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Corpus Linguistics in English for Specific Purposes (ESP): A Systematic Literature Review

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ABSTRACT

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This study aims to explore the results of empirical research on the corpus linguistics approach in identifying or building vocabulary in English for Specific Purposes (ESP). In ESP, the corpus-based approach has been used in determining specific vocabulary that learners will need within a particular discipline. This study tried to determine how the corpus identifies word lists through a brief overview of the article's reviewed subject. Forty selected articles of 2028 were collected by journals indexed by Scopus, Google Scholars, and Crossref from 1980-April 2022. The results have shown that studies on corpus in ESP are still less attractive among researchers than studies in other fields. There is a lack of publications from year to year, and it even tends to decrease. In addition, many different fields of study have not been the author's concern in building a corpus, such as administration, anthropology, or others. Also, needs analysis and expert validation seem to be ignored, yet they are essential indicators in designing teaching products. So, for further research, it is highly recommended to consider the gaps mentioned to conduct more studies related to corpus compilation in ESP, especially in several fields of science that have never been done before.

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1. INTRODUCTION

English became a compulsory, essential, and general subject in all universities after it became an international language. English courses will be found in all universities in Indonesia, both with English majors and other majors. Valid for English in general and English for specific purposes. Students are introduced to English lessons from elementary, junior high to high school levels, including at the college level. It makes the number of learners of English, either as English as Foreign Language or English as a Second Language, increase.

With the increasing number of second language (L2) learners, studying English teaching materials has become the focus of corpus-based studies (Valipouri & Nassaji, 2013a). The needs for specific purposes (ESP) and general studies (EGP) are very different in English. In ESP studies, practitioners have been categorizing its genres in contexts of English for Academic Purposes (EAP) and English for Occupational Purposes (EOP) (Johns & Price-Machado, 2001). Students in these fields usually lack English language skills and adequate vocabulary knowledge (Hsu, 2013). For those purposes (ESP), several researchers have conducted a student needs analysis of the specific vocabulary used in ESP learning. The study is intended to provide teaching materials on the needs and prospects of students according to their majors. In ESP, teaching materials must refer to mastering English skills in the field. Also, vocabulary is the most important thing to master (Csomay & Petrović, 2012). At the same time, it



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is widely recognized that word lists and corpora are practical tools to help learners improve their vocabulary (Laosrirattanachai & Ruangjaroon, 2021).

Jan Aarts coined the term corpus linguistics in early 1980 (Leech, 2011). Corpus linguistics pioneer, Sinclear (1991), asserts corpus is a collection of naturally occurring language text chosen to characterize a state or variety of a change (Sinclair, 1991). It is perhaps best described in simple terms as the study of language based on examples of "real life" language use (McEnery & Wilson, 2001). Corpus linguistics is a field of study that can cover all aspects of language by investigating the casual use to obtain a suitable authentic illustration of language variation, linguistics elements, and pragmatic and discourse-related phenomena. The different application of corpus analysis categorizes corpora studies into general Corpus-based or Corpus-driven models of how language works (Bashir et al., 2018).

Vocabulary used in the corpus-based research was conducted at the beginning of 20 (Simşek & Gün, 2021). The aim is to examine patterns of language use based on extensive collections of naturally occurring texts. Typically, lexical, word, or vocabulary studies look at frequencies of individual words or the co-occurring patterns of two or more words and analyze those patterns for grammatical and functional characteristics in texts through sophisticated computational methods (Csomay & Petrović, 2012). The corpus-based approach has been explained to enable researchers to identify better and classify vocabulary items sampled from actual language use (Gardner, 2007). Correspondingly, in ESP, the corpus-based approach has been used in determining specific vocabulary that learners will need within a particular discipline. The approach has been especially useful in investigating whether general vocabulary lists are adequate for distinct domains. Consequently, various word lists as a means of facilitating language learning in ESP courses have been devised (Csomay & Petrović, 2012; Esfandiari & Moein, 2015a; Laosrirattanachai & Ruangjaroon, 2021; C. N. N. Le & Miller, 2020; Liu & Han, 2015a; Valipouri & Nassaji, 2013b).

This study aims to explore the results of empirical research on the corpus linguistics approach in identifying or building vocabulary in English for Specific Purposes (ESP) or what is known more as the Academic Word List (AWL). This study tries to find out how corpus identifies AWL for specific specifications. This article aims to provide a brief overview of the article's subject being reviewed. The second part is the research methodology explaining the literature sources, the search criteria used, and the number of papers classified by topic. The results section summarizes the findings and conclusions of the paper. While section four summarizes the research gaps of the paper and the aims of future studies. The results are expected to contribute to the arguments favoring specificity in ESP courses.

