Delivering relevance: the emergence of ESP as a discipline

Ken Hyland & Fang (Kevin) Jiang

English for Specific Purposes distinguishes itself from more general language study through a focus on particular, purposeful uses of language, or what Cummins (1982) refers to as 'context-reduced' language. This tends to be generally more abstract and less dependent on the immediate setting for its coherence than everyday language use. A commitment to language instruction that attends to students' specific purposes for learning English has given ESP a unique place in the development of both theory and innovative practice in language instruction since the term first emerged in the 1960s. With countless students and professionals around the world now required to gain fluency in the conventions of their particular communicative domain of English to steer their learning and promote their careers, ESP has consolidated and expanded its role. It is now a major player in both research and pedagogy in applied linguistics, with a large and growing contribution from researchers around the world.

These changing research concerns and sources are the topic of this paper. Adopting a bibliometric approach, we explore the literature over the past 30 years (1990-2020) to trace the interests of the field during a formative part of its emergence as a discipline. Following our earlier paper looking at how research in EAP has evolved (Hyland & Jiang, 2021), we seek to identify changes in the research themes, prominent journals, books, papers and authors of ESP together with its geographical sources, and its citing fields. Specifically, we address these five questions:

(1) What have been the most frequently explored themes and have these changed?

(2) Which authors have been most influential and have these changed?

(3) Which publications have been most influential and have these changed?

(4) Which countries have been most productive in contributing to this research over the period and have these changed?

(5) Which journals have published the most ESP papers and which journals have been most active in citing them?

ESP: Characteristics and contexts

English for Specific Purposes is based around the simple idea of researching and delivering specific, learner-centred language instruction. Early on, Peter Strevens (1977) distinguished ESP in terms of: the primacy it gave to language-using purposes, the need to align curricular content with learner goals, and the use of appropriate teaching methods. The field emerged in the early 1960s as a response to the increasing globalisation of world markets and the growth of English as a commercial lingua franca to facilitate this (e.g. Hutchinson & Waters, 1987). In this context, language teachers found themselves teaching technical English to non-native students and needing information about their discourses to do so (Swales, 1988). ESP thus grew out of text-based counts of grammar features in written technical documents, which quickly gave way to more explanatory models which sought to connect technical lexico-grammar and authors' rhetorical purposes.

This interest in what particular groups are seeking to *do* with language coalesces around the core concept of *learner needs*. It is the various views of this concept which inform ESP's focus on discourse features and text structures and which has pushed its expansion into ever more genres and professional areas. ESP is aided in this enterprise by a receptiveness to different research perspectives and methods and a strong desire to marry theory and practice (Anthony, 2019; Belcher, 2009; Johns, 2013). ESP, then, is an approach to language education based on identifying the specific language features, discourse practices, and communicative skills of target groups while recognising the subject-matter needs and expertise of learners (Hyland, 2006).

ESP is often seen as having two branches, English for Academic Purposes and English for Occupational Purposes (e.g. Orr, 2002; Ramirez, 2015), with ever-increasing sub-divisions and their equally proliferating acronyms (e.g. Dudley-Evans & St John, 1998). However, as Belcher observes:

> There are, and no doubt will be, as many types of ESP as there are specific learner needs and target communities that learners wish to thrive in.   (Belcher, 2009: 2)

The picture is further complicated by hybrids such as English for Academic Legal Purposes (EALP) to describe courses for those *studying* law rather than *practising* it, who might need English for Legal Purposes (ELP). Subtypes abound, and the British Council[1] includes Survival English for immigrants and English for Hotel Management among the branches of ESP. Such proliferation of types, and their pedagogic value to growing numbers of clients, has helped establish ESP as a leading area of language education.

There have been numerous attempts to map ESP's evolution, largely by luminaries of the field drawing on their knowledge of its main areas and interests. Hutchinson and Waters (1987) and Dudley-Evans and St John (1998), for instance, see a movement from register analysis to greater concern with discourse, target situations, identification of needs, and skills. Upton (2012) identifies a similar movement from 'words and structures' to 'texts and purposes', to 'learners and genres' to 'contexts and interactions'. Johns (2013) also traces four periods, each of ten years, in the life of ESP as it moved away from text-based counts of grammatical features to rhetorical analysis, the introduction of genre and moves, the dominance of genre, and a future characterised by expansion of methodologies, geographical regions and growing attention to multimodalities.

Reviews have also sought to identify the key areas of ESP (e.g. Belcher, 2009; Paltridge & Starfield, 2011), with needs analysis, genre, corpus studies, and specialised language skills and lexis figuring prominently. Handbooks add themes such as disciplinary variation, intercultural rhetoric, English as a Lingua Franca and critical perspectives to these (Hyland & Shaw, 2016; Paltridge & Starfield, 2013). Beyond these impressionistic surveys, some studies have systematically examined published papers to distinguish key aspects of the field, focusing on the flagship journals *English for Specific Purposes*

---

[1] ESP Teaching English. British Council and BBC https://www.teachingenglish.org.uk/article/esp

(ESPJ) and *Journal of English for Academic Purposes (JEAP)* (e.g. Master, 2005; Johns, 2013; Paltridge & Starfield, 2011). Hewings (2002), for example, analysed papers published in ESPJ between 1980 and 2001, finding a gradual trend towards a predominance of written discourse analysis, largely concerned with published, rather than student texts. Gollin-Kies (2014) confirms this focus in papers published in the two journals between 2003 and 2013 while Swales and Leeder (2012) found that the top 15 most cited papers in ESPJ between 1990–1999 dealt with the discourse of written texts.

These impressionistic accounts have very recently been supplemented by more quantitative studies using bibliometric techniques. Liu & Hu (2021), for example, used scientometrics to analyse the co-citation patterns of 1092 articles and their 25,147 unique references of papers in ESPJ and JEAP between 1980 and 2018. They identified 11 clusters of co-cited references, representing the field's major areas of research in three phases. They label these the conceptualizing stage (1970s–1990s) focused on needs analysis; the maturing stage (1990s–2000s) characterized by major methodological approaches, and the flourishing stage (2000s-), featuring the growth of diverse research interests. In a wider study, we used bibliometric methods to explore the main trends in EAP in 40 *Web of Science* indexed journals from 1980 to 2020 (Hyland & Jiang, 2021). Using a different method, we identified 12,600 articles and discovered that while topics concerning teaching, learning and classroom practices continue to characterise the field, those with a focus on contexts and discourses have increased since 2001, with growing interest in identity, interaction and genre. The most cited authors and publications also show a marked shift towards an interest in academic writing and social interaction.

