

The Different Aspects of English Language Teaching and Learning: A Scientometric Analysis

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ABSTRACT

We analyzed publications in English as a Foreign Language (EFL), English as a Second Language (ESL), Teaching English as a Foreign Language (TEFL), Teaching English as a Second Language (TESL), and Teachers of English to Speakers of Other Languages (TESOL) between 1900 and 2016 as indexed by Web of Science. We found that there were 1,839, 2,143, 44, 46, and 414 publications, respectively. Moreover, language and English were the common words in almost all the EFL, ESL, and TESOL abstracts. EFL and ESL shared study and students, while learning and learners appeared in almost all the EFL abstracts and teachers appeared in almost all the TESOL abstracts. Topics such as motivation, self-efficacy, and anxiety were significantly more frequently examined in EFL than in ESL but not in TESOL. Research related to non-English-speaking countries such as Taiwan, Iran, China, and Turkey were significantly more frequently considered in EFL than in ESL but not in TESOL. However, research on diverse populations within the same country such as immigrants, kindergarten, children, and adults was significantly more frequently conducted in ESL than in EFL.

Keywords: English as a Foreign Language (EFL), English as a Second Language (ESL), Teaching English as a Foreign Language (TEFL), Teaching English as a Second Language (TESL), Teachers of English to Speakers of Other Languages (TESOL), Bibliometrics.

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INTRODUCTION

English has become the lingua franca of today's world.^[1] Due to the rise of globalization and the internationalization of higher education, the use of English as an academic language has grown. One of its effects can be observed in the proliferation of academic fields related to English-language teaching and learning. These fields include English as a Foreign Language (EFL), English as a Second Language (ESL), Teaching English as a Foreign Language (TEFL), Teaching English as a Second Language (TESL), and Teachers of English to Speakers of Other Languages (TESOL). For ease, we give a table for the acronyms below and definitions of these fields come from the website of the TESOL International Association (see also)^[1-3] (Table 1).

Given the definitions, there can be similarities in the applications of knowledge obtained from the scientific studies from these five fields: EFL, ESL, TEFL, TESL, and TESOL. However, little is known about the extent to which these fields converge in their scope and research areas. To investigate this, we focus on the scientific studies in these fields of English to

explore trends, popular topics, and gaps in the literature and to turn the lens to the research outputs to reflect the history and current status of these fields. Considering the rise of many cross- and multi-disciplinary studies in the academic fields, the present study may also shed light on the extent to which closely related fields diverge in their research topics. Our bibliometric data came from all the publications with those abbreviations as topics published between 1900 and 2016 in Clarivate Analytics' Web of Science (WoS): Social Sciences Citation Index (SSCI) and Arts and Humanities Citation Index (A&HCI) and ranked in Journal Citation Reports (JCR). We chose WoS because its databases are among the most extensively investigated in the field of bibliometrics and because it could respond to our research questions:

- What are the bibliometric characteristics of publications from EFL, ESL, TEFL, TESL, and TESOL? To answer this question, we examined publication dates, categories and research areas, sources, languages, author affiliations, citations, and references of the publications as they appeared in SSCI and A&HCI from 1900 to 2016.
- What is the main focus of EFL, ESL, TEFL, TESL, and TESOL publications? To answer this question, we examined the abstracts and keywords of those publications and analyzed them using corpus linguistics tools.

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Table 1: Acronyms of the subfields of English Language Teaching and Learning.

| | | |
|-------|--|--|
| EFL | English as a Foreign Language | “English language programs in non-English-speaking countries where English is not used as the lingua franca.” |
| ESL | English as a Second Language | “English language programs in English-speaking countries where students learn English as a second language.” |
| TEFL | Teaching English as a Foreign Language | “Often used to refer to teacher education programs in EFL.” |
| TESL | Teaching English as a Second Language | “Often used to refer to teacher education programs in ESL.” |
| TESOL | Teachers of English to Speakers of Other Languages | “Teaching English to speakers of other languages. A professional activity that requires specialized training.” |

The present study is the first in-depth bibliometric analysis of publications in EFL, ESL, TEFL, TESL, and TESOL. Nonetheless, there are bibliometric studies in fields related to these five areas, from Linguistics to World Englishes. Linguistics and Applied Linguistics are the main fields that include all language-related studies. One study examined linguistics publications between 1900 and 2013, indexed in SSCI and A&HCI.^[4] It found that Linguistics is one of the major fields covered in these indices: the 21.69th in SSCI and the 7.92th in A&HCI, on average, and the number of linguistics publications in SSCI had increased more rapidly as compared to A&HCI. Another study focused on publications in language and Linguistics between 1996 and 2015, indexed in Scopus, from Southeast Asian countries.^[5] This study found that the number of outputs from these countries was very low because only 2% of all published articles and only 1% of citations in language and linguistics were from these countries.

Another study carefully examined articles published in 42 journals in the field of Applied Linguistics from 2005 to 2016, indexed in SSCI.^[6] The results showed that although many common topics were examined in the articles during this period, some topics such as language policy, language ideology, and multilingualism gained more prominence over the years, while others such as phonological awareness, phonological process, and word order gained less prominence over the years. This study also identified highly cited publications and researchers (e.g., R. Ellis, N. Chomsky, and M. Swain) and the countries of the authors, showing that researchers from the USA and the UK led these fields in terms of the number of publications.