2. METHODS

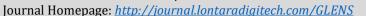
2.1 Research Design

This study uses a systematic review method to determine how corpus identifies AWL for specific specifications. This method is used to study research articles to reveal how corpus identifies characteristics of academic vocabulary. This paper will review and conclude the relevant literature over time by identifying study patterns for synthesizing the state of knowledge, developing theoretical perspectives, and suggesting potential future research.

According to Littell et al. (2008), conducting a systematic review includes several phases parallel to the primary research, including problem formulation, sampling, data collection, data analysis, interpretation, and presentation of results (Sayfouri, 2014). Despite the differences in procedures across different types of literature review, any review can be carried out by following eight general steps: (1) formulating the research problem; (2) developing and validating review protocols; (3) searching for literature; (4) screening for inclusion; (5) assess quality; (6) data mining; (7) analyze and synthesize data; and (8) report findings (Figure 1) (Xiao & Watson, 2019b).



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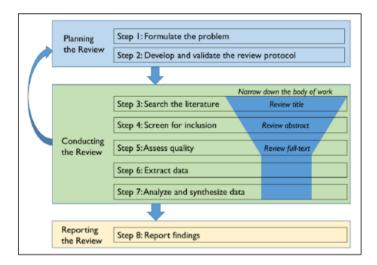


Figure 1. Process of Systematic Literature Review (Xiao & Watson, 2019a)

2.2 Data Collection

In selecting the literature, we searched for articles using Harzing's publish or perish application with the search keywords "Corpus, Corpus Linguistics, Vocabulary, Word List, English for Specific Purposes (ESP)." Because articles about this variable are still relatively lacking in the history of corpus research, we use the entire article displayed from the Application search from 1980-to 2022. This article comes from a database of leading journals such as Science Direct, ERIC, Taylor Francis, J-Wiley, and a journal published in Indonesia. It is an amount of 2028 articles.

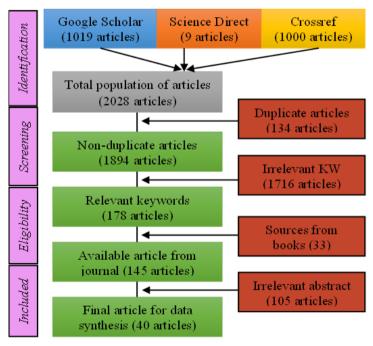


Figure 2. Systematic Review Information Flow (PRISMA)

Due to the large number of articles obtained from the search (2028 articles), the number of samples was determined through a screening process (inclusion and exclusion). The screening process used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Liberati et al., 2009). The inclusion and exclusion criteria in selecting samples consisted of several stages: *The first stage* is removing articles indicated by the Mendeley application. *The second stage* sets article titles according to



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the keyword "Corpus-based" with "Academic Vocabulary," "Corpus-based with Vocabulary," and "Corpus-based with Academic word." *The third stage* excludes sources from books. *In the fourth stage*, the abstract of each article was examined detailly and issued a report that did not show the relationship between the corpus and the Academic word/vocabulary. *As a result*, 40 studies were retained for indepth data analysis starting from extraction, coding, and assessing their quality and relevance (Figure 2).

2.3 Data Analysis

A semi-systematic review study is commonly analyzed using a qualitative approach, specifically content analysis. In analyzing the data, we attempt to list the selected articles in a spreadsheet, categorize the themes (e.g., year of publication, research purpose, method, and result), analyze and synthesize the data, and then report them descriptively.

2.4 Quality and Relevance Assessment

Data evaluation requires the establishment of criteria to assess the adequacy of the procedures used in collecting data (Cooper, 2016). Quality and relevance assessments avoid drawing conclusions based on unreliable data (Thomas & Harden, 2008a). There are many approaches to assessing the quality of quantitative and qualitative research. Some of the assessment criteria are generic, while others are specific to the research question (Gough et al., 2017). The quality and relevance of the research were critically assessed using the checklist criteria.

Quality and relevance assessment variables avoid drawing conclusions based on unreliable data (Thomas & Harden, 2008b). To assess the quality and relevance of each study or article used, the researcher applies TAPUPAS. It is (*Transparency, Accuracy, Purposively, Utility, Propriety, Accessibility, and Specificity*) which was formulated by Priola (2016) was adopted from Pawson and the Social Care Institute for Excellence (2003) (Priola, 2016a) to assess the methodological quality and relevance of each article. The assessment process begins by evaluating the eight essential elements of TAPUPAS. The criteria for assessing the quality and relevance of articles are illustrated in table 1 below.