In the present study we use bibliometric techniques to analyse relevant themes, methods, authors and cited works in Social Science Citation Index (SSCI) journals since 1990, a year which marks the start of what Johns' (2013) calls ESP's 'modern age', where many of the central concepts had been established. This, then is the point at which the field is starting to be taken seriously in applied linguistics and language teaching and when the Social Science Citation Index (SSCI) was introduced, thus providing a way for

individuals, institutions, and governments to rank valued journals. We start at the point where ESP is taking off. We hope our findings will both contribute to a better understanding of the field of ESP and also suggest how it has matured as a central area of study.

3. Methodology

3.1 Approach

Bibliometrics is "the application of mathematics and statistical methods to the analysis of academic publications" (Pritchard, 1969: 348). It is used in library and information sciences to describe patterns of publication within a given field or body of literature and has helped to explore research networks (González-Alcaide et al., 2012), authorial collaboration (Davarpanah & Aslekia, 2008), and publication gender inequalities (Sebo et al, 2020). Most famously, the fact it facilitates the quantitative evaluation of publications, journals, and authors means that it informs the Science Citation Index and is often used to study the research productivity of individual scholars and countries (Ma et al, 2014; Liu et al, 2015).

Studies have not, however, generally sought to identify the most popular research themes, highly cited authors, or publications in a field. Liu and Hu (2021) and Hyland and Jiang (2020), are among the exceptions to this. The current paper differs from these, however, by a) prioritising relevant topics rather than journals and b) by scouring the entire indexed literature to do so.

3.2 Corpus

To address our research questions we first created a corpus of ESP-relevant articles. To do this we focused on those themes at the heart of the field, dealing with the teaching and research of English in specialized areas. We see theme as comprising topics and methods of analysis and relied here on two sources of information. First, the Statement of Aims in the journal of *English for Specific Purposes*, which lists the following areas of interest:

second language acquisition in specialized contexts, needs
assessment, curriculum development and evaluation, materials
preparation, discourse analysis, descriptions of specialized
varieties of English, teaching and testing, the effectiveness of
approaches to language learning and teaching and the training of
teachers of ESP[2].

To these items we added others regarded as key areas by the editors of *the Handbook of English for Specific Purposes* (Paltridge & Starfield, 2013) which include:

medical, academic, nursing, workplace, business, legal English,
aviation, science and technology, professional, and occupational
English.

We took each of these themes and searched ALL the journal abstracts in the entire SSCI collections on the *Web of Science* (WoS).

We chose to survey the *Web of Science* databases from the 'core collections' as these contain the prestigious SSCI listed journals and represent the most recognised sources of excellence in research endeavour. This approach differs from our earlier paper looking at EAP as there we included many papers that were not SSCI indexed. Alternative sources such as *Google Scholar* and *Scopus* have a wider coverage, but neither ensure the same rigorous quality control. *Google Scholar* is a search engine covering the whole internet which produces results based on machine automated matching criteria and *Scopus* is very variable in quality and includes non-peer reviewed journals. WoS includes 12,000 high impact journals made on the basis of impact evaluations and contains over 79 million papers. While SSCI indexed papers may not be representative of the vast output of ESP scholarship, they exemplify what is best recognised and valued by the community. This work, then, might be expected to be the most visible, most read, most cited and so most influential on research conducted in ESP (see also Lei & Liu, 2019 and Zhang, 2020).

---

[2] https://www.journals.elsevier.com/english-for-specific-purposes

We defined the search span as 1990 to 2020. This was partly because 1990 is when the SSCI begun and tracking from that date gives a consistent quality to the texts in the corpus. We also wanted to offer a quantitative supplement to more impressionistic studies in the literature and extend work after the major reviews ending in 2000 (Hewings, 2002; Swales & Leeder, 2012). As we described above, this encompasses the period where ESP has emerged from its beginnings in needs assessment, statistical grammar counts, local newsletters and international British Council teaching projects (Johns, 2013; Swales, 2020). The *Journal of Second Language Writing*, publishing articles overlapping ESP interests started in 1991 while the flagship journal *ESP* had been running for a decade. Swales seminal *Genre Analysis* was published that year and would transform how academic writing was seen and taught. For Johns (2013), 1990 marks the beginning of the 'modern period' of ESP: the point where it became of age and its key concepts gained currency.

This search of the WoS yielded 3,467 SSCI articles published since 1990 containing reference to the search themes. For these papers we downloaded all the accompanying data, of titles, keywords, abstracts, reference lists and author names and affiliations. Figure 1 shows the distribution of these publications across the years. We can see a remarkable increase in the number of publications after 2005, and because of this we chose this as a cut-off, enabling us to trace the change before and after this shift. The first period 1990 to 2004 contains 535 articles and the second from 2005 to 2020 has 2,932.
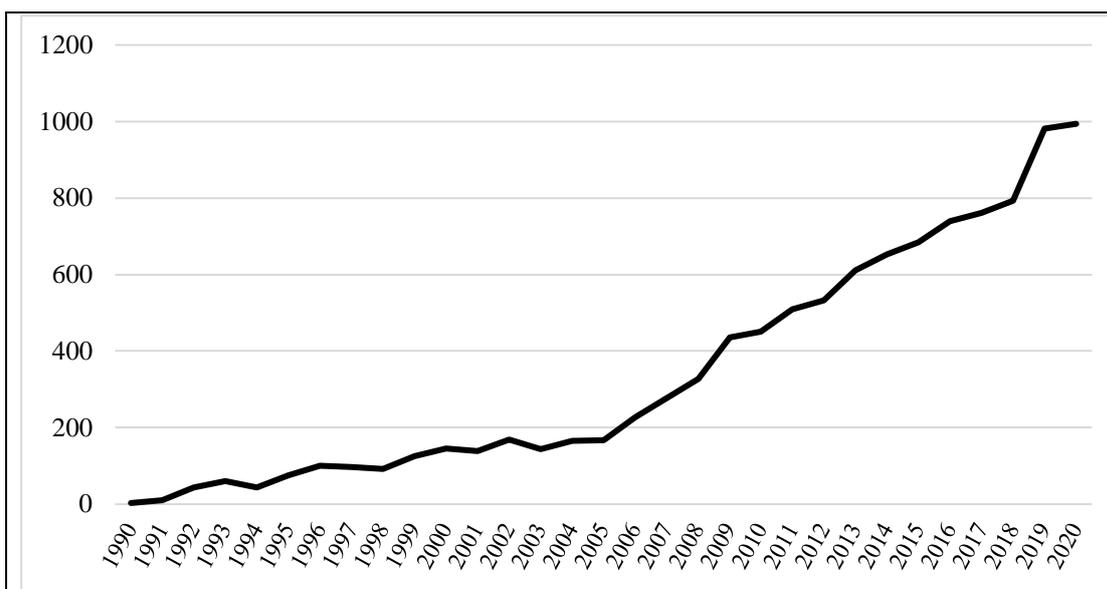
Figure 1 Changing number of ESP related articles across the 30 years

3.3 Data searches

We then probed these three corpora to answer our research questions, pursuing the same areas as we addressed in our EAP paper (Hyland & Jiang, 2021):

    (1) The most frequently explored themes overall and in each period

    (2) The most cited authors overall and in each period

    (3) The most cited books, chapters and articles in the two periods

    (4) The most productive countries/regions over the two periods

    (5) The most active journals publishing and citing ESP papers

Question 1, regarding themes, we addressed in the following way:

1) Annotated all the identified abstracts with part-of-speech and lemma information[3] using Schmid's (1995) *TreeTagger* programme (c.f. Lei & Liu, 2019).

