Research trends in 'trans-' studies on writing: A bibliometric analysis

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ARTICLE INFO

ABSTRACT

This study identifies the research trends of 'trans-' studies on writing by analyzing 165 journal articles from a bibliometric approach. The corpus consists of peer-reviewed journal articles published from 2011 to 2020, during which 'trans-' studies on writing experienced rapid development in its conceptualization and implementation. Our analysis concentrates on (1) the most highly cited authors and articles and (2) the most frequently discussed concepts and their changes over the past decade. The results reveal that *translingual practice*, a concept that is mainly developed by Suresh Canagarajah (2013a, 2013b, 2015, 2018), has been increasingly adopted to illustrate language practices in writing processes. Other concepts, such as *translingual approach, spatial repertoires, translanguaging,* and *translingualism,* have also been widely discussed in writing studies, which corroborates the central principles of 'trans-' studies on writing. With this growing interest, 'trans-' principles have been increasingly enacted in writing practices, which has been reflected in the increasing use of the word combinations, such as *translingual pedagogy, translanguaging pedagogy,* and *translanguaging space.* The results also show that some terms, such as *translingual writing, code-switching, code-meshing,* and *monolingualism,* have been decreasingly discussed due to some misunderstandings of those terms and the relatively stable conceptualization of 'trans-' terms.

1. Introduction

The 2010s have witnessed a burgeoning development of '*trans-*' scholarship on language studies in general and writing studies in particular. '*Trans-*' concepts, such as translanguaging, translingualism, translingual practice, translingual approach, and transliteracy, have been proposed, developed, and refined to enrich and refresh the understanding of language, language use, and language difference in writing processes. These '*trans-*' concepts share alignment on some key points, albeit with substantial differences. For example, they all emphasize fluid, hybrid, and negotiated features of language and language use; challenge a monolingual understanding of language and language difference as static, discreet, and monolithic; and advocate for the agency of all language users in shaping their own language. These '*trans-*' concepts have been examined and implemented in various writing contexts with diverse writer groups and for different research and pedagogical purposes (Sun & Lan, 2021).

These '*trans-*' concepts are proposed to respond to the rapid development of globalization in writing studies; however, they all have their own theoretical roots and developmental trajectories. Therefore, they are used differently to comprehend and elaborate on

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language practices in writing processes. The different or even contrasting uses and definitions of 'trans-' concepts in writing studies have generated misunderstandings between "translingual writing" and second language (L2) writing. To mitigate these misunderstandings, it is necessary to identify the research trends of 'trans-' studies on writing, such as which publications and authors are influential, what 'trans-' concepts are widely discussed, and how they are developed and currently conceptualized. Scholars have recently begun applying a bibliometric approach to explore research trends of language studies (such as Hyland & Jiang, 2020; Lei & Liu, 2019a; Lei & Liu 2019b). This approach enables scholars to explore a research area from a data-driven perspective, which aligns well with the goals of this study. Thus, based on the 'trans-' literature in writing studies, this bibliometric study is a) to investigate the frequently discussed concepts, highly cited publications, and influential authors; b) to scrutinize these research targets (i.e., concepts, publications, authors) for interpretation.

It is necessary to note that many terms, such as plural-, metro-, and cosmopolitan terms, share similar ideas with 'trans-' terms. However, only 'trans-' terms explored in writing studies were selected to our corpora to be more focused. In addition, 'trans-' studies promote the transcendence of boundaries (regardless of whether they are language, social, cultural, geographical, or disciplinary boundaries). Therefore, the present study did not limit the bibliometric analysis to separate disciplines (for example, Applied Linguistics, Composition Studies, and Bilingual Education). Instead, our primary focus is on the 'trans-' studies that investigate language, language use, and language difference in writing processes no matter whether it is the writing in different English varieties (e.g., Edited American English and African American Vernacular English) or different named languages (e.g., English, Spanish, Chinese, and French). In the following section, we will briefly introduce the 'trans-' studies on writing.