Variable	Criteria	Point
Method	1. There is a method or design study	1
	2. There is a corpus software used	1
	3. There is detailed information about running words (tokens)	1
Instrument	There are research instruments (frow where the corpus tokens	1
	are provided)	
Result	1. There are findings in the form of a words list found	1
	2. The results are supported by the information and methods	1
	used in the research	1
	3. The findings are by the research question	1
	4. Findings relevant to research	
Total of Qua	lity Points	8

Table 1. Criteria for Evaluating the Quality and Relevance of Articles

Studies that scored 8 to 6 are rated as high quality and relevance, 5 to 3 are rated as medium quality and relevance, and two or fewer points are rated as low quality and relevance in the context of this research. To maintain quality and relevance, the articles used in systematic reviews are only those that have an overall high and medium quality and relevance (Priola, 2016b).



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3. **FINDINGS**

To see the frequency of research related to corpus linguistics from 1980 to April 2022, the following figure 3 shows the results of bibliometric analysis using VOSviewer. The study shows that analysis of "Corpora" has been carried out with several variables, including business English, games, tourism, science, etc. The small circle size indicates very little research related to the corpus so that further research can fulfill the lack of literature in science.

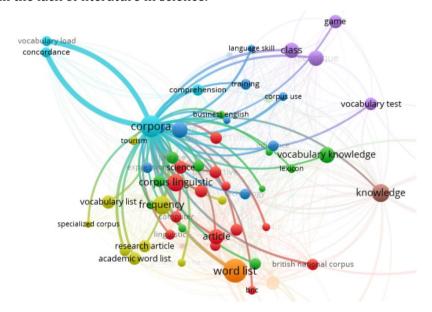


Figure 3. Bibliometric Analysis of the Total Population of Articles (2028 Articles) through VOSviewer

In addition, before reviewing the data, articles were selected through the PRISMA method. Forty articles have passed the selection process by considering several criteria for evaluating the quality and relevance of articles (TAPUPAS). The entire article is worthy of a systematic review, seeing the article's points of quality and relevance are at 7 and 8. The detailed article information is presented in table 2 below:

Table 2. The Articles' Metadata and the Quality and Relevance Point

No	Author	Title	Journal, Vol (No), pp. Year	Point
1	Mohammad Ahsanuddin, Yusuf Hanafi, Yazid Basthomi, Febri Taufiqurrahman, Herri A. Bukhori, Joko Samodra, Utami Widiati, Primardiana H. Wijayati	Building a corpusbased academic vocabulary list of four languages (Ahsanuddin et al., 2022)	Pegem Journal of Education and Instruction. 12(1) 159-167. 2022 Doi: 10.47750/pegegog.12.01.15	8
2	Zorica Đurovic	Corpus linguistics methods for building ESP word lists, glossaries and dictionaries on the example of	Lexikos. 31 (AFRILEX-reeks/series 31: 2021): 259-282 Doi: 10.5788/31-1-1647	8

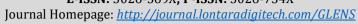






		a marine engineering word list (Đurović, 2021)		
3	Piyapong Laosrirattanachai, Sugunya Ruangjaroon	Corpus-based Creation of Tourism, Hotel, and Airline Business Word Lists (Laosrirattanachai & Ruangjaroon, 2021)	LEARN Journal: Language Education and Acquisition Research Network. 14(1) 2021	8
4	Reza Khany, Behrooz Kalantari	Accounting academic word list (AAWL): A corpus- based study (Khany & Kalantari, 2021)	Journal of Foreign Language Teaching and Translation Studies. 6(1) 35-58. 2021 Doi: 10.22034/efl.2021.268643.1070	8
5	Chinh Ngan Nguyen Le, Julia Miller	A corpus-based list of commonly used English medical morphemes for students learning English for specific purposes (C. N. N. Le & Miller, 2020)	English for Specific Purposes. 58 (2020) 102–121 Doi: 10.1016/j.esp.2020.01.004	8
6	Ismail Xodabande, Nasrin Xodabande	Academic Vocabulary in Psychology Research Articles: A Corpus-Based Study (Xodabande & Xodabande, 2020a)	MEXTESOL Journal. 44(3). 2020	8
7	Patcha Bunyarat	A corpus-based study of specialized vocabularies in industrial work for developing industrial word lists of English for science and technology class (Bunyarat, 2020)	Journal of Language and Culture 39(2). 2020	8