2) Searched the tagged corpora to identify all nouns and n-grams of 2 to 5 words using *AntConc* (Anthony, 2019) to identify candidate themes.

3) Filtered the n-grams using an automatic process (using stop words) to exclude function words (modals, pronouns, etc) which do not occur in research topic phrases.

---

[3] A lemma is the dictionary or citation form of a word, e.g. run, runs, ran and running are indexed by the lemma 'run'. This ensured that we captured all examples of a form.

4) Manually checked all remaining cases to exclude phrases which did not constitute research themes.

To identify potential themes we focused on nouns, which offer a more productive way of capturing themes than other parts of speech, and on 2-5 word *n*-grams, which gave us a realistic chance to identify themes such as *professional development* (2-word gram) and *Listening comprehension of academic lectures* (5-word gram). In this process we rejected items in three categories: a) words and clusters common in general language use (*seem to* and *in depth*), b) concepts and themes not specific to ESP (*response to*, *significant difference*, *the findings suggest*) and c) concepts and issues common in ESP but too general to be useful (e.g. *meaning, Non-native English Speaker*) (see Lei & Liu, 2019).

In addition to these stipulations, we only included themes if they met a threshold frequency of at least 30 occurrences. This follows Lei and Liu (2019) and Hyland and Jiang (2021) who regard this frequency as high enough to ensure that the selected items were significant in the texts, but not so high as to exclude important areas. We also included a range criterion to guarantee a topic was sufficiently widespread in the literature, so that only items which occurred in 10% or more of the publications were included. We then normalised the frequencies by representing the number of occurrences of each theme per 100 papers to allow comparisons between time periods. Finally, we ran a one-way chi-square test for each of the themes across the two periods to determine statistical differences in their frequencies.

Questions 2 and 3 concern the most prominent authors and publications. Here we used frequency counts to identify the most-cited authors in the references of the papers in each period. To find the titles of the most highly cited publications, we used a regular expression search to discover the frequencies of all the books, chapters, and articles from the reference lists of the articles in the corpus.

Question 4 concerns the most productive countries in ESP publishing and here we extracted the affiliation of every author of every paper in the corpus.

Question 5 addresses the journals publishing and citing ESP research. To answer this we used a Web of Science facility to find all the citations the ESP papers had gained and generated a list of the journal sources contained in them. Finally, both authors examined the results independently to check our results and resolve a small number of problematic cases.

4. Results and discussion

In this section we discuss our findings taking each research question in turn.

4.1 The most frequently studied themes

We understand themes to include both the issues explored and the means of exploring them, thus comprising both topics and methods. The criteria discussed in section 3.3 (at least 10 occurrences in at least 20 papers) produced 172 frequently discussed research themes over the 30 years. Each period produced a number of new topics as the field expanded, with 134 in the second period. Table 1 shows the topics which statistically rose and fell overall, with raw and normed frequency for each period and the total number of papers the items occurred in. The themes are organised by their percentage change in normed frequency.

Quite clearly, several of these themes have shown quite dramatic increases in popularity over the years, with *professional development, genre*, *corpus*, *assessment*, *curriculum*, *literacy* and *discourse* up more than 66% per 100 papers. The massive rise of interest in *professional development* since 1990 is a consequence of a growing professionalism in the field and the desire of practitioners to both improve their classroom skills and their identities as academics (e.g., Ding & Bruce, 2017).

Table 1 Themes with the most dramatic changes in ESP (per 100 papers)

	1990-2004			2005-2020			% normed change	*Chi-* value	*p*
	raw	normed	range	raw	normed	range			
Significantly up									
prof development	47	8.8	29	581	19.8	396	125.6	22.25	0.00
genre	29	5.4	20	352	12.0	205	121.6	12.97	0.00
corpus	44	8.2	26	523	17.8	242	116.9	18.42	0.00
assessment	58	10.8	32	634	21.6	281	99.4	18.24	0.00
curriculum	37	6.9	27	394	13.4	249	94.3	10.55	0.00
literacy	42	7.9	23	430	14.7	184	86.9	10.26	0.00
discourse	60	11.2	39	546	18.6	263	66.0	8.52	0.00
Significantly down									
sentence	24	4.5	21	56	1.9	56	-57.4	16.96	0.00
test	42	7.9	21	144	4.9	121	-37.5	11.33	0.00
reading	74	13.8	27	255	8.7	212	-37.1	19.63	0.00
science & technology	107	20.0	49	377	12.9	323	-35.7	26.32	0.00
course	72	13.5	42	259	8.8	322	-34.4	16.45	0.00

We can also see in these items the impact of ESP influencers, such as the editors of ESPJ, who made serious efforts towards the end of the 1980s to expand the horizons of the movement and make it more relevant to the applied linguistics/TESOL community (Johns, 2013). We therefore see no mention of *needs* or *register*, which were ESP staples of the early days (Dudley-Evans & St John, 1998; Upton, 2012). The areas of *science and technology,* and a focus on *courses, sentence* level analysis and *reading* have also declined significantly. Such changes might be expected from a new and rapidly growing area of study.

Table 2 shows the themes which remained relatively constant overall. We can see a very small statistical fall in almost all of these items (normed to 100 papers), but they represent the most consistent frequencies in the corpus. We also show here the range or number of papers they occurred in. Here we can see a continuing interest in *writing, instruction, business English, higher education* and the role of *community*. These have remained mainstays of ESP over the entire period.