While Linguistics and Applied Linguistics are the mother fields of language studies, there are specialized fields that focus on the use of English by nonnative speakers of English. A few bibliometrics studies examined some of these fields. One study focusing on publications in Second Language Acquisition (SLA)

published between 1987 and 2018 and covered by SSCI used CiteSpace to identify the relationship between SLA and other fields and to conduct citation analysis.^[7] The results indicated that SLA is a field close to fields such as psychology, education, and health. The results also indicated that major SLA research areas included topics such as second language classroom, working memory capacity, and reading comprehension, among others. Another study focused on corpus-based studies in SLA, including foreign language acquisition and pedagogy, between 1990 and 2015.^[8]

Two studies examined the publications in the field of Second Language Writing (SLW). The first one analyzed SLW publications between 1900 and 2013 as indexed in SSCI and A&HCI.^[9] It was found that the first publication in this field appeared in 1992, with a steady increase due to the inclusion of new journals such as the *Journal of Second Language Writing*. It was also found that 65% of publications were authored by at least one researcher from the USA. The other study analyzed empirical research articles ($n = 272$) in the *Journal of Second Language Writing* between 1992 and 2016.^[10] It was found that the participants of these mostly qualitative studies were usually college students with a focus on writing instruction and feedback for essay drafts. It was also found that the authors of these articles generally took a socio/cognitive perspective or benefitted from genre, contrastive rhetoric, and critical theories. Moreover, about 45% of the articles were written by authors affiliated with an institution in the USA. In SLW, there were also regular works classified as bibliography, e.g., a list of recent relevant publications, authored by Silva and colleagues.^[11]

World Englishes (WE) is another field related to the use of English. One study examined publications in this field from a bibliometric perspective.^[12] This study focused on publications from 1975 to 2013 in SSCI and A&HCI. The results showed that the earliest work in WE was published in 1989 and that the majority of the works (96.7%) were published very recently, between 2005 and 2013. In this field, too, authors affiliated with an institution in the USA had the highest number of publications as compared to authors affiliated with an institution in other countries/territories.

In addition to bibliometric studies in the major fields of language studies, other studies focus on: theoretical debates and shifts;^[13] the disciplinary characteristics of the fields of TESOL^[2] and Applied Linguistics;^[14] publication qualities in TESOL and Applied Linguistics;^[15] bibliometric studies focusing on specific methods such as eye-tracking;^[16] and language learning skills such as comprehension^[17] Therefore, the present study fills a gap in the bibliometric studies focusing on the fields related to English learning and teaching and provides a fresh perspective on how very closely related fields emerge and diverge in their research interests.

METHODOLOGY

There are multiple ways to investigate the research trends in scientific fields, e.g., interviewing leading scholars, examining textbooks and dissertations, surveying curricula, examining academic programs, and analyzing scientific outputs. In this study, we chose to analyze scientific outputs. One of the scientific means of doing that is to conduct a bibliometric study, i.e., an analysis of books, articles, and other scientific works. Aiming to contribute to the bibliometrics of EFL, ESL, TEFL, TESL, and TESOL, we accessed Clarivate Analytics' SSCI and A&HCI as well as JCR via a research-first university library in the USA. In Web of Science, we entered EFL, ESL, TEFL, TESL, and TESOL as topics with a timeline between 1900 and 2016. We downloaded all available details of the publications in PDF, Excel, and text formats. In JCR, we selected the latest report, published in 2017, to search for the impact factors (IF) of the journals that frequently publish scientific outputs from these five fields. We entered the data in corpus linguistic software such as AntConc^[18] to analyze words, phrases, and their cooccurrences in Abstracts and Keywords.

RESULTS

We analyzed the number of publications, the types of documents, the addresses and languages of publications, and the journals that frequently publish articles in the fields of English as another language. We found that, from highest to lowest, there were 2,143 ESL, 1,839 EFL, 414 TESOL, 46 TESL, and 44 TEFL publications indexed in SSCI and A&HCI, which suggests that ESL and EFL are more popular than the other three areas. The first publications were in 1959 for EFL, in 1964 for ESL, in 1970 for TEFL, in 1965 for TESL, and in 1967 for TESOL. These findings together suggest that the five fields of English started around the same time, yet most of the studies focused on ESL, EFL, and TESOL. We also found an exponential increase in the number of publications, especially in EFL, ESL, and TESOL ($y_{EFL} = 5.82E-124e^{0.144x}$ $R^2 = 0.965$, $y_{ESL} = 3.78E-53e^{0.0623x}$ $R^2 = 0.907$, $y_{TEFL} = 7.74E-26e^{0.0293x}$ $R^2 = 0.464$, $y_{TESL} = 2.32E-24e^{0.0276x}$ $R^2 = 0.273$, and $y_{TESOL} = 7E-53e^{0.0613x}$ $R^2 = 0.774$). It appears that the expansion of WoS from 2005 on and the increase in research interests among scholars in the field positively affected EFL more than others. Compared to 2005, the number of publications per year quadrupled in EFL and doubled in ESL and TESOL (Figure 1). The general expansion of language-related areas, as indicated by Figure 1, demonstrates a positive development for these five fields and can be attributed to globalization and a growing interest in language education.

Our results showed a variety of document types published in these fields (Table 2). In all five fields, articles were the

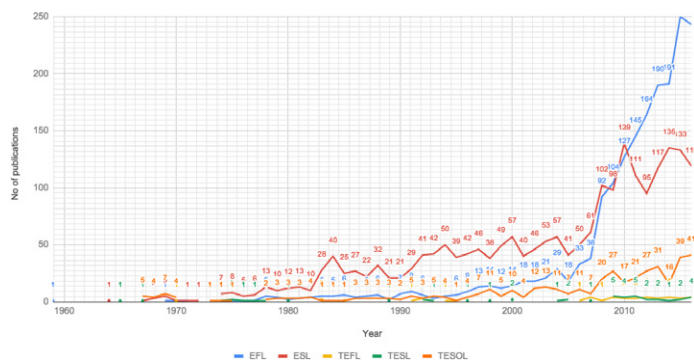


Figure 1: The number of publications in EFL, ESL, TEFL, TESL, and TESOL between 1959 and 2016.

most-published materials. The percentages of the articles, from highest to lowest, were: TESL (95.6%), EFL (88.6%), TEFL (84.1%), ESL (81.4%), and TESOL (74.5%). Conference proceedings were frequently observed in ESL (2.9%), EFL (1.45%), and TESOL (2.4%). Book reviews, editorial materials, and letters were more common in TESOL (12.1%, 10.9%, and 3.9%, respectively) and ESL (9%, 1.5%, and 2.1%, respectively) than in the other three fields. Moreover, meeting abstracts, bibliographies, and discussions were more frequently found in ESL than in the other four fields. The results indicate that, compared to the other areas, TESOL is the most diverse area in terms of the different genres represented in the publications included in this study, while TESL and EFL lean almost exclusively toward articles.