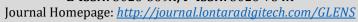






8	Danial Shirzadi, Hamid Reza Dolatabadi	Developing an Academic Word List for the Students of Health Information Management: A Corpus Study (Shirzadi & Dowlatabadi, 2020)	Iranian Journal of English for Academic Purposes (IJEAP). 2020, 9(3)	8
9	Le, Lan Phuong, Kettle, Margaret, Pillay, Hitendra	Using corpus analysis in a needs analysis of key English vocabulary for petroleum engineers in Vietnam (L. P. Le et al., 2020)	Asian EFL Journal, 24(1), 45-68. 2020 from: https://eprints.qut.edu.au/199869/	8
10	Monika Bednarek	The Sydney corpus of television dialogue: Designing and building a corpus of dialogue from US TV series (Bednarek, 2020)	Corpora, 15(1), 107–119. 2020 Doi: 10.3366/cor.2020.0187	7
11	Thi Ngoc Yen Dang	The potential for learning specialized vocabulary of university lectures and seminars through watching discipline related TV programs: Insights from medical corpora (Dang, 2020)	TESOL Quarterly, 54(2), 436-459. 2020 Doi: 10.1002/tesq.552	8
12	Xodabande, I	Investigating the vocabulary load of psychology textbooks: A corpus-based study (Xodabande, 2020)	Cambridge Open Engage. 2020 doi: 10.33774/coe-2020-jfvvd	8
13	Sandra Bancroft- Billings	Identifying spoken technical legal vocabulary in a	English for Specific Purposes 60 (2020) 9–25 Doi: 10.1016/j.esp.2020.04.003	8







		law school classroom (Bancroft-Billings, 2020)		
14	Todsaporn It- ngam, Supakorn Phoocharoensil	The development of science academic word list (It-ngam & Phoocharoensil, 2019a)	Indonesian Journal of Applied Linguistics, 8(3) 657-667. January 2019 Doi: 10.17509/ijal.v8i3.15269	8
15	Hyeon-Okh Kim, Hye-Kyung Lee	The academic vocabulary list in linguistics for EFL university students (Kim & Lee, 2019)	Korean Journal of English Language and Linguistics. 19(1), 27-52. 2019 Doi: 10.15738/kjell.19.1.201903.27	8
16	Ng Yu Jin	Development of a corpus of malaysian KBSM engineering texts and related word list (Jin, 2015)	(Thesis) Universiti Putra Malaysia, School of Graduate Studies, Doctor of Philosophy, 2019	8
17	Srifani Simbukaa, Fuad A. Hamied, Wachyu Sundayana, Deny A. Kwary	A corpus-based study on the technical vocabulary of Islamic religious studies (Simbuka et al., 2019a)	TEFLIN Journal. 30(1) 47-71. January 2019 Doi: 10.15639/teflinjournal.v30i1/47- 71	8
18	Angkana Tongpoon- Patanasorn	Developing frequent technical words list for finance: A hybrid approach (Tongpoon- Patanasorn, 2018a)	English for Specific Purposes, 51 (2018) 45-54 Doi: 10.1016/j.esp.2018.03.002	8
19	Pong-ampai Kongcharoen	Basic physical education and sport science English word list for physical education students (Kongcharoen, 2018a)	rEFLections. 25(2) July – December 2018	8
20	Mr. Thana Kruawong	A corpus-based study of English zoology academic	Thesis. Master's degree (2018) Language Institute, Thammasat University	8

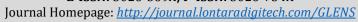




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		word lists (Kruawong, 2018)		
21	Betsy Quero	A corpus comparison approach for estimating the vocabulary load of medical textbooks using the GSL, AWL, and EAP science lists (Quero, 2017)	TESOL International Journal. 12(1) 177-192. 2017	8
22	Ping Wang	A corpus-based study of English vocabulary in art research articles (P. Wang, 2017)	Journal of Arts and Humanities. 6(8) August 2017 Doi: 10.18533/journal.v6i8.1255	8
23	Ebtisam Saleh Aluthman	Compiling an OPEC word list: A corpus-informed lexical analysis (Saleh Aluthman, 2017)	International Journal of Applied Linguistics & English. 6(2) March 2017	8
24	Sorawut Chanasattru, Supong Tangkiengsirisin	Developing of a High Frequency Word List in Social Sciences (Chanasattru & Tangkiengsirisin, 2016)	Journal of English Studies, Vol. 11 (2016) 41-87	8
25	Lei Lei, Dilin Liu	A new medical academic word list: A corpusbased study with enhanced methodology (Lei & Liu, 2016)	Journal of English for Academic Purposes. 22 (2016) 42-53 Doi: 10.1016/j.jeap.2016.01.008	8
26	Verónica L. Muñoz	The vocabulary of agriculture semipopularization articles in English: A corpus-based study (Muñoz, 2015)	English for Specific Purposes, 39 (2015) 26–44 Doi: 10.1016/j.esp.2015.04.001	8
27	Simon Fraser, Walter Davies and Keiso Tatsukawa	Creating a corpus- informed EMP course for medical undergraduates	Journal of the IATEFL ESP SIG. Winter – Spring 2015 Issue 45	8







