on ESP education. Broader ELT insights are provided by Harmer (2001) and Richards (2001), which support the notion that ESP is based on generic language teaching methods that have been modified for particular situations. This cluster places ESP into the broader context of TESOL and

applied linguistics by emphasizing teacher duties, syllabus development, needs analysis, and instructional strategies. Generations of ESP practitioners have used these books as a guide when creating learner-centered courses that address the communication demands of the real world. This co-citation pattern illustrates the lasting impact of pedagogical frameworks that place a high value on curricular alignment, instructional clarity, and the use of functional language, especially in academic and professional contexts. This cluster connects academic understanding with classroom application, acting as the practical pedagogical backbone of ESP.

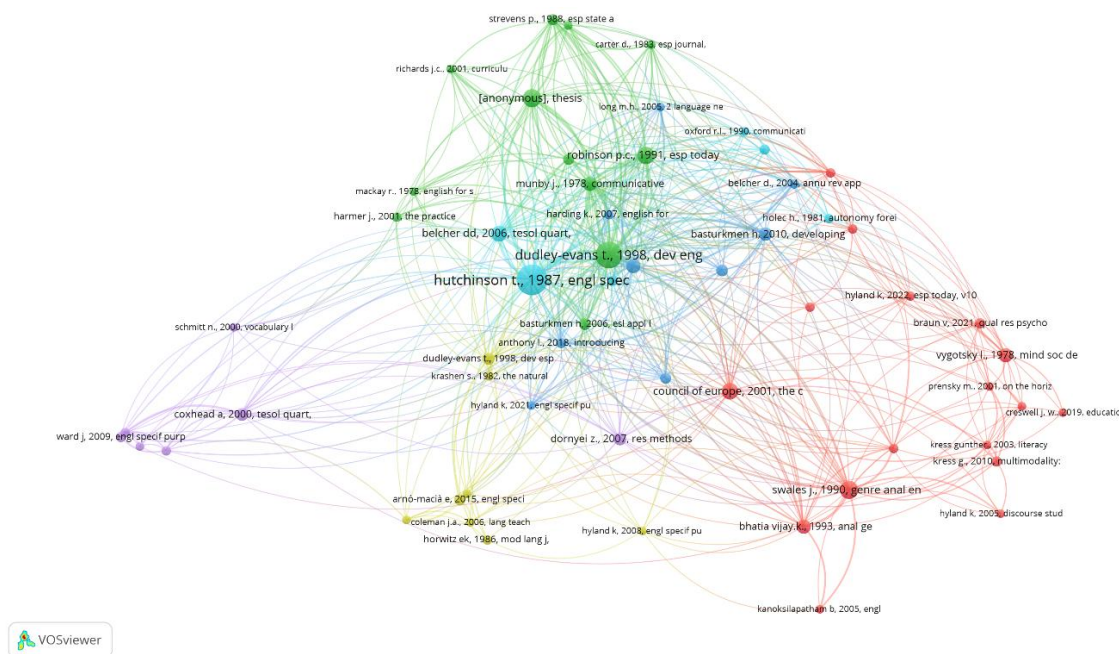


Figure 3. Co-citations Analysis (VOSviewer Visualization)

The formalization and professionalism of ESP course creation are exemplified by Cluster 3. It contains materials on ESP curriculum planning, course design, and program creation that are both theoretically and practically informed. With a focus on academic literacy, writing, and discourse, Hyland (2006) and Paltridge & Starfield (2013) provide thorough resources that place ESP within the larger field of applied linguistics. This is further expanded by Basturkmen (2010), Woodrow (2018), and Anthony (2018), who provide detailed methods for creating needs-based ESP courses that are suited to certain learner demographics. These texts highlight how ESP has developed into a disciplined area with its own theoretical frameworks and instructional resources, moving from being a "extra" or peripheral issue. This cluster is crucial to recording ESP's evolution from ad hoc linguistic assistance to a professionally planned, research-based teaching approach. This cluster illustrates the development of ESP from theory into practice by encouraging course design based on needs analysis, discourse analysis, and learning outcomes, serving both academic and professional contexts. Teachers looking to create efficient, goal-oriented ESP curricula based on real-world communication demands can now refer to the writers in this group.