Table 2 Themes with constant high frequencies in ESP 1990 to 2020

	1990-2004			2005-2020			% normed change	*Chi-* value	*p*
	raw	normed	range	raw	normed	range			
Constant									
writing	85	22.1	21	592	20.2	121	-8.8	1.20	0.27
community	92	24.0	27	653	22.3	212	-7.0	1.72	0.19
instruction	67	17.5	49	477	16.3	323	-6.8	1.30	0.25
business	42	10.9	21	316	10.8	56	-1.5	1.55	0.21
higher education	53	13.8	42	405	13.8	322	0.0	2.27	0.13

Table 3 shows the themes that appear to be emerging and receding over the period. Here the figures are presented in comparison with the earlier period (raw numbers, per 100 papers, number of papers). Here interest in *identity* and *lingua franca*, the latter increasingly found in the business world and other *workplaces*, have increased considerably. In ESP classrooms *feedback* has seen a strong showing in the research literature, but *Interaction* has been one of the most popular topics since 2005 and is now a mainstay of much EAP work through stance, engagement, metadiscourse, appraisal and other approaches (e.g. Hyland & Jiang, 2019).

Table 3 Themes emerging and declining (per 100 papers)

	2005-2020		
	raw	normed	No of papers
Emerging			
identity	569	19.4	182
interaction	403	13.7	166
workplace	335	11.4	177
feedback	197	6.7	101
lingua franca	151	5.2	102
	1990-2004		
	raw	normed	No of papers
Declining			
classroom	70	13.1	39
accuracy	60	11.2	36
questionnaire	48	9.0	31
acquisition	35	6.5	21

In terms of research methods, *discourse, corpus* and *genre analysis* are all significant climbers in Table 1, having replaced *questionnaire* research (Table 3). So, as our understanding of needs has developed, so too has the ways to explore these needs, finding answers in the interactions that occur in the specific discourses and genres used by students and professional communities.

Together, these changes in topics, methods and foci suggest a movement away from a broader view of EFL: it also announces a unique research space being carved out for a new disciplinary endeavour.

4.2 Most cited authors

This evolution towards a distinctive disciplinary character can also be seen in the field's most influential authors. To identify these we conducted a frequency count of the reference lists in our corpus of 3,467 research articles, divided them into two time periods, and normalised the results to 100 papers. Table 4 lists the top 15 authors in each period, together with their raw and normalised citation counts.

Table 4 Most highly cited authors across the two periods

1990-2004			2005-2020		
Authors	raw	normed	Authors	raw	normed
John Swales	95	17.7	Ken Hyland	490	16.7
M.A.K. Halliday	78	14.6	John Swales	350	11.9
Ken Hyland	56	10.4	Douglas Biber	305	10.4
Alastair Pennycook	47	8.9	M.A.K. Halliday	302	10.3
John Flowerdew	42	7.8	Vijay Bhatia	268	9.1
Vijay Bhatia	42	7.8	Suresh Canagarajah	252	8.6
Douglas Biber	39	7.3	Jenifer Jenkins	238	8.1
Robert B. Kaplan	39	7.3	Pierre Bourdieu	208	7.1
Pierre Bourdieu	36	6.8	John Flowerdew	200	6.8
Lev Vygotsky	33	6.3	Janet Holmes	198	6.8
Michael Fullan	32	6.0	Alastair Pennycook	182	6.2
Norman Fairclough	31	5.7	Paul James Gee	178	6.1
Ann Johns	29	5.5	Rod Ellis	165	5.6
Carolyn R. Miller	29	5.4	Barbara Seidlhofer	161	5.5
Jean Lave	20	3.7	Jan Blommaert	161	5.5

An interesting feature of the table is that half the authors span both lists, indicating a certain consistency of interests and consolidation of a distinctive disciplinary *dramatis personae* of recognisable names. Swales, Hyland, Bhatia and Flowerdew are among the most identifiable authors in ESP and their work is prominent in the two lists. Other major figures over the 30 years are the linguists Michael Halliday and Douglas Biber, the social theorist Pierre Bourdieu and the critical sociolinguist Alistair Pennycook. All eight have contributed to the understanding of specialised language use in various ways and influenced the development of the field.

Swales, through his work on genre and community-specific language practices, has been a seminal influence of course and his approach to specialised language analysis and description has been taken up in different ways by Hyland, Flowerdew and Bhatia. Hyland's work on the importance of interactive features in scholarly discourse and Bhatia's on genre in legal and professional practice have encouraged considerable research in these areas. Biber, with corpus informed analyses of variations in register and mode, and Bourdieu, by introducing the influential concepts of cultural, social, and symbolic forms of capital as well as cultural reproduction and habitus, have both made a lasting impression on either the methods or understandings of the field. Halliday's influence, of course, can be seen in the considerable work conducted using Systemic Functional Linguistics in ESP and its continuing interest in the role of choice and dialogue in the creation of meanings.

Flowerdew, together with Pennycook, Fairclough and Canagarajah, have established the importance of asking critical questions in studying discourse and language education. Fairclough, the founding father of critical discourse analysis, and Pennycook have encouraged us to reflect on the wider political implications of global English while Canagarajah has been consistent in recognising vernacular languages in education through translingualism and the specific needs of migrants. The importance of discourse in ESP is also indexed in the citations given to Carolyn Miller, James Gee and Jan Blommaert. Miller for her ideas on genre as social action in the first period and to Gee, whose work on studying communication in its cultural settings, and to Blommaert, for his contributions on

discourse and the impact of language and globalisation. Together with the concepts of *discourse* and *critical analysis*, the notion of *community* as a decisive factor in language use and learning has also had a decisive impact on work in ESP and this accounts for the appearance of Vygotsky and Lave in the earlier list.

The role of *culture* in language use and learning has also been a strong theme of ESP throughout the period. Robert Kaplan's thought-provoking work on cultural differences in thinking and writing has continued to be debated. This can be seen in the second period by the citations to English as Lingua Franca scholars such as Jenkins and Seidelhofer in describing how cultural forms, practices, and frames of reference influence communications among individuals who do not share the same first language. Janet Holmes is a more central figure in ESP as a result of her work in workplace communication.

Key pedagogical influences on ESP in the earlier period were Ann Johns, and her energetic work supporting L2 undergraduates through genre and collaborations with discipline-specific faculty. Another heavily cited presence on the first list is Michael Fullan, with his influential views of pedagogy and the cultivation of deep learning, especially using digital tools and collaboration. This pedagogical strand of research is represented by Rod Ellis in the later period through his work on tasks, although Swales' contributions to teaching ESP at graduate levels has also been significant.

4.3 Most influential publications

We assume here that the most influential publications in a period are those which have received the most citations. Citation, of course, is the standard means by which authors acknowledge the source of their methods, ideas and findings, and is widely used as a rough measure of a paper's importance. In ESP, however, this is complicated by the fact that research may not only be measured in terms of its impact on subsequent research, but on the effects it has in language classrooms. Ideas and finding may be taken up in policy changes, innovations to curricula, and in teachers'

choices of materials, texts and instructional methods, rather than in other research. We cannot, then, say that other publications, specifically addressed to practitioners, have not had an equal impact on the field.