		(Fraser et al., 2015)		
28	Rajab Esfandiari, Ghodsieh Moein	A Corpus-driven Food Science and Technology Academic Word List (Esfandiari & Moein, 2015b)	Issues in Language Teaching (ILT). 4(2) 131-157. December 2015	8
29	Jia Liu, <u>LinaHan</u>	A corpus-based environmental academic word list building and its validity test (Liu & Han, 2015b)	English for Specific Purposes. 39 (2015) 1-11 Doi: <u>10.1016/j.esp.2015.03.001</u>	8
30	Ali Mozaffari, Raouf Moini	Academic words in education research articles: A corpus study (Mozaffari & Moini, 2014)	Procedia - Social and Behavioral Sciences. 98 (6) 1290-1296. May 2014 Doi: 10.1016/j.sbspro.2014.03.545	8
31	Ming-Nuan Yang	Academic vocabulary in the abstracts of nursing journals: A corpus-based study (Yang, 2013)	Asian ESP Journal. 9(3) 98-125. 2013	8
32	Ng Yu Jin, Lee Yi Ling, Chong Seng Tong, Nurhanis Sahiddan, Alicia Philip, Noor Hafiza Nor Azmi, Mohd Ariff Ahmad Tarmizi	Development of the engineering technology word list for vocational schools in Malaysia (Jin et al., 2013)	International Education Research. 1(1), 43-59. 2013 Doi: 10.12735/ier.v1i1p43	8
33	M.Nordin, N. R, Stapa, S. H, Darus, S	Developing a specialized vocabulary word list in a composition culinary course through lecture notes (N. R. et al., 2013)	Advances in Language and Literary Studies. 4(1), January 2013, Doi: 10.7575/aiac.alls.v.4n.1p.78	8
34	Leila Valipouri, Hossein Nassaji	A corpus-based study of academic vocabulary in chemistry research articles	Journal of English for Academic Purposes. 12 (2013) 248–263 Doi: 10.1016/j.jeap.2013.07.001	8



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		(Valipouri & Nassaji, 2013b)		
35	Min Zhang	A corpus-based comparative study of semi-technical and technical vocabulary (Zhang, 2013)	The Asian ESP Journal. 9(2 Special Edition) 148-172. 2013	8
36	Eniko Csomay, Marija Petrovic	"Yes, your honor!": A corpus-based study of technical vocabulary in disciplinerelated movies and TV shows (Csomay & Petrović, 2012)	System, 40 (2012), 305-315 Doi: 10.1016/j.system.2012.05.004	8
37	Wenhua Hsu	The vocabulary thresholds of business textbooks and business research articles for EFL learners (Hsu, 2011b)	English for Specific Purposes 30 (2011) 247–257 Doi: 10.1016/j.esp.2011.04.005	8
38	Wenhua Hsu	A business word list for prospective EFL business postgraduates (Hsu, 2011a)	The Asian ESP Journal. 7(4) 63-79 December 2011	8
39	Iliana A. Martı´nez, Silvia C. Beck, Carolina B. Panza	Academic vocabulary in agriculture research articles: A corpus-based study (Martínez et al., 2009)	English for Specific Purposes. 28 (2009) 183–198 Doi: 10.1016/j.esp.2009.04.003	8
40	Jing Wang, Shao- lan Liang, Guang- chun Ge	Establishment of a medical academic word list (J. Wang et al., 2008)	English for Specific Purposes. 27 (2008) 442–458 doi: 10.1016/j.esp.2008.05.003	7

From the forty articles in table 2, the findings of this review will display three main results: trends in corpus linguistics research, types of corpus software and its intended use, and implications and limitations of the corpus study. The findings are discussed respectively in order. Trends in the corpus linguistics study of the 40 articles were categorized as follows:



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3.1 The Rate of Publications Years

The distribution of corpus linguistics research from year to year is shown in Figure 4. It illustrates that the trend of corpus linguistics studies fluctuates from 2008-May 2022. This data indicates that corpus linguistics research is still very rarely carried out. So, this study's availability of literature is infrequently found.