We also examined the countries of the authors who published in these fields (Table 3). We found that the USA was the most frequently found address of authors in the fields of ESL, TESL, and TESOL and the second-most frequently found address in EFL, whereas Taiwan was the most frequently found address of authors in EFL and Iran was the most frequently found address of authors in TEFL. The USA was followed by Canada and Australia in ESL, by Canada and Malaysia in TESL, and by England and Canada in TESOL, while Taiwan was followed by the USA and China in EFL and Iran was followed by China and England in TEFL.

A closer examination of the data revealed that these countries can be divided into two groups: English as a Common Language countries (Australia, Canada, England, New Zealand, and the USA) versus Others. To investigate whether there was a difference in the number of publications by field between these two groups, we first conducted a Friedman's test and then a Mann-Whitney test excluding TEFL and TESL because these areas contained fewer publications. The Friedman test revealed a significant difference among EFL, ESL, and TESOL, $\chi^2(2) = 34.76$, $p < .001$, Kendall's $W = 0.909$. Conover's post-hoc test showed that the number of EFL publications was significantly higher than those of both ESL, $t(48) = 2.961$, $p = .005$, and TESOL, $t(48) = 10.171$, $p <$

Table 2: The number of document types by field.

| Document Type | EFL | | ESL | | TEFL | | TESL | | TESOL | | Total | |
|---------------------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|-------|-------|
| | N | % | N | % | N | % | N | % | N | % | N | % |
| Article | 1,690 | 90.52 | 1,744 | 79.06 | 37 | 84.09 | 44 | 93.62 | 301 | 67.79 | 3,816 | 82.81 |
| Book Review | 82 | 4.39 | 191 | 8.66 | 4 | 9.09 | | | 50 | 11.26 | 327 | 7.09 |
| Proceedings Paper | 28 | 1.50 | 63 | 2.86 | | | 1 | 2.13 | 10 | 2.25 | 102 | 2.21 |
| Review | 24 | 1.29 | 50 | 2.27 | 1 | 2.27 | | | 17 | 3.83 | 92 | 1.99 |
| Editorial Material | 19 | 1.02 | 33 | 1.50 | 1 | 2.27 | 1 | 2.13 | 45 | 10.14 | 99 | 2.14 |
| Correction | 9 | 0.48 | 5 | 0.23 | | | | | 1 | 0.23 | 15 | 0.32 |
| Note | 6 | 0.32 | 47 | 2.13 | 1 | 2.27 | 1 | 2.13 | 3 | 0.68 | 58 | 1.25 |
| Meeting Abstract | 4 | 0.21 | 12 | 0.54 | | | | | | | 16 | 0.34 |
| Letter | 4 | 0.21 | 45 | 2.04 | | | | | 16 | 3.60 | 65 | 1.41 |
| Poetry | 1 | 0.05 | 1 | 0.05 | | | | | | | 2 | 0.04 |
| Bibliography | | | 5 | 0.23 | | | | | | | 5 | 0.11 |
| Correction Addition | | | 3 | 0.14 | | | | | | | 3 | 0.06 |
| Software Review | | | 2 | 0.09 | | | | | | | 2 | 0.04 |
| Reprint | | | 2 | 0.09 | | | | | | | 2 | 0.04 |
| Discussion | | | 2 | 0.09 | | | | | 1 | 0.23 | 3 | 0.06 |
| Art Exhibit Review | | | 1 | 0.05 | | | | | | | 1 | 0.02 |
| TOTAL | 1,867 | 100 | 2,206 | 100 | 44 | 100 | 47 | 100 | 444 | 100 | 4,608 | 100 |

Table 3: The number of publications in EFL, ESL, TEFL, TESL, and TESOL by the country of the authors.

| Country | Number of Publications | | | | | Total |
|----------------------------|------------------------|-------|------|------|-------|-------|
| | EFL | ESL | TEFL | TESL | TESOL | |
| USA | 284 | 1,137 | 1 | 17 | 208 | 1,647 |
| Canada | 62 | 316 | 1 | 12 | 42 | 433 |
| Taiwan | 311 | 56 | 0 | 2 | 12 | 381 |
| People's Republic of China | 204 | 114 | 6 | 1 | 32 | 357 |
| Japan | 155 | 54 | 1 | 3 | 14 | 227 |
| Australia | 61 | 112 | 3 | 0 | 33 | 209 |
| England | 89 | 66 | 6 | 2 | 45 | 208 |
| Iran | 134 | 25 | 7 | 1 | 5 | 172 |
| Spain | 128 | 34 | 3 | 0 | 1 | 166 |
| South Korea | 76 | 45 | 1 | 0 | 12 | 134 |
| Turkey | 96 | 19 | 4 | 1 | 5 | 125 |
| New Zealand | 43 | 43 | 0 | 0 | 13 | 99 |
| Singapore | 33 | 25 | 1 | 0 | 2 | 61 |
| Malaysia | 16 | 22 | 2 | 6 | 4 | 50 |
| Germany | 28 | 8 | 1 | 0 | 2 | 39 |
| Israel | 30 | 3 | 1 | 0 | 4 | 38 |
| Belgium | 25 | 6 | 1 | 0 | 1 | 33 |
| Sweden | 13 | 6 | 1 | 0 | 1 | 21 |
| United Arab Emirates | 7 | 6 | 1 | 0 | 4 | 18 |
| Portugal | 5 | 3 | 1 | 0 | 1 | 10 |
| Croatia | 3 | 1 | 1 | 0 | 0 | 5 |
| Cambodia | 1 | 1 | 1 | 0 | 0 | 3 |
| Libya | 2 | 0 | 1 | 0 | 0 | 3 |
| Nigeria | 0 | 2 | 0 | 1 | 0 | 3 |
| Papua New Guinea | 0 | 1 | 0 | 1 | 0 | 2 |

.001. These, in turn, were significantly fewer in number than ESL, $t(48) = 7.210, p < .001$.