In tertiary education contexts, Cluster 4 focuses on integrating ESP with Content and Language Integrated Learning (CLIL) and English Medium Instruction (EMI). It includes important research that look at the pedagogical, policy, and linguistic difficulties of teaching English-language curriculum to multilingual students. Macaro et al. (2018) and Arnó-Macià and Mancho-Barés (2015) provide substantial contributions to our knowledge of how ESP principles influence language support in EMI programs. Macro-level analyses of EMI developments in European higher education are offered by Coleman (2006) and Wächter and Maiworm (2014), who examine institutional acceptance, difficulties, and policy consequences. By examining lexical bundles and disciplinary heterogeneity, Hyland (2008) enhances this cluster and highlights the difficulties with academic literacy in EMI settings. When taken as a whole, these pieces show how ESP is changing to help students in English-taught, content-heavy courses, especially those where the students are not native English speakers. These clusters illustrate how ESP research has diversified from its early linguistic and syllabus-design roots into more interdisciplinary terrains involving digital literacies, content integration, and sociocultural dimensions. This reflects the field's responsiveness to both technological change and the realities of globalized education.

Cluster 5 emphasizes language thresholds, learner motivation, and vocabulary acquisition – essential components of ESP learning efficacy. A key element in creating successful ESP interventions is examining motivating aspects in second language acquisition, which Dörnyei (2007) offers methodological tools to do. Coxhead and Demecheleer (2018) concentrate on technical vocabulary and illustrate how lexical profiling aids vocabulary training in vocational ESP contexts using plumbing as a case study. The significance of vocabulary size in attaining functional language competency is further supported by Laufer and Ravenhorst-Kalovski's (2010) investigation of lexical thresholds and their consequences for reading comprehension. This cluster, which emphasizes that learner attitudes and vocabulary growth are essential to language mastery in particular domains, reflects the cognitive and psycholinguistic strand of ESP research. This

cluster contributes to evidence-based teaching practices that meet the practical language requirements of a variety of professional disciplines by emphasizing quantifiable learning goals, such as word frequency, coverage, and comprehension. Understanding how students engage with specialized language and which instructional strategies best foster long-term retention and application in domain-specific situations are improved by these studies.

Table 3. Co-citation Clusters

Cluster No and Colour	Cluster Labels	No. of Articles	Representative Publications
Cluster 1 (Red)	Theoretical Foundations and Multimodal Frameworks in ESP	17	Swales & Swales (1990); Bhatia (1993); Council of Europe (2001); Vygotsky (1978); Braun & Clarke (2021); Creswell (2019); Kress (2010); Prensky (2001)
Cluster 2 (Green)	ESP Pedagogical Traditions and Curriculum Design	12	Dudley-Evans & St John (1998); Robinson (1991); Munby (1978); Harmer (2001); Richards (2001)
Cluster 3 (Blue)	Course Design and Professionalization of ESP Practice	9	Hyland (2006); Paltridge & Starfield (2013); Basturkmen (2010); Woodrow (2018); Anthony (2018)
Cluster 4 (Yellow)	English Medium Instruction (EMI) and CLIL in Higher Education	8	Arnó-Macià & Mancho-Barés (2015); Coleman (2006); Macaro et al. (2018); Wächter & Maiworm (2014); Hyland (2008)
Cluster 5 (Purple)	Vocabulary, Motivation, and Learning Outcomes in ESP	7	Dornyei (2007); Coxhead & Demecheleer (2018); Laufer & Ravenhorst-Kalovski (2010)

3.3 Co-Occurrence Analysis

Co-occurrence analysis, also referred to as co-word analysis, looks at the correlations and frequency of terms used in scholarly papers to uncover the conceptual framework of a field of study. Dominant themes influencing the field of English for Specific Purposes (ESP) study are revealed by the top fifteen keywords found using VOSviewer's co-occurrence analysis. "English for Specific Purposes" (133 occurrences) is the most common keyword, followed by the abbreviation "ESP" (64) and the more general term "English" (55). These often used phrases attest to the literature's constant emphasis on ESP as a major issue in both philosophical research and educational focus. Keywords like "language" (44), "students" (31), and "needs analysis" (20) highlight how ESP research is learner-centered and applied.