There are also other confounding factors here. Citations may be skewed by self-citation or negative citations, for example, although their influence seems to be negligible (e.g. Hyland, 2003). More importantly, not only are more works cited as research expands across the period, but also older publications have more time to accrue citations. As a result, bibliometricians tend to compare counts for papers of similar age rather than simply count citation frequencies when they want to measure a paper's value (e.g. Cooper, 2015). We acknowledge the citation lag which means that more recent publications may not be recorded here, but our lists reflect something of how the field has changed and which publications have been most influential in this change to the present. Tables 5 and 6 show the top 15 of the most cited publications taken from the reference lists of our 3,467 papers

Table 5 Most highly cited publications from 1990 to 2004

Publications	cites	normed
Swales, J. (1990). *Genre analysis: English in academic and research settings*. Cambridge: Cambridge University Press.	26	5.0
Fairclough, N. (1989). *Language and power*. London: Longman.	14	2.6
Biber, D. (1988). *Variation across speech and writing*. Cambridge: Cambridge University Press.	11	2.1
Hyland, K. (2001). Humble servants of the discipline?: Self-mention in research articles. *English for Specific Purposes*, *20*(3), 207–226.	10	1.8
Hyland, K. (2000). *Disciplinary discourses: social interactions in academic writing*. Harlow: Longman.	10	1.8
Canagarajah, A. S. (1996). "Nondiscursive" requirements in academic publishing, material resources of periphery scholars, and the politics of knowledge production. *Written Communication*, *13*(4), 435–472.	10	1.8
Halliday, M. A. K. (1985). *An introduction to functional grammar*. London: Edward Arnold.	10	1.8
Halliday, M. A. K., & Hasan, R. (1976). *Cohesion in English*. London: Longman.	10	1.8
Hewings, M. (2002). "It is interesting to note that…": a comparative study of anticipatory 'it' in student and published writing. *English for Specific Purposes*, *21*(4), 367-383.	8	1.6
Jenkins, S., & Hinds, J. (1987). Business letter writing: English, French, and Japanese. *TESOL Quarterly*, *21*(2), 327-349.	8	1.6
Myers, G. (1989). The pragmatics of politeness in scientific articles, *Applied Linguistics*, *10*(1), 1–35.	8	1.6
Pennycook, A. (1994). *The Cultural Politics of English as an International Language*. London: Longman.	8	1.6
Holliday, A. (1994). *Appropriate methodology and social context*. Cambridge: Cambridge University Press.	8	1.6
Kaplan, R. B. (1966). Cultural thought patterns in inter-cultural education. *Language Learning*, *16*(1): 1-20.	8	1.6
Lave, J, & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.	8	1.6
Nickerson, C. (1998). Corporate culture and the use of written English within British subsidiaries in the Netherlands. *English for Specific Purposes*, *17*(3), 281-294.	8	1.6

Table 6 Most highly cited publications from 2005 to 2020

Publications	cites	normed
Nickerson, C. (2005). English as a lingua franca in international business contexts. *English for Specific Purposes*, *24*(4), 367–380.	46	1.6
Shulman, L. S. (1987). Knowledge and teaching: foundations of the new reform. *Harvard Educational Review*, *57*(1), 1-22.	42	1.4
Hyland, K. (2002). Specificity revisited: how far should we go now? *English for Specific Purposes*, *21*(4), 385-395.	38	1.3
Blommaert J. (2010). *The sociolinguistics of globalization*. Cambridge: Cambridge University Press.	36	1.2
Coxhead, A. (2000). A new academic word list. *TESOL Quarterly*, *34*(2), 213–238.	35	1.2
Jenkins, J., Cogo, A., & Dewey, M. (2011). Review of developments in research into English as a lingua franca. *Language Teaching*, *44:* 281-315.	35	1.2
Canagarajah, S. (1999). *Resisting linguistic imperialism in English teaching*. Oxford: Oxford University Press.	35	1.2
Hyland, K. & Tse, P. (2007). Is there an "academic vocabulary"? *TESOL Quarterly*, *41*(2), 235–253.	34	1.2
Sinclair, J. (1991). *Corpus, concordance, collocation*. Oxford: Oxford University Press.	33	1.1
Beijaard, D., Meijer, P. & Verloop, N. (2004). Reconsidering research on teachers' professional identity. *Teaching and Teacher Education*, *20*(2), 107–128.	31	1.1
Hyland, K. (2008). As can be seen: lexical bundles and disciplinary variation. *English for Specific Purposes*, *27*(1), 4–21.	31	1.1
Bhatia, V. K. (2010). Interdiscursivity in professional communication. *Discourse & Communication*, *4*(1), 32–50.	31	1.1
Biber, D., Conrad, S., & Cortes, V. (2004). If you look at ⋯: lexical Bundles in University Teaching and Textbooks. *Applied Linguistics*, *25*(3), 371–405.	30	1.0
Lee, O. (2005). Science education with English language learners: synthesis and research agenda. *Review of Educational Research*, 75, 491–530.	30	1.0
Hyland, K. (2000). *Disciplinary discourses: social interactions in academic writing*. Harlow: Longman.	28	1.0

Almost all the authors discussed in the previous section appear somewhere on these publication lists. Some writers in Table 4, such as Holmes, Johns, Vygotsky and Gee, however, do not appear here as their influence was presumably dispersed over a greater number of publications. Nor were the high citations for some works in these tables sufficient to push their writers onto the influential authors list. While the raw citation

numbers may seem rather low, especially in Table 5, these figures refer only to those publications cited in SSCI listed journals on ESP relevant themes. It is likely that these same papers also received considerable citations in journals in other areas of applied linguistics, perhaps focusing on other topics of language analysis and pedagogy.

The works on the lists in Tables 5-6 fall into five broad categories, and while some authors or texts might legitimately be assigned to two groups, the groupings nevertheless indicate the general concerns of the field over the period:

1. Textual – concerned with discourse, grammar, etc. (Biber, Hewings, Coxhead)
2. Cultural –cultural influence and language contact (Holliday, Kaplan, Jenkins)
3. Contextual – disciplinary and community issues (Nickerson, Lave, Myers)
4. Pedagogical – teaching and learning matters (Beijaard et al., Shulman, Lee)
5. Critical – Sociopolitical influences (Pennycook, Fairclough Canagarajah)

Interestingly, over half the publications in the first period comprises books (9), but there has been a substantial shift towards journal articles over the two periods with just 4 in the 2005-2020 list. While books have been traditionally valued in the social sciences and tend to be more long-lived, articles offer authors immediate visibility, and institutions have prioritised these in recent years for government accounting purposes.