Furthermore, the Mann-Whitney test revealed that the number of ESL and TESOL publications by English as a Common Language countries was significantly higher than those by

the Other countries, $W = 6, p = .003$ and $W = 2, p = .001$, respectively. No difference was found between the number of EFL publications by the English as a Common Language countries versus the Other countries. Moreover, when the USA data were excluded because of their high frequency, similar significant results were obtained. Although it is not surprising that the USA plays a major role in English language education, it appears that researchers in English-speaking countries focus more on teaching English to non-native speakers such as immigrants and their English learning processes.

When we examined the languages of publications, we observed the dominance of English: 98.4% of EFL, 99.2% of ESL, 95.4% of TEFL, and 100% of TESL and TESOL publications. Moreover, very few languages other than English were used in the publications: 10 at most (Table 4).

The journals that most frequently published articles from these fields are given in Table 5. Our analysis of the journals that published articles in these five fields showed that, as expected, most of the publications were classified as linguistics and/or education journals except for Expert Systems with Applications and Brain and Development. A closer examination also showed that some of these journals were among the top journals according to the Linguistics rankings of JCR 2017: Journal of Second Language Writing the 2nd, Applied Linguistics the 3rd, and Modern Language Journal the 6th. Of these top journals, some of them specialize primarily in the five fields on which we focused. These journals included TESOL Quarterly, ELT Journal, Language Teaching Research, Journal of Second Language Writing, Language Learning, IRAL-International Review of Applied Linguistics in Language Teaching, and English Teaching-Practice and Critique.

Abstracts

To investigate common topics and trends, as well as differences, in these fields, we focused on the abstracts and analyzed the frequencies of words and word clusters. We then compared all the abstracts according to their fields. We found that 1,601 EFL, 1,541 ESL, and 250 TESOL articles had abstracts. A corpus analysis of these abstracts showed that the EFL abstracts consisted of 11,135 types and 279,518 tokens, indicating that

the length of an EFL abstract was around 175 words on average. The most frequently appearing words in the EFL abstracts were language (2,923, 1.05%), English (2,763, 1.05%), students (2,462, .98%), EFL (2,323, .83%), study (2,210, .79%), learning (1,898, .68%), learners (1,798, .64%), teachers (1,335, .48%), writing (1,050, .38%), and results (999, .36%), suggesting that the first seven of them appeared in almost all the abstracts.

The analysis also showed that the ESL abstracts consisted of 11,274 types and 257,762 tokens, indicating that the length of an ESL abstract was around 167 words on average. The most frequently appearing words in the ESL abstracts were language (2,712, 1.05%), students (2,252, .87%), English (2,220, .86%), ESL (2,136, .83%), study (1,760, .68%), learners (1,400, .54%), writing (1,282, .50%), learning (1,049, .41%), second (1,026, .40%), and teachers (1,002, .39%), suggesting that the first five appeared in almost all the abstracts.

The analysis also showed that the TESOL abstracts consisted of 4,592 types and 42,807 tokens, indicating that the length of a TESOL abstract was around 171 words on average. The most frequent words in the TESL abstracts were language (448, 1.05%), English (400, .93%), teachers (362, .85%), TESOL (299, .70%), teaching (243, .57%), research (224,

Table 4: The number of publications in EFL, ESL, TEFL, TESL, and TESOL by the language of publication.

| Language | Number of Publications | | | | |
|------------|------------------------|-------|------|------|-------|
| | EFL | ESL | TEFL | TESL | TESOL |
| English | 1,809 | 2,126 | 42 | 46 | 434 |
| Spanish | 10 | 8 | | | |
| German | 7 | 2 | | | |
| Turkish | 4 | 1 | 1 | | |
| Portuguese | 3 | | | | |
| Japanese | 2 | | | | |
| Swedish | 1 | | | | |
| Slovenian | 1 | | | | |
| French | 1 | 6 | 1 | | |
| Afrikaans | 1 | | | | |

Table 5: The number of publications in EFL, ESL, TEFL, TESL, and TESOL by the name of the journal including their impact factors in 2017.

| Journal | JCR 2017 | | | Number of Publications | | | | |
|---|----------|------------------|-----------------|------------------------|-----|------|------|-------|
| | IF | Ling. Rank (181) | Edu. Rank (238) | EFL | ESL | TEFL | TESL | TESOL |
| System | 1.547 | 36 | 98 | 180 | 104 | 6 | 0 | 18 |
| TESOL Quarterly | 2.256 | 10 | 42 | 117 | 419 | 1 | 11 | 210 |
| ELT Journal | 1.276 | 52 | 134 | 83 | 22 | 1 | 2 | 20 |
| Computer Assisted Language Learning | 1.928 | 20 | 58 | 73 | 22 | 1 | 3 | 1 |
| Modern Language Journal | 2.789 | 6 | 20 | 69 | 127 | 1 | 1 | 19 |
| Language Teaching Research | 2.086 | 16 | 50 | 65 | 44 | 2 | 3 | 14 |
| Journal of Second Language Writing | 3.324 | 2 | n/a | 47 | 88 | 0 | 1 | 9 |
| Porta Linguarum | 0.457 | 125 | 220 | 44 | 6 | 3 | 0 | 0 |
| Language Learning | 1.655 | 32 | 85 | 43 | 89 | 1 | 1 | 1 |
| Language Learning Technology | 2.113 | 14 | 47 | 40 | 20 | 0 | 0 | 4 |
| Canadian Modern Language Review | 0.816 | 92 | n/a | 31 | 124 | 0 | 5 | 10 |
| Applied Linguistics | 3.225 | 3 | n/a | 37 | 41 | 1 | 0 | 3 |
| Foreign Language Annals | 0.802 | 93 | 187 | 28 | 35 | 0 | 1 | 2 |
| Journal of Reading | n/a | n/a | n/a | 4 | 25 | 0 | 0 | 0 |
| IRAL-International Review of Applied Linguistics in Language Teaching | 1.242 | 56 | 139 | 25 | 19 | 2 | 0 | 1 |
| English Teaching-Practice and Critique | 0.442 | 127 | 221 | 20 | 6 | 2 | 1 | 2 |
| Expert Systems with Applications | 3.768 | n/a | n/a | 0 | 3 | 0 | 2 | 0 |
| Brain and Development | 1.544 | n/a | n/a | 0 | 0 | 0 | 2 | 0 |
| Journal of Language Identity and Education | 0.511 | 120 | 219 | 12 | 19 | 0 | 0 | 8 |
| Teaching and Teacher Education | 2.473 | n/a | 31 | 21 | 12 | 1 | 1 | 7 |
| Language Culture and Curriculum | 1.658 | 31 | 84 | 15 | 8 | 1 | 0 | 6 |
| Journal of Multilingual and Multicultural Development | 0.942 | 79 | n/a | 19 | 10 | 1 | 0 | 6 |