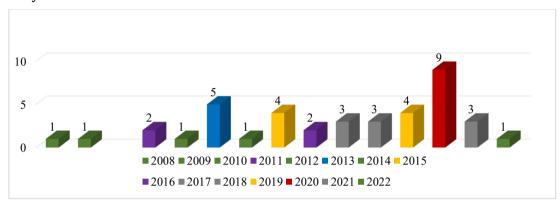


Figure 4. The Number of Years by Publication

3.2 The Specific Domain

The distribution of corpus linguistics research in figure 5 found various domains (fields of study) from 40 articles. There are several fields with particular study specifications in it in this field. For example, there is 1 study concentrating on nursing in medical, one specific study with semi-popularization in agriculture, and 1 article each with studies on tourism, hotel, airline, and EFL in the business field. There is also 1 article with an art study in Social Science and 1 article each with a survey of Technology, Marine, Petroleum, Industrial, and Information in the Engineering domain. Furthermore, there is 1 article on accounting in the finance sector and 1 article on culinary studies. At the same time, one paper discusses Food Science and Technology in Food studies. This distribution shows that the authors are more interested in Medical and Engineering studies than others. Meanwhile, many fields of study have not been the authors' attention, such as administration, marketing, and others. The void of literature related to this field allows researchers to conduct further research.

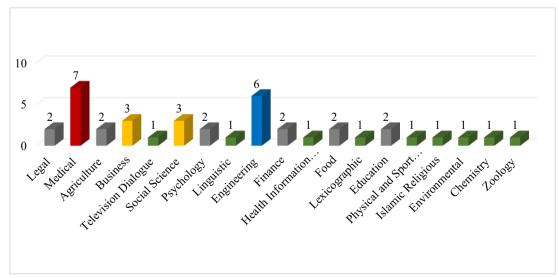


Figure 5. The Number of Word List Specific Domain



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3.3 The Research Methods

Figures 6 and 7 illustrate the research methods used in the review articles. The research method is categorized as pure corpus and mixed method (corpus with another method). Figure 6 shows that the most commonly used method is the mixed method with 25 articles, while researchers who only use the corpus method have 15 articles. Figure 7 shows five other kinds of techniques combined with the corpus method. Among them, there is 1 article using ADDIE in building the corpus, 1 article using students'/teachers' need analysis before building the corpus, and one using expert assistance to check or validate the resulting vocabulary (after making the corpus). Another method performs specialized dictionary checking after analyzing the corpus and comparing the words generated through AWL by Coxhead and GSL by West and BNC/COCA testing. These results indicate that some researchers use AWL and GSL as a reference in compiling a specific academic word list. Meanwhile, several corpora were also analyzed and tested materially through BNC COCA as the most extensive corpus in linguistics. Researchers attempt to ascertain whether the word lists found are already in the AWL, GSL, BNC, or COCA lists and whether these words do not overlap in AWL or GSL.

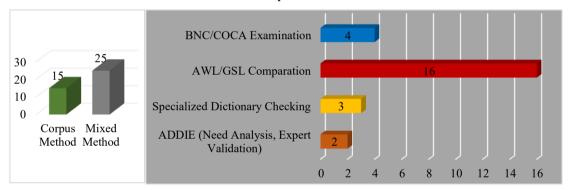


Figure 6. (left). The Research Method. Figure 7. (right). The Kind of Mixed-Method Used.

3.4 The Research Instruments

In building a corpus, instruments are one of the indicators that must be met. Figure 8 shows the distribution of the instruments used by the researchers in constructing their corpus. As in research in general, an instrument is used to collect data. So is corpus research. The instrument is a data storage with thousands to millions of word tokens and word types. It is what the researcher collects to be analyzed into a specialized word list. Figure 8 shows that of the ten types of instruments used in review articles; 20 papers use articles as the main source in collecting word tokens and word types. Seven articles used books or textbooks. Three articles used movies transcribed, while two articles each obtained tokens via email/call transcripts, class meetings transcript/ PowerPoint slide at the course, and existing freely sub-corpus. The rest is from websites, work reports, thesis/dissertation, and industry documents.

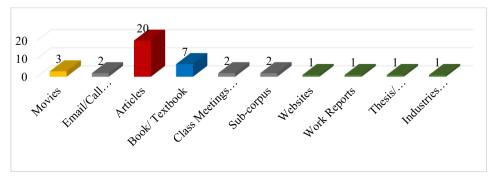


Figure 8. The Research Instruments Used in Compiling the Corpus



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3.5 The Corpus Running Words

Figure 9 below shows the results of the distribution of the word token data for the entire review article. It showed that some articles had more than 10 million tokens. This token was the initial data for researchers to analyze to build a specialized word list related to the field studied.