Of the 30 slots in the two tables, 17 are filled by publications whose authors appear only once, while others appear several times. John Swales' *Genre Analysis*, published at the beginning of this survey, tops the first list, with an enduring influence on the field indicated by its nearly 19,000 citations on *Google Scholar*. Catherine Nickerson's paper topping Table 6 is actually an introduction to a special issue on business English and reviews research investigating the role of written and spoken communication in English and specific business genres such as negotiations, meetings, e-mail and advertising. Ken Hyland's *Disciplinary Discourses* is the only work appearing in both lists, which shows its considerable staying power in the field. Hyland's book helped establish an explosion of research over the next 20 years into the relationships between

the cultures of academic communities and their discourses. His work appears a further five times in these lists, each one highlighting the significance of disciplinary writing conventions or with one paper, *Specificity revisited*, an argument for disciplinary-specific, rather than general EAP.

Douglas Biber also appears in two lists. Biber's presence in two periods indicates the importance of corpus research to the field. *Variation across speech and writing*, published in 1988, used computational techniques to identify variation of linguistic co-occurrence patterns in a range of spoken and written registers and genres. The work has inspired corpus studies of specialised texts, whether using Multi-Dimensional Analysis or not. His second paper, with Conrad and Cortes on lexical bundles in Table 6, provided researchers with a clear example of how to conduct comparative feature analyses across academic genres. Michael Halliday also has two publications in the lists, both in Table 5, indicating the key importance of his work to ESP. Issues related to teaching and learning are also well represented, especially in Table 5 where Shulman, Hyland's specificity, Beijaard et al and Lee have influenced researchers.

Interestingly there are two papers on lexical bundles in the tables and, together with those on the academic word list and anticipatory "it", point to the role of *corpus-driven* analysis in ESP research. In contrast to a *corpus-based* approach, this assumes no a-priori framework of linguistic description, as suggested by Halliday's *Systemic Functional Grammar* and *Cohesion in English*, for example, but discovers information about previously undescribed specialised texts. Several critical texts are highly cited, notable Fairclough's *Language and power* and Pennycook's book on the cultural and social consequences of English as a global language and the development of a critical pedagogy for TESOL. The publications by Canagarajah and Blommaert take up these issues in different ways and show the sense of disquiet that many practitioners within ESP continue to have about the global role of English in the world.

4.4 Most productive countries/regions

Historically, well financed institutions in the West, and particularly the United States, have led scholarly publishing as a result of huge financial investments in research infrastructure, high salaries to attract the prolific authors, and environments conducive to scholarly networking and publishing. Globalisation, however, has encouraged previously peripheral countries to raise the status of their universities and their involvement in international publishing. As the competition for international students and research funding increase, greater pressure is put on academics to publish in prestigious English language journals. The affiliations of authors in our data illustrate this expansion, suggesting both the spread of ESP and the emerging participation of Asian countries. Table 7 shows, in rank order, the 15 most productive countries and regions in research over the period using the affiliation of every author in the corpus.

Table 7 Most productive countries/regions over 30 years (by author affiliation)

1990-2004			2005-2020		
Country	No.	%	Country	No.	%
USA	118	30.7	USA	754	25.7
England	91	23.7	England	441	15.0
Australia	35	9.1	Australia	333	11.4
Canada	29	7.6	Mainland, China	315	10.7
HK, China	24	6.3	Spain	201	6.9
Spain	16	4.2	Taiwan	133	4.5
Taiwan	12	3.1	Canada	128	4.4
Germany	12	3.1	New Zealand	68	2.3
Finland	12	3.1	HK, China	67	2.3
Netherlands	10	2.6	Japan	60	2.1
North Ireland	10	2.6	Turkey	48	1.6
Scotland	9	2.3	South Korea	47	1.6
New Zealand	9	2.3	Germany	44	1.5
Mainland, China	5	1.3	Netherlands	43	1.5
Japan	5	1.3	Finland	41	1.4

Despite the continuing dominance of the USA, England and Australia at the head of each list, the proportion of ESP research which their authors publish has, with the exception of

Australia, declined over the 30 years. Canada, Hong Kong, Germany, Finland and the Netherlands have all fallen, both in ranking and the percentage of work they have added to the whole, while Scotland and Northern Ireland have dropped out of the top 15 altogether. Spain, Taiwan, New Zealand, Taiwan, Japan and, most spectacularly, Mainland China, all increased their positions and contributions to the ESP literature over the period. It is, however, the flood of work from Asian countries which catches the eye.

Today, South Korea, Japan, Turkey, China, Taiwan and Hong Kong all sit among the heavyweights of academic publishing. This reflects the fact that emerging economies have largely driven the 4-5% per year growth in publishing output in recent years (UNESCO, 2017). The leading Asian countries, for example, have accounted for 8–12% annual growth in the last few years compared to around 2.9% for the G8, and just 1% for the US and EU. Turkey, for instance, nearly doubled its share of world publications to 1.9% between 2008 and 2014 (UNESCO, 2017). Hong Kong, a Special Administrative Region of China, has been at the forefront of international ESP research, with five universities in the world top 100 (QS, 2020) and a clear demand for a workforce of English-proficient professionals. Researchers in these English-medium universities have made significant and consistent contributions to ESP over the 30 years and, in particular, to the description and teaching of academic texts.

The most striking change is the remarkable growth in China's rise across the period. A key reason for this is the massive increase in support for research by the government in recent years (e.g. Zhang et al., 2013). China's research expenditure increased almost 33 times between 1995 and 2013 (National Bureau of Statistics of China, 2015) so that articles in SCI journals written by authors from Chinese institutions increased from 120,000 in 2009 to 450,000 in 2019 (Mallapaty, 2020). Some estimates even suggest that Chinese authors, from anywhere in the world, co-authored 34.5% of all papers published in 2016 – a 22% increase since 2000 (Xie & Freeman, 2019). China also plans to increase the status of its research by pumping US$29 million into local journals (Cyranoski, 2019) and has invested heavily in its university system. While not among the disciplinary

powerhouses, researchers engaged in ESP have also profited from these incentives and are working to help make China's mark in the field.

Our results, of course, are based on author affiliations rather than nationality and we can say little about a writer's country of origin, first language, or ethnic background. Some authors are likely to be expatriates employed in overseas institutions. What is clear, however, is that scholars working on what was the periphery, are now seeking to engage in this global enterprise, so that the majority of authors publishing in prestigious journals are now non-native English speakers (Hyland, 2015). Equally, of course, this expansion of author sources indexes the internationalisation of ESP as a significant field of inquiry.

4.5 Journals publishing and citing papers on ESP

Finally, we analysed our corpus to determine the journals which had published these 3,467 ESP articles during the two time-periods and then identified those that had cited them the most. We should point out that some journals may be high on these lists because of the volume of papers they publish, rather than the proportion of ESP papers that comprise their output. The *Journal of Pragmatics*, for example, publishes monthly while *Ibérica* only twice a year, and so it is likely we see more ESP papers, and perhaps more citations to those papers, in the former.