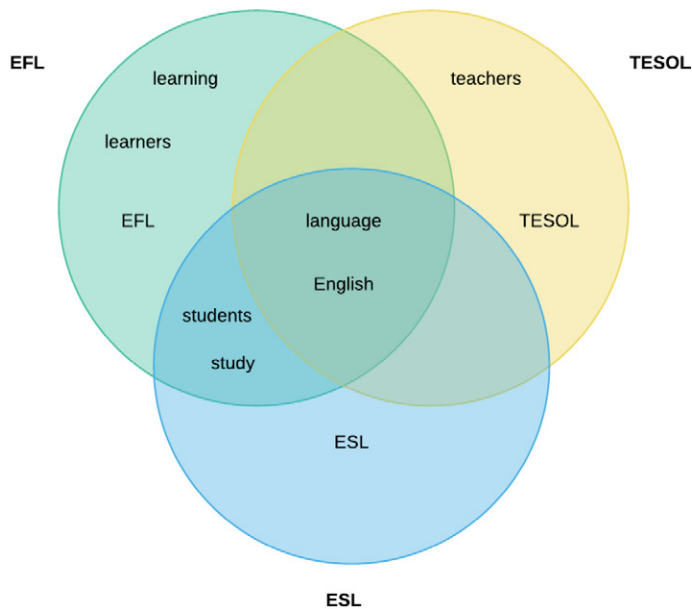


Figure 2: Venn diagram of the most frequently used words in the publication abstracts in EFL, ESL, and TESOL.

.52%), study (224, .52%), teacher (221, .52%), students (216, .50%), and article (169, .39%), suggesting that the first four appeared in almost all the abstracts. Combined, language and English were the common words in almost all the EFL, ESL, and TESOL abstracts. Meanwhile, EFL and ESL shared study and students, while learning and learners appeared in almost all the EFL abstracts; teachers was in almost all the TESOL abstracts (Figure 2).

We then conducted several log-likelihood analyses to compare the abstracts of the EFL, ESL, and TESOL articles. We reported partial results in Table 6. We found that, as expected, the abbreviations for the fields were significantly more frequently found in the abstracts from the respective fields than other fields. For example, EFL in the EFL abstracts ($n = 2,323$) was found about four times more often than EFL in the ESL abstracts (Keyness = 1484.06, $p < .0001$) or four times more often than EFL in the TESOL abstracts (Keyness = 380.89, $p < .0001$). In addition to the differences in the use of the abbreviations for their respective fields, the analysis of the abstracts indicated that all these three fields focused on the English language but that TESOL abstracts focused on teachers, EFL on learners, and ELF and ESL on students.

We also found that research topics such as motivation, self-efficacy, and anxiety, borrowed from psychology via the field of second language acquisition, were significantly more frequently examined in EFL than in ESL but not in TESOL. Research groups related to non-English-speaking countries such as Taiwan, Iran, China, Turkey, and Japan were significantly more frequently considered in EFL than in ESL but not in TESOL, except for Japan. However, research conducted on diverse populations within the same country, such

as immigrants, kindergarten, children, adults, family, and girls, were significantly more frequently conducted in ESL than in EFL.

Keywords

We found that 1,180 EFL (69.82%), 860 ESL (49.31%), and 122 TESOL (40.53%) articles had keywords. The keywords of the 1,180 EFL articles consisted of 2,159 words and 12,590 tokens, indicating that, if available, an EFL article had 10.66 keywords on average. We examined the most frequently found words as the publication keywords by field (Figure 3). The most common EFL keywords were language (587, 4.66%), EFL (459, 3.65%), learning (391, 3.11%), English (311, 2.47%), writing (226, 1.80%), foreign (198, 1.57%), teacher (196, 1.56%), teaching (160, 1.27%), reading (156, 1.24%), and learners (110, .87%) suggesting that, with the exception of learners, all these words were used in almost all the keywords. The most frequently found phrases were English as a Foreign Language (103, 8.7%), second language (67, 5.68%), EFL learners (61, 5.17%), language teaching (55, 4.66%), teacher education (38, 3.22%), EFL writing (37, 3.14%), reading comprehension (31, 2.63%), learning strategies (27, 2.29%), EFL teachers (26, 2.20%), Computer Assisted Language Learning (22, 1.86%), corrective feedback (21, 1.78%), language acquisition (21, 1.78%), and vocabulary learning (21, 1.78%).