2. A brief review of '*trans-*' studies on writing

The 'trans-' phenomenon, i.e., the hybrid use of language, semiotic, and ecological resources for meaning-making, has long been existing in society (Canagarajah, 2013a) but is newly (mainly in the past decade) conceptualized in research areas such as Applied Linguistics, TESOL, Composition Studies, and Bilingual Education. The 'trans-' ideas are widely discussed in writing studies since the publication of the opinion piece by Horner, Lu, Royster, and Trimbur in 2011 in *College English*, which was endorsed by fifty teacher-scholars. The three principles of a translingual approach to writing proposed in that piece (i.e., writer agency in language use, heterogeneity as the norm, and a challenge to monolingualism) have built conceptual and pedagogical foundations to understand and implement a translingual approach to writing. The ensuing 'trans-' discussions on writing have involved more 'trans-' terms, such as *translanguaging* (Canagarajah, 2011; Velasco & García, 2014), *translingual practice* (Canagarajah, 2013a, 2015; De Costa et al., 2017), *translingual disposition* (Lee & Jenks, 2016; Lu & Horner, 2013), *translingualism* (Jordan, 2015; Trimbur, 2016), *translinguality* (Horner, 2018; Horner & Tetreault, 2016), and *transmodality* (Horner et al., 2015; Shipka, 2016; Sun et al., 2021). The discussions and developments of these terms have extended the 'trans-' concepts from the negotiation between languages to the meshing of semiotic codes and then to the assemblage of linguistic, semiotic, and ecological resources. In short, language and language use, from 'trans-' perspectives, are viewed as performative, synergistic, emergent, contingent, ideological, contextual, and acts of translation.

The conceptualizations and developments of 'trans-' terms in writing studies are not without concern. The 'trans-' scholarship or 'dynamic turn' (Flores, 2013) or 'multi/plural turn' (Kubota, 2016) that advocates for blurring the linguistic, social, cultural, and disciplinary boundaries has been questioned for its ignoring of power relations and social inequality. Another concern about 'trans-' concepts is that the emphasis on the fluidity and hybridity of language resources in meaning-making might prevent critical and informed discussions on similarities and differences when addressing language issues (Gilyard, 2016; Matsuda, 2014; Milson-Whyte, 2013). The conceptualization of 'trans-' terms in writing studies is still in progress. Advocacies (Horner, Lu et al., 2011) and oppositions (Atkinson et al., 2015) co-exist and have elicited debates from both conceptual and pedagogical perspectives. To be specific, the 'trans-' concepts are valorized in writing studies insomuch as they challenge a monolingual understanding of language as static, discreet, and monolithic, view languages other than the dominant/target language as resources rather than impediments, advocate for the agency of all language users in shaping their own language, call for a more more tolerant and open-minded attitude toward language difference, consider difference as the norm of language use, and regard language use as synergistic, emergent, contingent, ideological, contextual, and negotiable. The concerns of 'trans-' studies on writing are about the misunderstanding between translingual writing and L2 writing, the discouragement of discussing similarities and differences between languages/language varieties, the ignoring of power relations and social inequality, the exacerbation of disciplinary division (such as composition studies and L2 writing), the weak pedagogical implications for language learners, and the lack of discussion on language development.

Some recent studies have tried to reconcile the relationship between 'trans-' studies on writing and L2 writing through encouraging conversations between translingual and L2 writing scholars (Silva & Wang, 2020) and examining the empirical studies on a translingual approach to English as an Additional Language (EAL) writing (Sun & Lan, 2021). Although reconciliation and clarifications have been provided in some writing studies, various 'trans-' terms were adopted, such as translingual writing and L2 writing (Atkinson et al., 2015), translingual practice and L2 writing (Canagarajah, 2015), translingual model and L2 writing (Donahue, 2016), and translinguality and L2 writing (Horner, 2018). To identify the trends of 'trans-' scholarship on writing, it is necessary to examine what 'trans-' terms have been widely discussed and how they have been conceptualized and developed. Thus, we adopted a bibliometric approach in the present study to investigate the trends.