Table 4. The 15 Most Frequent Keywords in the Co-Occurrence Analysis

Rank	Keyword	Occurrences	Relevance
1	English for Specific Purposes	133	205
2	ESP	64	94
3	English	55	127
4	Language	44	116
5	English for Specific Purposes (ESP)	41	44
6	Students	31	106
7	Needs analysis	20	40
8	Education	19	46
9	Motivation	16	43
10	Higher education	15	36
11	Vocabulary	14	37
12	Learners	13	26
13	Purposes	11	32
14	Corpus	11	31
15	Blended learning	11	15

The recurrent use of the terms "motivation," "higher education," and "education" points to significant connections between institutional and psychological elements affecting the implementation of ESP. While "blended learning" presents the function of technology-enhanced instruction, "vocabulary" and "corpus" represent the analytical techniques and linguistic focus utilized in the construction of ESP curricula. The terms "learners," "purposes," and "assessment" are used frequently, which suggests that instructional outcomes and learner diversity are being considered. All things considered, the co-word frequency data show how ESP has developed into a multidisciplinary discipline that intersects with pedagogy, psychology, linguistics, and technology. It is anchored by persistent concerns about language proficiency, learner requirements, and educational context.

3.3.1 Co-Occurrence Analysis by Clusters

Thematic clusters and changing research trends are found in bibliometric studies by examining the frequency with which particular keywords occur together. This analysis reveals the main pedagogical, linguistic, and technological elements influencing academic discourse on English for Specific Purposes (ESP). Researchers can see new areas of interest and the interdisciplinary character of ESP studies by mapping the most often occurring phrases. The five keyword clusters produced by VOSviewer are explained in depth in the following sections.

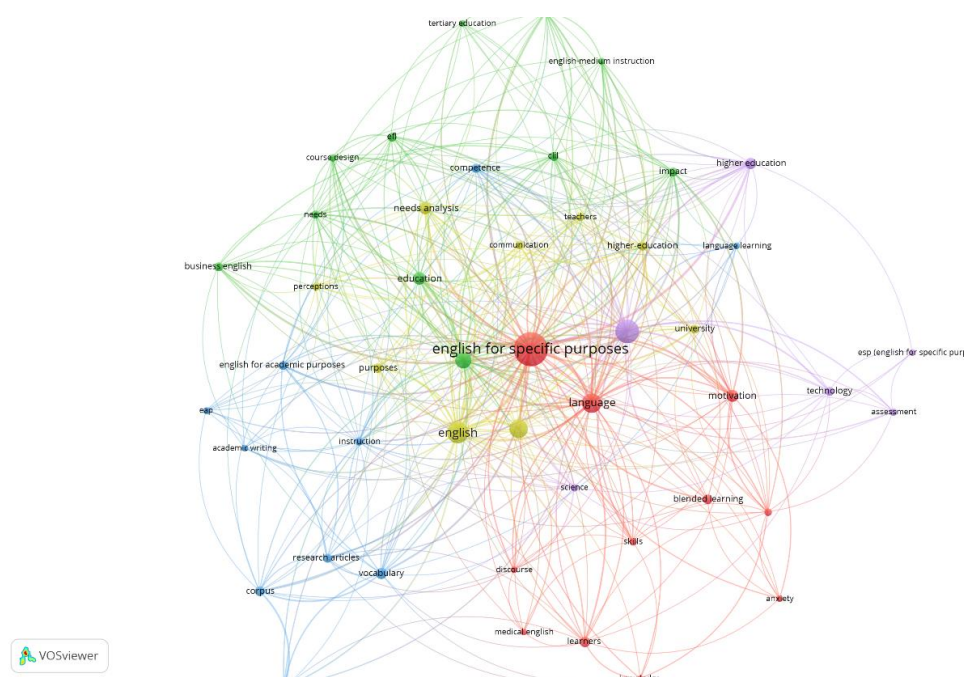


Figure 4. Co-Occurrence Analysis (VOSviewer Visualization)