The keywords of the 860 ESL articles consisted of 1,904 words and 9,419 tokens, indicating that, if available, an ESL article had 10.95 keywords on average. The most frequently found words in the ESL keywords were language (489, 5.19%), ESL (284, 3.02%), English (252, 2.68%), writing (246, 2.61%), second (203, 2.16%), learning (180, 1.91%), teacher (128, 1.36%), education (101, 1.07%), learners (99, 1.05%), and feedback (90, .96%), which were used in almost all the keywords. The most frequently found phrases were English as a Second Language (61, 8.7%), second language writing (42, 5.68%), corrective feedback (41, 4.77%), language learners (41, 4.77%), academic writing (31, 3.60%), foreign language (31, 3.60%), teacher education (31, 3.60%), language acquisition (27, 3.14%), conversation analysis (25, 2.90%), second language acquisition (25, 2.90%), language teaching (22, 2.56%), second language learning (20, 2.33%), ESL learners (19, 2.21%), and ESL students (18, 2.09%).

The keywords of the 122 TESOL articles consisted of 528 words and 1,498 tokens, indicating that, if available, a TESOL article had 12.28 keywords on average. The most frequently found words in the TESOL keywords were language (69, 4.61%), teacher (63, 4.21%), education (39, 2.60%), English (35, 2.34%), TESOL (29, 1.94%), learning (23, 1.54%), teaching (20, 1.34%), ESL (17, 1.13%), identity (17, 1.13%), teachers (17, 1.13%), pedagogy (16, 1.07%), research (15,

Table 6: Log-likelihood analyses of the abstracts (the first 10 words, The Log-Ratio Effect size > 1, e.g., “a word is 8 times more common in A than in B – the binary log of the ratio is 3,” see ⁽¹⁹⁾).

| EFL vs ESL | | | | ESL vs EFL | | | |
|---------------|-----------|---------|-------------|--------------|-----------|---------|-------------|
| | Frequency | Keyness | Effect size | | Frequency | Keyness | Effect size |
| EFL | 2,323 | 1484.06 | 2.6178 | ESL | 2,136 | 1890.4 | 3.2469 |
| foreign | 988 | 513.3 | 2.2021 | second | 1,026 | 278.58 | 1.2995 |
| motivation | 331 | 178.92 | 2.2765 | health | 156 | 218.41 | 7.4023 |
| anxiety | 232 | 172.85 | 3.0406 | immigrant | 139 | 185.84 | 6.2358 |
| Taiwan | 129 | 80.47 | 2.5724 | ELLs | 102 | 149.86 | 7.7893 |
| intercultural | 126 | 74.96 | 2.4681 | literacy | 307 | 122.01 | 1.6786 |
| Iranian | 97 | 71.85 | 3.0236 | children | 309 | 119.5 | 1.6469 |
| listening | 290 | 71.22 | 1.2948 | academic | 493 | 115.71 | 1.1858 |
| questionnaire | 251 | 63.17 | 1.3155 | immigrants | 78 | 105.17 | 6.4023 |
| online | 299 | 58.27 | 1.1184 | phonological | 129 | 78.89 | 2.3208 |
| EFL vs TESOL | | | | TESOL vs EFL | | | |
| | Frequency | Keyness | Effect size | | Frequency | Keyness | Effect size |
| EFL | 2,323 | 380.89 | 2.8309 | TESOL | 299 | 1040.06 | 6.2872 |
| vocabulary | 539 | 143.2 | 6.3671 | critical | 108 | 126.58 | 2.214 |
| reading | 878 | 125.94 | 2.4861 | identities | 72 | 126 | 2.9701 |
| learners | 1,798 | 115.85 | 1.3238 | teacher | 221 | 115.42 | 1.3225 |
| foreign | 988 | 112.79 | 2.0319 | article | 165 | 106.39 | 1.5035 |
| comprehension | 395 | 84 | 3.9187 | education | 145 | 104.47 | 1.6108 |
| group | 904 | 69.36 | 1.4984 | teaching | 243 | 83.14 | 1.0319 |
| listening | 290 | 66.84 | 4.4729 | professional | 84 | 80.82 | 1.9395 |
| test | 596 | 63.71 | 1.9272 | discourses | 35 | 78.55 | 3.6664 |
| proficiency | 500 | 61.67 | 2.1713 | languages | 60 | 69.85 | 2.2045 |
| ESL vs TESOL | | | | TESOL vs ESL | | | |
| | Frequency | Keyness | Effect size | | Frequency | Keyness | Effect size |
| ESL | 2,136 | 338.33 | 2.5398 | TESOL | 299 | 921.73 | 5.3879 |
| writing | 1,282 | 99.16 | 1.4303 | teaching | 243 | 153.1 | 1.4953 |
| reading | 613 | 77.57 | 2.0847 | teachers | 362 | 141.23 | 1.1213 |
| learners | 1,400 | 71.22 | 1.0797 | critical | 108 | 120.37 | 2.1651 |
| vocabulary | 253 | 68.6 | 5.3929 | teacher | 221 | 118.51 | 1.3557 |
| scores | 221 | 67.94 | 6.1978 | professional | 84 | 101.86 | 2.2959 |
| children | 309 | 55.09 | 2.874 | identities | 72 | 79.15 | 2.1453 |
| proficiency | 416 | 50.75 | 2.0229 | rp | 16 | 62.37 | 7.5901 |
| accuracy | 164 | 50.41 | 5.7674 | education | 145 | 60.32 | 1.1664 |
| feedback | 353 | 44.17 | 2.066 | cultural | 91 | 60.22 | 1.5433 |

1.00%), writing (15, 1.00%), critical (14, .93%), and learner (13, .87%). The most frequently found phrases were teacher education (24, 19.67%), second language (12, 9.83%), language teaching (10, 8.19%), TESOL teacher (7, 5.74%), foreign language (6, 4.92%), language learners (6, 4.92%), language learning (6, 4.92%), language teacher (5, 4.10%), language writing (5, 4.10%), professional development (5, 4.10%), and teacher training (5, 4.10%).

A closer examination of the phrases revealed that phrases such as reading comprehension, learning strategies, Computer

Assisted Language Learning, corrective feedback, language acquisition, and vocabulary learning had higher percentages in EFL; academic writing and conversation analysis in ESL; and professional development and teacher training in TESOL than in the other two fields.