Table 8 shows the most popular publishing venues for authors working in ESP, reporting the number of papers published by each journal and the proportion to the 3,467 articles, covering about 25% of the papers in the field over the last 30 years. Unsurprisingly, *ESPJ* sits at the top of the list, but a broad range of journals follow it. Some, such as *System* and *ELT Journal* are principally practitioner journals, while others deal with a range of theoretical and empirical areas related to applied linguistics and language education. Along with established high-profile journals such *TESOL Quarterly, Applied Linguistics* and *Language Teaching Research*, we find more regionally-oriented journals. *Ibérica* and *RELC Journal,* for instance originally published research from Spain and South East Asia respectively, and *The Asia Pacific Education Researcher*,

showcasing innovative practice in the Pacific, indicate something of the range of journals publishing ESP studies. Interestingly ESP work has also surfaced in periodicals less centrally concerned with teaching, such as *Journal of Pragmatics, Journal of Multilingual & Multicultural Development* and *World Englishes*.

Table 8 Journals publishing most ESP papers (1990-2020)

Journals	Number	% of all papers
English for Specific Purposes	179	5.2
Ibérica	102	2.9
TESOL Quarterly	73	2.1
System	67	1.9
Journal of English for Academic Purposes	63	1.8
Journal of Pragmatics	63	1.8
Language Teaching Research	61	1.8
Intl Journal of Bilingual Education & Bilingualism	58	1.7
Teaching and Teacher Education	57	1.6
Journal of Multilingual & Multicultural Development	50	1.4
World Englishes	46	1.3
RELC Journal	44	1.3
Asia Pacific Education Researcher	43	1.2
ELT Journal	42	1.2
Applied Linguistics	40	1.2

The significance of ESP as an emerging discipline can also be seen in who is making use of this research, so we collected information on all the sources of papers citing the articles in our corpus (Table 9). Once again, there is a broad spread of journals in applied linguistics and ELT, but we can see that ESP research also touches those in wider fields such as nursing, medical and science education and psychology. Those working in policy, language planning and computer education have also made considerable use of the ESP work. Interestingly, the number of different journals citing ESP work may have narrowed in recent years. The ESP papers received 7,379 citations in the first period and 22,355 in the second, with the top 15 covering just 17.8% of all citations in 1990-2004 and 43.4% in 2005-2020. Although we cannot say

for certain that ESP is now cited by fewer journals, it seems that the field is becoming more focused in its citation patterns.

Table 9 Top 15 journals citing the ESP papers (% of all citations in each period)

1990-2004		2005-2020	
Journals	**%**	**Journals**	**%**
English for Specific Purposes	2.5	System	3.2
Teaching and Teacher Education	1.6	Teaching and Teacher Education	3.1
Journal of English for Academic Purposes	1.6	Nurse Education Today	3.1
TESOL Quarterly	1.5	English for Specific Purposes	3.1
Journal of Pragmatics	1.5	BMC Medical Education	3.0
System	1.3	J of English for Academic Purposes	3.0
Journal of Second Language Writing	1.1	Frontiers in Psychology	3.0
Medical Education	1.0	International Journal of Bilingual Education and Bilingualism	2.9
Modern Language Journal	0.9	TESOL Quarterly	2.8
International Journal of Bilingual Education and Bilingualism	0.9	Computer Assisted Language Learning	2.8
Applied Linguistics	0.9	Medical Education	2.8
Computers Education	0.9	Journal of Pragmatics	2.8
Ibérica	0.8	Computers Education	2.7
Language Policy	0.7	Journal of Multilingual and Multicultural Development	2.7
Bilingualism Language and Cognition	0.7	Language Teaching Research	2.6

The range of journals publishing, and citing, ESP research indexes the breadth of the field as well as its apparent value to users. ESP seems to be making particular inroads into being taken seriously by medical and other professional groups as more non-native English learners seek to acquire to specialised language competencies of their chosen careers.

Conclusions

In this bibliometric study we have sought to track a significantly formative period in the life of ESP. Having established itself as a useful, although perhaps still fringe, element of applied linguistics during its early years, the period 1990 to 2020 saw ESP grow into a mature discipline of global importance. The last 30 years have witnessed significant, even dramatic, increases in the range of its interests, the number and geographical spread of its

authors, and the quantity of its books, journals and research papers. It has spread across the world to encourage the participation of researchers from Iran to Canada and maintained its pragmatic focus on the needs of classroom practice while building a solid base of research methods and descriptions of specialised discourses. At the same time, it has become a more reflective and critical field, recognising the limitations of its ambitions, the challenges posed by the inequalities inherent in teaching a lingua franca, and its often marginal status in universities and corporate training departments.

Our data indicate that researchers have shown a consistent interest in specialised texts, particularly written texts, and in language teaching in higher education and business. There has been a massive increase in the attention they devote to professional development and to academic and workplace discourses over the period, particularly using corpus and genre methods which focus on interaction and literacy. But while there has been a decline in issues concerned with accuracy, reading and sentence-level issues, classroom practices remain central to the discipline and publications discussing assessment, curricula and feedback have all increased. The global interest with these questions is shown, in particular, by the diversity of geographical sources of papers and their uptake in a range of fields.

These publishing and citational data paint a broad strokes picture of what is, of course, a highly nuanced and complex field. Our study, for instance, privileges the top of the pile: the authors, publications and citations of papers indexed in the SSCI databases. These are the most accessible and celebrated works, but we have neglected the many regional, local and university publications as well as the teacher action research studies which are never published at all. ESP is a practitioner-oriented and applied discipline which means that while published studies contributes to the incremental understanding of particular discourses, communities and learners, it may often be used but uncited. We also have to remember that those who conduct, and seek to publish, research are often working on the periphery of academia. They teach in university language centres, further education colleges, and corporate training divisions with little incentive, resources or the support of

a positive research culture, and this acts to constrain the advance of publishing and the future development of the field.

What this less widely disseminated research consists of, and who does it, is a potential area of future study, but it is probable that it reflects, and very likely led by, the issues in international publications. What drives ESP research, as much today as 30 (or 60) years ago, is a concern with specialised discourses, the contexts in which they are found, the demands these make on users, and the meanings they have for those working in educational and occupational workplaces as well as for the field itself. ESP requires us to step into new domains of experience and explore unfamiliar communicative worlds, building plausible theories, detailed descriptions, relevant curricula and useful pedagogic tasks. The published literature of the past 30 years shows that it has consistently attempted to do this, providing grounded insights into the structures and meanings of texts, the connections between communities and communicative behaviours, and the pedagogic practices by which these behaviours can be nurtured.