Cluster 1 focuses on the emotional and cognitive factors that affect ESP acquisition as well as learner-centered education. Among the essential terms are "English for Specific Purposes," "language," "motivation," "learners," "knowledge," "blended learning," and "anxiety." More academic focus on the psychological aspects influencing language learning outcomes is reflected in the co-occurrence of motivation and anxiety with key instructional phrases. This cluster is further anchored in contemporary educational methods that integrate digital and in-person modalities through blended learning, suggesting a change in the way ESP is taught, particularly in higher education. Additionally, this cluster represents studies that look at how specific learner characteristics – like emotional preparedness, digital literacy, and cognitive preferences – affect ESP learning. Importantly, the knowledge in this cluster indicates interest in epistemological access, or how students use English as a medium to acquire knowledge relevant to their area. With a focus on learner agency, well-being, and flexibility in educational delivery, this cluster collectively highlights the movement in ESP beyond merely linguistic issues to emotive and technical components. Concern over how students perceive ESP classes and the potential of educational technology to improve language proficiency and learner engagement is brought to light by this.

Cluster 2 focuses on learner-centered pedagogy, educational contexts, and the demands of real-world communication, especially in business-oriented settings. "Students," "education," "needs," "business English," "impact," and "challenges" are words that are important. This cluster represents research that examines the role of ESP in formal educational settings, particularly in higher education. The constant focus on students and education points to a high priority for curriculum creation, classroom implementation, and outcome-based learning techniques. The incorporation of needs and challenges highlights persistent issues with matching course material to students' academic and career objectives, reinforcing the importance of needs analysis as a fundamental ESP technique. Business English's inclusion in this cluster highlights ESP's occupational and vocational relevance, with an emphasis on preparing students for the global workforce. Reflective study on the efficacy and constraints of existing ESP models in fulfilling learner expectations is indicated by terms such as impact and problems. Overall, this cluster demonstrates how ESP is operationalized in educational contexts, striking a balance between institutional limitations, practical utility, and linguistic proficiency. In technical and business domains where effective communication is essential to career success, it emphasizes the need of context-sensitive teaching.

Cluster 3, which is focused on keywords like "vocabulary," "competence," "corpus," "English for Academic Purposes," and "instruction," reflects a linguistic and data-driven approach in ESP research. These keywords indicate the growing use of lexical profiling and corpus linguistics to guide the creation of ESP curricula. Vocabulary and competency are included, indicating an emphasis on assessing and enhancing students' language skills for use in academic or professional settings. This cluster revolves around corpus-based research, which reflects how actual language use—gathered from discipline-specific texts—is now fundamental to creating empirically supported learning materials. This cluster is linked to the academic subset of ESP by English for Academic Purposes (EAP), where accuracy in vocabulary, syntax, and rhetorical style is crucial. The fact that instruction is included links these discoveries to pedagogy, showing that the cluster looks at how language patterns are taught and internalized in addition to theorizing them. This cluster, taken as a whole, represents the analytical and empirical turn in ESP, where lexical, syntactic, and discourse-level data are used to improve instructional

strategies, evaluate student development, and guarantee compliance with academic standards and disciplinary norms.

Cluster 4, which is based on important words like "English," "English for Specific Purposes (ESP)," "needs analysis," and "purposes," focuses on the design and justification of ESP training. This cluster embodies the theoretical underpinnings of ESP, which are fundamentally needs-driven and goal-oriented. The fact that the name English and both full and acronymic forms of ESP are used together highlights the field's twin identities as a framework for meeting particular communication demands and as a specialty within English language instruction. Given that it serves as the foundation for the construction of the ESP syllabus, needs analysis is especially important in this context. It identifies the skills that students need to have in English for their academic or professional settings, which helps establish learning objectives, instructional materials, and evaluation methods. Whether it is for academic writing, medical English, or legal English, the existence of purposes supports this and indicates aim specificity. Therefore, this cluster exemplifies the rigorous, learner-oriented approaches that set ESP apart from mainstream English training and illustrates the conceptual design logic of ESP courses. It restates that the foundation of ESP is grounded in practical, real-world communication objectives, bolstered by strong curriculum design and diagnostic instruments.