As we did for the abstracts above, we conducted several log-likelihood analyses to compare the keywords of the EFL, ESL, and TESOL articles. We reported the results in Table 7. As found in the abstracts, the abbreviations for the fields were significantly more frequently found in the abstracts

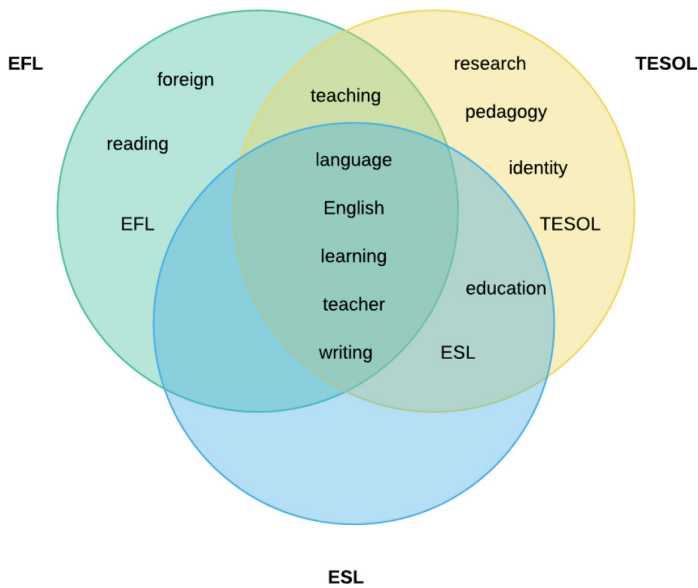


Figure 3: Venn diagram of the most frequently used words in the publication keywords in EFL, ESL, and TESOL.

from the respective fields than other fields. For example, ESL in the ESL abstracts ($n = 284$) was found about eight times more often than ESL in the EFL abstracts (Keyness = 285.48, $p < .0001$) and two times more than ESL in the TESOL abstracts (Keyness = 24.1, $p < .0001$).

Moreover, the analysis of the keywords indicated that TESOL keywords included pedagogy and identity more than others, while EFL keywords included reading more than others. Interestingly, writing was equally distributed across these three fields. We also found that research topics such as learning, anxiety, and motivation were significantly more frequently examined in EFL than in ESL but not in TESOL. Conversely, issues related to immigrants and their literacy were significantly more frequently found in ESL than in EFL but not in TESOL.

DISCUSSION AND CONCLUSION

Several academic fields focus on the learning processes and teaching activities of the present Lingua Franca, English. This study examined scientific studies published between 1900 and 2016 as indexed by Web of Science from the five main English studies: EFL, ESL, TEFL, TESL, and TESOL. The results showed that these fields are not equally represented in WoS, as there were 2,143 ESL, 1,839 EFL, 414 TESOL, 46 TESL, and 44 TEFL publications, which were written predominantly in English; these fields emerged at relatively the same time, i.e., the 1960s. We discuss the trends, popular topics, and gaps in the literature and to turn the lens to the research outputs to reflect the history and current status of studies on English language and teaching. This discuss will be invaluable for the scholars working on the rise of many cross-

and multi-disciplinary studies and subfields in the academic fields to highlight minor but clear-cut differences in their research topics.

As found in the previous works on linguistics, second language writing, and World Englishes,^[4,9,12] the expansion of WoS in 2005 had a positive effect on the number of EFL, ESL, and TESOL publications covered in SSCI and A&HCI. Among these three fields, EFL has benefited from this expansion; the number of publications per year quadrupled in EFL and doubled in ESL and TESOL after 2005.

In terms of the number of publications, the leading country in the publications related to language sciences such as Linguistics,^[4] Applied Linguistics,^[6] SLW,^[9] and WE^[12] is the USA. This is also what we partially observed in the present study: The USA was the most frequently found address of the authors in the fields of ESL, TESL, and TESOL. Nevertheless, when it comes to EFL and TEFL, the picture is rather different: Taiwan was the most frequently found address of the authors in EFL, where the USA was number two. Iran was the most frequently found address of the authors in TEFL.

As observed in the previous related works, studies focus on some topics more than others and there can be topic shifts over time. For example, language policy, language ideology, and multilingualism have recently gained momentum in Applied Linguistics research,^[6] second language classroom, working memory capacity, and reading comprehension in SLA,^[7] and writing instruction and feedback for essay drafts in the Journal of Second Language Writing.^[10] In a similar vein, our analysis of the abstracts and keywords from the ESL, TESL, and TESOL articles revealed common and diverse topics. In addition to differences in the use of the abbreviations for their respective fields, the analysis of the abstracts indicated that all these three fields focus on the English language but TESOL abstracts focused on teachers, EFL on learners, and ELF and ESL on students. Moreover, analysis of the keywords indicated that TESOL keywords included pedagogy and identity, while EFL keywords included reading more than others. Interestingly, writing was equally distributed across these three fields.

Although WoS is the most respected database and most of the bibliometrics research takes its outputs into account, other databases specialize in language research. One of them is ProQuest's Linguistics and Language Behavior Abstracts (LLBA). LLBA has more extensive coverage but does not provide detailed information about the publications in its coverage, which makes it difficult to compare its outputs with those from WoS. Nonetheless, we conducted a simple analysis to focus on the number of publications and the publication languages of the scientific works in the field of English as an additional language.