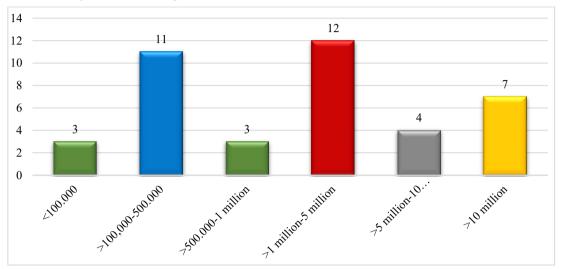


Figure 9. The Corpus Running Words from the Instruments Used

3.6 Types of Corpus Software and Its Intended Use

Of course, to build a corpus, you need a tool because it will be time-consuming if done manually. Several previous researchers have produced software to facilitate the researchers in conducting corpus analysis. The most widely used software in this review article (there are 12) is the RANGE program by Nation (2004), which is freely available online at https://www.wgtn.ac.nz/lals/resources/paulnations-resources/vocabulary-analysis-programs. The Range program is used for analyzing the vocabulary load of texts. It tells how much and what vocabulary occurs in a particular text or group of texts. The other most used tool is Anthony's software. Anthony's two most frequently used software for corpus analysis are AntConc, a freeware corpus analysis toolkit for concordance and text analysis, and AntWordProfiler, a freeware tool for profiling the vocabulary level and complexity of texts. Both can be free download at http://www.laurenceanthony.net/software.html. After that, five articles use WordSmith's tool, a windows software for finding word patterns available for download at https://www.lexically.net/wordsmith/downloads/.

In addition, the use of Sketch Engine, a corpus query tool for subscribers available at https://www.sketchengine.eu/, for counting morpheme online. It allows customized options to search for a particular morpheme and show concordance lines of different words derived from each morpheme (related phrases) other tools like Linux Operation, Complete Lexical Tutor, Standford CoreNLP Python. At the same time, there are two articles with unclear software and using available freely corpus (corpusdriven study). What is different is using some software sequentially in building the corpus, namely the mixed method of being operated from four articles. Look at the details for the mixed method; there was a combination of RANGE with AntConc, WordSmith with RANGE, WordSmith with AntConc combined Word Checklist, and Anthony's Software with Doc Compare. Of the several tools presented in figure 10, many other software can be used as a corpus analysis tool. Usually, every software is equipped with clear instructions to be easily accessible.



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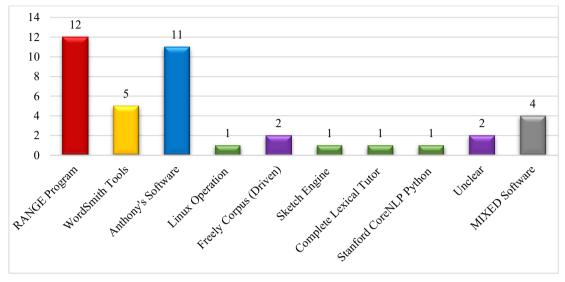


Figure 10. The Corpus Software Used in Building a Wordlist

4. DISCUSSION

Identifying and categorizing academic and discipline-specific vocabulary is essential to various stakeholders in English for Specific Purposes (ESP) programs (Xodabande & Xodabande, 2020b). Corpus/corpora have been widely acknowledged and gradually becoming mainstream (Bunyarat, 2020), providing many benefits in language teaching and increasing student vocabulary, especially in ESP (Laosrirattanachai & Ruangjaroon, 2021). In language classes, corpora can be used as Data-Driven Learning to teach vocabulary.

The presence of several fields of study in science also creates new needs in the English language specification. The urgency of the corpus/corpora provides an opportunity for researchers to present literature to meet the needs of this knowledge. However, based on the analysis, research on the corpus is not as many as other studies. From 1980 to April 2022, only 2028 articles have been detected at a Publish or Perish searched using Crosreff, Scopus, and Google Scholars. Further, there are only 40 corpus research articles within the variable English for Specific Purposes (ESP): Creating word list. It means that there is a lack of literature related to this study. What's more, there are only three articles published in the last year of 2021.

After further analysis, several corpus researchers showed a tendency in specific fields of study, such as medical and engineering. The rest were business and general social science. Many other fields of study have not been the author's concern in building a corpus, such as administration, marketing, sociology, anthropology, philosophy, or others. The void of literature related to this field allows researchers to conduct further research.

Another interesting thing is that comparing the results of the corpus analysis with AWL/GSL and BNC/COCA attracted the attention of researchers. That's because GSL as a general glossary and AWL as a discipline-specific glossary have so far been developed through West (1953) and Coxhead (2000) (Tongpoon-Patanasorn, 2018b). Following the publication of GSL and AWL, efforts have been made to investigate the importance and relevance of these vocabulary lists in different disciplines (Kongcharoen, 2018b).