References

Anthony, L. (2019). *AntConc* (Version 3.5.8). Tokyo: Waseda University. Retrieved from http://www.antlab.sci.waseda.ac.jp/

Belcher, D. (2009). What ESP is and can be: An introduction. In Belcher, D. (Ed.) *English for Specific Purposes in Theory and Practice*. Ann Arbor MI: Michigan University Press pp 1-20.

Cooper, I. D. (2015). Bibliometrics basics. *Journal of the Medical Library Association*, *103*(4), 217–218.

Cummins, J. (1982). *Tests, achievement, and bilingual students*. Rosslyn, VT: National Clearinghouse for Bilingual Education.

Cyranoski, D. (2019). China splashes millions on hundreds of home-grown journals. *Nature*. https://www.nature.com/articles/d41586-019-03770-3

Davarpanah, M., & Aslekia, S. (2008). A scientometric analysis of international LIS journals: productivity and characteristics. *Scientometrics*, *77*(1), 21-39.

Ding, A. & Bruce, I. (2017). *The English for academic purposes practitioner: Operating on the edge of academia*. Cham, Switzerland: Springer.

Dudley-Evans, T., & St John, M. J. (1998). *Developments in English for specific purposes: A multi-disciplinary approach.* Cambridge: Cambridge University Press.

Hewings, M. (2002). A history of ESP through English for Specific Purposes. *English for Specific Purposes World*, *1*(3), 1-7.

Gollin-Kies, S. (2014). Methods reported in ESP research articles: A comparative survey of two leading journals. *English for Specific Purposes*, 36, 27-34.

González-Alcaide, G., Jinseo, P., Huamaní, C., Gascón, J., & Rincón, J. (2012). Scientific authorships and collaboration network analysis on Chagas disease: papers indexed in PubMed (1940-2009). *Revista do Instituto de Medicina Tropical de São Paulo*, *54*, 219-228.

Hutchinson, T., & Waters, A. (1987). *English for specific purposes: a learning-centred approach*. Cambridge: Cambridge University Press.

Hyland, K. (2003). Self-citation and self-reference: credibility and promotion in academic publication. *Journal of American Society for Information Science and Technology*. 54 (3): 251-259.

Hyland, K. (2006). English for academic purposes: An advanced resource book. London: Routledge.

Hyland, K. (2015). *Academic publishing: Issues and challenges in the construction of knowledge*. Oxford: Oxford University Press.

Hyland, K. (2018). Sympathy for the devil? A defence of EAP. *Language Teaching*, *51*(3): 383-399.

Hyland, K. & Jiang, K. (2019). *Academic discourse and global publishing: Disciplinary persuasion in changing times* London: Routledge.

Hyland, K. & Jiang, FK (2021). A bibliometric study of EAP research: Who is doing what, where and when? *Journal of English for Academic Purposes*.

Hyland, K. & Shaw, P. (2016). *The Routledge handbook of English for academic purposes*. London: Routledge.

Johns, A. M. (2013). The history of English for specific purposes research. In B. Paltridge, & S. Starfield (Eds.), *The handbook of English for specific purposes* (pp. 5-30). Chichester, UK: Wiley-Blackwell.

Lei, L. & Liu, D. (2019). Research trends in applied linguistics from 2005 to 2016: a bibliometric analysis and its implications. *Applied Linguistics*, 40(3), 540–561.

Liu, Y. & Hu, G. (2021) Mapping the field of English for specific purposes (1980–2018): A co-citation analysis. English for Specific Purposes. 61: 97-116.

Liu, W., Hu, G., Tang, L. & Wang, Y. (2015). China's global growth in social science research: uncovering evidence from bibliometric analyses of SSCI publications (1978-2013). *Journal of Informetrics*, *9*, 555–569.

Ma, F., Li, Y. & Chen, B. (2014). Study of the collaboration in the field of the Chinese humanities and social sciences. *Scientometrics*, *100*, 439–458.

Mallapty, S. (2020). China bans cash rewards for publishing papers. *Nature*. https://www.nature.com/articles/d41586-020-00574-8

Master, P. (2005). Research in English for specific purposes. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 99-116). Mahwah, NJ: Lawrence Erlbaum

National Bureau of Statistics of China. (1996-2014). (2015). *China Statistical Yearbook on Science and Technology*. Beijing: China Statistics Press *doi: 10.1038/d41586-020-00574-8*

Orr, T. (Ed.) (2002). *English for specific purposes*. Alexandria, VA: TESOL.

Paltridge, B., & Starfield, S. (2011). Research in English for specific purposes. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 106-121). London: Routledge.

Paltridge, B., & Starfield, S. (2013). *The handbook of English for specific purposes*. Malden, MA: John Wiley & Sons.

Pritchard, A. (1969). Statistical bibliography or bibliometrics? *Journal of Documentation*, *25*, 348–349.

QS. (2020). World University rankings. https://www.topuniversities.com/university-rankings/world-university-rankings/2020

Ramírez, C. (2015). English for Specific Purposes: Brief History and Definitions. *Revista de Lenguas Modernas* 23: 379-386.

Schmid, H. (1995). *TreeTagger software*. http://www.cis.unimuenchen.de/~schmid/tools/TreeTagger/

Sebo, P., Maisonneuve, H. & Fournier, J. P. (2020). Gender gap in research: a bibliometric study of published articles in primary health care and general internal medicine. *Family Practice*, *37*(3), 325–331.

Strevens, P. (1977). Special-purposed language learning: A perspective. *Language Teaching*, 10, 145-163.

Swales, J. (1988). *Episodes in ESP 2nd impression*. New York: Prentice Hall.

Swales, J. M., & Leeder, C. (2012). A reception study of the articles published in English for Specific Purposes from 1990–1999. *English for Specific Purposes*, 31, 137-146.

Swales, J. (2020). ESP serial publications before *The ESP Journal/English for Specific Purposes*: Recollections and reflections of an old-timer. *English for Specific Purposes*, 60: 4-8.

UNESCO. (2017). *Science report: Towards 2030.* https://en.unesco.org/unesco_science_report/

Upton, T. A. (2012). LSP at 50: Looking back, looking forward. *Ibérica*, 23, 9-28.

Xie, Q. & Freeman, R. B. (2019). Bigger than you thought: china's contribution to scientific publications and its impact on the global economy. *China & World Economy*, *27*(1), 1–27.

Zhang, H., Patton, D. & Kenney, M. (2013). Building global-class universities: assessing the impact of the 985 Project. *Research Policy*, 42, 765–775.

Zhang, X. (2020). A bibliometric analysis of second language acquisition between 1997 and 2018. *Studies in Second Language Acquisition*, *42*(1), 199-222.