The institutional and technological aspects of ESP are the focus of Cluster 5, which highlights terms like "ESP," "higher education," "technology," and "assessment." This grouping illustrates the growing integration of ESP into higher education systems, which is bolstered by digital tools and assessment frameworks. The mainstreaming of ESP in university curricula, especially in programs that use English as a Medium of Instruction (EMI), is indicated by the existence of higher education. The advent of digital tools, platforms, and AI-powered resources is changing the way ESP is taught and accessed, which is particularly significant given the post-pandemic trend toward online and hybrid learning environments. Assessment supports these advancements by emphasizing the necessity of assessing communicative competence that is particular to a given domain in addition to general competency. Institutions must guarantee that students get fair and relevant assessments within context-sensitive frameworks as ESP becomes more and more integrated into academic and professional courses. ESP's institutional integration and innovation frontier is represented by this cluster, which is the intersection of digital transformation, policy, and pedagogy. It proposes an ESP future course that is technologically advanced, data-driven, and closely matched with institutional learning objectives and quality control systems.

Table 5. Co-Occurrence Analysis of Keywords

Cluster No and Colour	Cluster Label	Number of Keywords	Representative Keywords
Cluster 1 (Red)	Learner-Centric Approaches and Affective Factors in ESP	11	'English for Specific Purposes', 'language', 'motivation', 'blended learning', 'learners', 'knowledge', 'anxiety'
Cluster 2 (Green)	Educational Contexts, Learner Needs, and Business Applications	11	'students', 'education', 'business English', 'needs', 'impact', 'challenges'
Cluster 3 (Blue)	Corpus-Based Research and Academic Language Competence	10	'vocabulary', 'competence', 'corpus', 'English for Academic Purposes', 'instruction'
Cluster 4 (Yellow)	Curriculum Design and Needs-Driven Instruction	9	'English', 'English for Specific Purposes (ESP)', 'needs analysis', 'purposes'
Cluster 5 (Purple)	Higher Education, Technology, and Assessment in ESP	6	'ESP', 'higher education', 'technology', 'assessment'

4. Discussion

This study contributes to the theoretical and practical understanding of ESP by showing how traditional foundations – needs analysis, genre analysis, and discourse-based pedagogy – remain central, yet are increasingly complemented by new emphases on digital literacies, corpus-based research, and affective learner factors. The co-citation clusters confirm that classic works such as Hutchinson and Waters (1987) and Dudley-Evans and St John (1998) continue to anchor the field, while co-occurrence clusters highlight contemporary shifts toward EMI, blended learning, and corpus-driven curricula. The findings also demonstrate ESP's responsiveness to broader educational transformations such as internationalization, digitalization, and employability agendas. The identification of non-Anglophone nations (Ukraine, Spain, China) as emerging leaders illustrates the global diffusion of ESP scholarship. These insights reinforce the value of bibliometric analysis not only for mapping past contributions but also for signaling future priorities.

4.1 Theoretical Implications

Through its illumination of the developing conceptual frameworks and intellectual underpinnings that support ESP research, this bibliometric analysis provides important theoretical implications for the field of English for Specific Purposes (ESP). The long-standing significance of needs-based, genre-driven, and discourse-oriented methods in ESP is further supported by the co-citation analysis, which shows that seminal works by Hutchinson and Waters (1987), Swales and Swales (1990), and Dudley-Evans and St John (1998) remain theoretical pillars. However, the rise of more recent clusters – especially those that include learner-centered methodologies, technological integration (like blended learning), and affective dimensions (like motivation and anxiety) – indicates a paradigm shift in ESP toward more comprehensive and interdisciplinary theories.

This study also emphasizes how ESP and related fields like multimodal communication, educational psychology, and applied linguistics theoretically overlap. A theoretical expansion beyond conventional linguistic limits is suggested by the incorporation of works by Vygotsky (1978), Braun and Clarke (2021), and Prensky (2001) in co-citation networks. In a variety of academic and professional

domains, ESP is becoming more and more embedded in constructivist, digital, and sociocultural paradigms that prioritize learner agency, context-sensitive education, and the collaborative construction of meaning. In addition, the mapping of keyword co-occurrence highlights the operationalization of developing theoretical frameworks in fields like digital pedagogy, English Medium Instruction (EMI), corpus linguistics, and Content and Language Integrated Learning (CLIL). These advancements push the discipline to adopt dynamic, theory-based approaches that are sensitive to worldwide trends in education, rather than designing static curricula.