3. Bibliometric analysis

As a term, bibliometrics was firstly proposed by Pritchard (1969) to refer to the use of statistical methods to analyze scientific publications. From a bibliometric perspective, for example, statistical tests (such as a Chi-square test) have been adopted to provide a

data-driven description of publications (such as journal articles). Bibliometric analysis has been conducted in different fields of study to measure research productivity and research impact of publications when some major credible citation indexes gradually appeared in academic communities. For instance, bibliometric analysis has been substantially used with the Science Citation Index (SCI) (Lei & Liu, 2019a). This index was designed to combine bibliographic citations and search functions of keywords in subjects, which efficiently enhances the retrieval of research literature in natural sciences (Lei & Liu, 2019a). Ensuing bibliometric research has been conducted with more indexing systems, including but not limited to the Social Science Citation Index (SSCI) and the Arts & Humanities Citation Index (A&HCI).

Scholars have started to analyze research trends of language studies with bibliometric analysis. For example, Lei and Liu's (2019b) and Hyland and Jiang's (2020) studies have shown that bibliometric analysis has made it possible to examine the impact of publications and authors and analyze scholars' and institutions' productivity. Nevertheless, only a few bibliometric studies can be found in language studies. To the best of our knowledge, only several recent studies after 2015 have employed bibliometric analysis across primarily five specific language research areas, which are English for academic purposes (Hyland & Jiang, 2020), Chinese as a second language (Gong et al., 2018), corpus or computational linguistics (Lei & Li, 2019; Liao & Lei, 2017), multilingualism (Lin & Lei, 2020), and translation studies (Zanettin et al., 2015). In addition, two recent bibliometric studies analyzed the research trends in applied linguistics in general, namely Lei and Liu (2019a) and Lei and Liu (2019b). These studies have helped scholars comprehensively understand the development of language studies (e.g., research topics, core publications, and influential researchers).

The '*trans-*' scholarship on writing has experienced rapid development and has attracted increasing attention in the past decade (2011–2020). It is necessary to note that '*trans-*' studies on writing started earlier than 2011 (e.g., Kellman, 2000, 2003); we examine the '*trans-*' literature starting from 2011 insomuch as '*trans-*' concepts have been systemically conceptualized, widely discussed, and increasingly implemented in writing studies since the opinion piece by Horner, Lu, et al. (2011). Thus, we consider it essential to analyze this young and fast-growing area and provide an inductive presentation on the research trends and the impact of core references/authors. This research purpose aligns with the strength of the bibliometric analysis. A careful review of previous literature of '*trans-*' studies on writing reveals a lack of bibliometric analysis on this area. To narrow this gap, we conducted this bibliometric research. The following research questions guide the present study:

1. Which authors are most highly cited?
2. Which publications are most highly referenced?
3. What '*trans-*' concepts are most frequently explored and whether there are significant changes over the past decade related to them?

4. Methods

4.1. Text source

A corpus was built based on journal articles representing publications in '*trans-*' studies on writing. The online library of a large research university allows us to access a comprehensive list of databases, including but not limited to *Educational Resources Information Center*, *Linguistics and Language Behavior Abstracts*, *ProQuest*, and *JSTORE*. An additional search was also conducted in *Google Scholar* to minimize the chances of missing any relevant studies. The keywords summarized in Sun and Lan (2021) were used as a guideline to identify target journal articles, such as the combination of writing with '*trans-*' terms (e.g., "translingual writing", "translingual and writing", "translanguaging writing", "translanguaging and writing", "translingualism and writing", and "translinguality and writing"). We input each keyword after another in the online libraries, including the databases mentioned above and *Google Scholar*, to locate relevant journal articles. Given the focus of the present study on '*trans-*' literature on writing, we excluded, despite their essential insights, studies whose primary focus was not on writing (such as, Kramsch, 2018; Li, 2018; MacSwan, 2017; and Otheguy et al., 2015). After an initial review and a second-round reading focusing on '*trans-*' studies on writing, 165 journal articles published in the past decade (2011–2020) were included in the corpus. The published articles were from peer-reviewed journals, such as *The Modern Language Journal*, *Applied Linguistics*, *TESOL Quarterly*, *College English*, *College Composition and Communication*, and *Journal of Second Language Writing*. The articles' genres were diverse, including full research papers, special issue articles, short communications, and disciplinary dialogues. The journal articles' lengths were between 1000 words and 12,000 words because different genres often require different text lengths.