On the other hand, two corpus studies conduct needs analysis before building their corpus. It is important to consider that the corpus research in this review article targets users such as students and teachers from certain fields of study from English for Specific Purposes (ESP). Meanwhile, developing



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ESP teaching materials is the primary indicator that must be met. Building a corpus word list for ESP materials should be based on the context (Ahsanuddin et al., 2022), meaning that students/teachers need from the material is a context.

Experts' views are also essential because some general high-frequency words (e.g., tissue, delivery) also have specialized meanings and technical vocabulary should be considered. It needs validation and ratings to ensure that the list reflects the words students will likely meet in their discipline (Dang, 2020). It is in line with expert validation, which is less applied but significantly affects the formation of the resulting vocabulary list. Using experts' ratings as part of a corpus compilation is rarely implemented. This phenomenon indicates that combining the corpus analysis method with the ADDIE method or one part of ADDIE, such as needs analysis or expert validation, must be considered in compiling the glossary.

This assumption is in line with the writings of Laosrirattanachai & Ruangjaroon (2021). They summarized the five criteria used to create a corpus word list, including Frequency, Range, Lexical Profiling, Expert's view, and Keyness (Laosrirattanachai & Ruangjaroon, 2021). Frequency is the first 100 high-frequency words covering about half of the text (It-ngam & Phoocharoensil, 2019b). The range is how wide the scope of these words appears from several data sources being analyzed (Simbuka et al., 2019b). Linguistic profiling is about classifying words; however, a word should not appear in more than one group. Expert input and feedback are also important and should not be committed. The specialist opinion is regarding including a specific word in a word list from people active in the field the word list is created for. And Keyness is the result of keyword analysis, referring to identifying keywords appearing in a corpus (Laosrirattanachai & Ruangjaroon, 2021). It further strengthens the position of experts' views in building a valid and relevant corpus.

The availability of language corpora for language learners and teachers adds to the dimensions of the criteria for success in language learning. Various corpora based on different disciplines have been formed and analyzed to improve students' academic vocabulary learning efficiency in an educational environment. So, the corpus always plays an essential role in helping students improve language learning, especially vocabulary. Therefore, making a word list using corpus help is necessary and thus can help students focus on vocabulary that can be useful for them to understand the language.

5. CONCLUSION

The current systematic literature review on corpus linguistics in English for specific purposes (ESP) from 1980-April 2022, as many as 2028 articles brought the authors to a final 40 for further analysis. The findings show that corpus research is still less attractive among researchers than studies in other fields. It can also be seen from the lack of publications from year to year and even tends to decrease. Even though the role of the corpus in ESP still plays an essential role in helping students and teachers understand vocabulary in specific fields. In addition, many other fields of study have not been the author's concern in building a corpus, such as administration, marketing, sociology, anthropology, philosophy, or others. This further results in the lack of related literature. Needs analysis and expert validation seem to be ignored even though they are essential indicators in building or designing teaching products. Considering that the corpus is identical to the ESP, the needs analysis should be considered a supporting method in compiling the corpus. Likewise, the experts' rating validates and checks the quality and relevance of the products produced. So, it is highly recommended to consider the gaps mentioned for further research.

Finally, the lack of literature in conducting research reviews does not limit the scope of the reviewed studies. All articles that appear in that time frame with search keywords are the source of data in conducting research reviews. This finding can be used to add to the literature related to the relationship between the corpus and ESP. Future research can conduct more studies related to corpus compilation in ESP, especially in several fields of science that have never been done before.



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CONFLICT OF INTEREST STATEMENT

The authors declare that there are no known financial, personal, or professional conflicts of interest that could have influenced the research, authorship, or publication of this article. All authors have participated in the work to take public responsibility for appropriate portions of the content. They have no affiliations or involvement with any organization or entity with any financial interest (such as honoraria, educational grants, participation in speakers' bureaus, membership, employment, consultancies, stock ownership, or other equity interest) or non-financial interest (such as personal or professional relationships, affiliations, or beliefs) in the subject matter discussed in this manuscript. Authors state no conflict of interest.

DATA AVAILABILITY

The data that support the findings of this study consist of previously published research articles analyzed through a systematic literature review. All data were obtained from open-access or subscription-based academic databases, including Scopus, Google Scholar, ERIC, Taylor & Francis, and ScienceDirect. Since this study did not generate new empirical data, no additional datasets were created or analyzed. All references and sources used in the review are fully cited within the manuscript and available in the public domain. Data availability is not applicable to this paper as no new data were created or analyzed in this study.

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