Overall, this analysis emphasizes the need for a revised theoretical synthesis that takes into account learner psychology, institutional policy, and technology innovation while maintaining the fundamental ideas of ESP. Future studies can gain from combining these viewpoints to create solid theoretical frameworks that can direct ESP training in a variety of dynamic scenarios. This suggests that ESP is evolving into a hybrid theoretical domain where applied linguistics, educational psychology, and digital pedagogy intersect. Future theory-building in ESP should integrate affective dimensions (motivation, anxiety), multimodal learning frameworks, and corpus-driven approaches into unified models.

4.2 Practical Implications

The results of this bibliometric analysis have important applications for teachers, curriculum developers, legislators, and educational institutions that teach English for Specific Purposes (ESP). According to Tan et al. (2023), the discovery of high-frequency terms like needs analysis, motivation, corpus, and assessment demonstrates that learner-centered, purpose-driven, and data-informed practices are essential for effective ESP practice. The increasing digitization and institutionalization of ESP is also reflected in the prominence of terms related to blended learning and higher education, which encourage stakeholders to invest in flexible, scalable, and contextually relevant course delivery methods (Kristianti et al., 2023; Baekani et al., 2023).

Teachers can use the information gleaned from the clusters to create learning settings that are more focused, interesting, and psychologically supportive. To illustrate the necessity for inclusive instructional strategies that lower affective barriers and boost learner confidence, consider the focus on learner motivation and anxiety (Ivančević-Otanjac, 2021). Additionally, the fact that vocabulary, instruction, and corpus all occur in the same cluster suggests that using corpus-based resources and lexical profiling methods in ESP classrooms is beneficial (Wulandari, 2023). These resources give teachers the ability to match their lesson plans to real-world language usage in their students' fields of study or careers, which makes learning more effective and relevant. According to Chen et al. (2024), this study highlights the necessity of strong curriculum planning frameworks based on stakeholder input and empirical data at the institutional level.

Universities should train language instructors and content lecturers to work together to give integrated support systems, as the increasing importance of ESP in English Medium Instruction (EMI) contexts indicates (Yang et al., 2023). ESP support should be included into broader internationalization and employability agendas by policymakers and administrators to guarantee that students have the communication skills required in international academic and professional settings (Assassi & Rouaghe, 2024). ESP practitioners should also align course design with Sustainable Development Goal 4 by ensuring inclusivity, accessibility, and lifelong learning opportunities. Institutions must embed ESP support into internationalization policies, while policymakers should treat ESP as an essential skill for professional mobility in the global workforce.

5. Conclusion

This study set out to address the lack of comprehensive mapping of English for Specific Purposes (ESP) scholarship, despite its rapid growth and diversification over the past decade. While research on curriculum design, genre-based pedagogy, and technology-mediated instruction has expanded significantly, previous reviews have remained fragmented and largely descriptive. By applying bibliometric analysis, this study provides a systematic and evidence-based overview of ESP research published between 2015 and 2024.

Using performance analysis, co-citation mapping, and keyword co-occurrence analysis, the study examined 381 publications indexed in the Web of Science Core Collection. Performance analysis identified the most influential authors, sources, institutions, and countries, confirming the global expansion of ESP beyond Anglophone contexts. Co-citation mapping revealed five foundational clusters – genre-based theory, curriculum design, data-driven instruction, EMI integration, and learner motivation – highlighting the theoretical pillars of the field. Keyword co-occurrence analysis identified five thematic clusters focused on learner-centered pedagogy, corpus-informed vocabulary learning, business and higher education contexts, digital integration, and needs-based instructional design. Collectively, these findings illustrate ESP's transition from primarily linguistic concerns toward affective, technological, and interdisciplinary dimensions.

The contributions of this study are both theoretical and practical. Theoretically, it demonstrates how ESP has evolved into a multidisciplinary domain shaped by applied linguistics, digital pedagogy, and educational psychology. Practically, it underscores the increasing institutionalization of ESP in higher education and its alignment with workforce preparation and internationalization agendas. By situating these findings within Sustainable Development Goal 4 (Quality Education), the study reinforces ESP's role in promoting inclusive, equitable, and future-ready language education. In doing so, this study not only provides a consolidated overview of past contributions but also offers a roadmap for future research, curriculum design, and policy planning in ESP.

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Authors' contributions

LSP: conception and design of work; RWMM: data analysis and drafting the article; FSCY: interpretation of data; KFN: critical revision of the article; AD: supervision; HELII: formatting and rewording.

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