Table 7: Log-likelihood analyses of the keywords.

| EFL vs ESL | | | | ESL vs EFL | | | |
|--------------|-----------|---------|-------------|---------------|-----------|---------|-------------|
| | Frequency | Keyness | Effect size | | Frequency | Keyness | Effect size |
| EFL | 459 | 267.22 | 2.6958 | ESL | 284 | 285.48 | 3.2108 |
| foreign | 198 | 82.14 | 2.0408 | second | 203 | 92.62 | 1.6917 |
| learning | 391 | 31.39 | 0.7005 | bilingualism | 21 | 35.67 | 5.8109 |
| anxiety | 36 | 27.98 | 3.7513 | literacy | 58 | 27.59 | 1.7531 |
| motivation | 80 | 26.55 | 1.7334 | immigrants | 15 | 25.48 | 5.3255 |
| vocabulary | 83 | 18.37 | 1.3126 | academic | 86 | 24.92 | 1.2599 |
| | | | | conversation | 29 | 23.89 | 2.6917 |
| | | | | health | 15 | 19.11 | 4.3255 |
| | | | | students | 75 | 18.07 | 1.1239 |
| EFL vs TESOL | | | | TESOL vs EFL | | | |
| | Frequency | Keyness | Effect size | | Frequency | Keyness | Effect size |
| EFL | 459 | 59.46 | 2.7712 | TESOL | 29 | 96.57 | 5.1218 |
| reading | 156 | 18.9 | 2.6293 | teacher | 63 | 40.04 | 1.4337 |
| vocabulary | 83 | 18.72 | 4.3039 | education | 39 | 30.63 | 1.6423 |
| | | | | other | 6 | 26.92 | 6.6561 |
| | | | | hearing | 5 | 22.43 | 6.3931 |
| | | | | pedagogy | 16 | 21.84 | 2.3707 |
| | | | | international | 8 | 19.69 | 3.7492 |
| | | | | identity | 17 | 19.62 | 2.1142 |
| | | | | communities | 4 | 17.94 | 6.0712 |
| | | | | deaf | 4 | 17.94 | 6.0712 |
| | | | | diverse | 4 | 17.94 | 6.0712 |
| | | | | esol | 4 | 17.94 | 6.0712 |
| | | | | speakers | 6 | 16.13 | 4.0712 |
| | | | | research | 15 | 15.64 | 1.9781 |
| | | | | ESL | 17 | 15.34 | 1.8011 |
| | | | | reflective | 9 | 15.32 | 2.7817 |
| ESL vs TESOL | | | | TESOL vs ESL | | | |
| | Frequency | Keyness | Effect size | | Frequency | Keyness | Effect size |
| ESL | 284 | 21.1 | 1.4097 | TESOL | 29 | 79.37 | 4.5105 |
| writing | 246 | 17.73 | 1.3831 | teacher | 63 | 46.9 | 1.6298 |
| | | | | critical | 14 | 23.35 | 2.8749 |
| | | | | hearing | 5 | 19.88 | 5.9745 |
| | | | | education | 39 | 19.4 | 1.2797 |
| | | | | reflective | 9 | 15.92 | 3.0151 |
| | | | | deaf | 4 | 15.9 | 5.6525 |

We found that LLBA coverage is more extensive than WoS coverage: 11,627 vs. 1,839 for EFL, 9,260 vs. 2,143 for ESL, 411 vs. 44 for TEFL, 2,253 vs. 46 for TESL, and 7,290 vs. 414 TESOL. Nevertheless, EFL, ESL, and TESOL were the most-represented fields—a finding very similar to that of WoS except for the order of these fields. The EFL publications numbered more than the ESL publications in LLBA but the reverse was true in WoS. Based on the fact that non-English-speaking countries published more in EFL than in ESL in

WoS, we can speculate that LLBA covers more international publications than WoS. That is what we found when we analyzed the languages of publications: LLBA covers publications written in a greater variety of languages than those covered in WoS: 21 vs. 10 at most (compare Table 4 and Table 8). As in WoS, English was the predominant language of the publications covered by LLBA: 93.99% of EFL, 95.82% of ESL, 83.23% of TEFL, 97.02% of TESL, and 94.78% of TESOL publications. Yet, these percentages were a bit lower

Table 8: The number of publications in EFL, ESL, TEFL, TESL, and TESOL by the language of publication according to LLBA.

| LLBA Language | Number of Publications | | | | |
|------------------|------------------------|-------|------|-------|-------|
| | EFL | ESL | TEFL | TESL | TESOL |
| English | 11,311 | 9,166 | 402 | 2,246 | 7,212 |
| Spanish | 314 | 141 | 69 | 36 | 135 |
| French | 158 | 119 | 5 | 21 | 119 |
| Portuguese | 101 | 21 | | 1 | 13 |
| German | 89 | 103 | 4 | 10 | 120 |
| Chinese | 19 | 4 | | | 3 |
| Turkish | 11 | 2 | | | |
| Korean | 9 | 2 | 2 | | 1 |
| Greek | 5 | | | | 1 |
| Japanese | 5 | 1 | | | |
| Slavic language | 3 | 1 | | | |
| Finnish | 2 | | | | 1 |
| Hungarian | 2 | | | | |
| Afrikaans | 1 | | | | |
| Croatian | 1 | | 1 | | |
| Italian | 1 | | | 1 | 3 |
| Lithuanian | 1 | | | | |
| Bulgarian | | 1 | | | |
| Estonian | | 2 | | | |
| Malay | | 2 | | | |
| Slovak | | | | | 1 |

than those in WoS, which supports our speculation that LLBA covers more international non-English publications than WoS does.

This research has implications for the bibliometric study of emerging (sub) fields or cross-/multi-disciplinary studies. The findings suggest that very closely related (perhaps sister) fields such as EFL, ESL, TEFL, TESL, and TESOL could emerge at the same time but differ from one another in their main research topics and their leading experts and affiliations/countries. They could also differ from one another in terms of the number of research outputs. We hypothesize that similar observations can be made in the newly emerging multi-disciplinary studies and subfields of the established fields such as English. As new research questions emerge, first, perhaps, new subfields are established within the same academic discipline. However, when the subfields fail to answer those research questions, new interdisciplinary fields of study emerges. Yet, this observation is based on the field of English and waits for testing in the other social science disciplines. Future research

will test these observations in other closely related fields such as anthropological linguistics and linguistic anthropology; neurology, neuropsychology, and neuroscience; cognitive psychology, cognitive linguistics, and cognitive science; and clinical psychology, counseling psychology, and health psychology.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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