4.2. Text pre-processing

We adopted six pre-processing steps to clean the text files. First, we converted the 165 files (i.e., the journal articles) in the corpus from PDF to plain text format with the AntFileConverter (Anthony, 2020). Second, the plain text files were manually cleaned via deleting unnecessary information (such as biographical information, journal information, running heads, and page numbers). After the manual cleaning, only four sections of the files, namely titles, abstracts, body texts, and references, were remained. Because the text conversion from PDF to plain texts generated some format issues such as additional spaces among words and inappropriate line breaks among paragraphs, our third step was to develop Python program-1 to adjust the files' format to ensure the quality of the later steps.

4.2.1. Example-1

- < TITLE> Translingual Writing and Teacher Development in Composition.</TITLE>

Fourth, Python program-2 was developed to apply the WordNetLemmatizer function offered in Python Natural Language Toolkit (NLTK) to lemmatize the text files. Fifth, specific tags were added to lemmatized files to divide files into four parts: <TITLE> for titles, for abstracts, <BODY> for body texts, and <REFERENCES> for references and works cited. Example-1 illustrates how the tags were added to the lemmatized files. Sixth, the pre-processed corpus was split into three sub-corpora to represent three individual periods in the past decade (2011–2020):

- Sub-corpus A included 22 articles published between 2011 and 2014.
- Sub-corpus B included 48 articles published between 2015 and 2017.
- Sub-corpus C included 95 articles published between 2018 and 2020.

The three subcorpora allow us to explore the trends of specific topics in three consecutive periods between 2011 and 2020. We divided the corpus into three subcorpora in that they, to a certain extent, represent the initiation (e.g., Canagarajah, 2013a; Horner, Lu, et al., 2011), development (e.g., Jordan, 2015; Lu & Horner, 2016) and extension (e.g., Canagarajah, 2018; Lee & Alvarez, 2020) of the systematic conceptualization of 'trans-' terms in writing studies.

4.3. Text analysis

We extracted N-grams, including monograms (i.e., a single word), from the three lemmatized sub-corpora for statistical analysis to answer the three research questions. Lei and Liu's (2019a) bibliometric analysis was used as a general guide to develop our own methods. Their study is the first comprehensive bibliometric analysis of publications in applied linguistics to the best of our knowledge. Nonetheless, the text analysis in this study was different from Lei and Liu (2019a) from the aspect that we applied the bibliometric analysis to the body texts instead of abstracts. This difference was ascribed to the fact that 'trans-' study on writing is still a young research area, so our corpus size (file no. = 165) was not as large as Lei and Liu's (2019a). We aimed at having an in-depth and interpretive analysis of the small-scale corpus (e.g., explain the possible reasons behind the frequency changes for specific concepts over the three periods of time).

Step-1: AntConc (Anthony, 2020) was used to generate an N-gram (1–5) list based on the lemmatized body texts in the main corpus. The functional words (e.g., pronouns, modal verbs, and prepositions) at the beginning or end of the N-grams were manually excluded from the list. The cut-off frequency for frequent N-grams tends to be subjective, which largely depends on researchers' discretion according to their textual data (Lei & Liu, 2019a). In our research context, we set two conditions to extract frequent N-grams: a) the minimum frequency is 20, meaning that the N-grams appear at least 20 times in the corpus; b) the minimum range is 10, meaning that the N-grams occurred at least in 10 files in the corpus. In this step, we narrowed the N-grams down to 582.

Step-2: we manually extracted concepts and research topics in 'trans-' studies on writing based on the three criteria in Lei and Liu (2019a),[1]: (a) N-grams were common in the English language in general, such as *point of view*; (b) N-grams were common in research but were not unique in our target research, such as *writing class*; (c) N-grams were common in the target research area but were not noteworthy concepts or topics, such as the *debate on multilingualism*. At last, we selected 20 frequent N-grams (i.e., concepts and topics) in 'trans-' studies on writing for further analysis based on the criteria. To triangulate our analysis, we also involved the third scholar in facilitating our decisions, especially when the two researchers had divergent opinions.

Step-3: Python program-3 was developed to examine the statistical significance of changes on the frequencies of the selected 20 concepts over the three periods of time (represented by the three sub-corpora). The frequencies of the selected concepts were first normalized to 10,000 words, which was close to the length of most publications (e.g., 7000 words and 8000 words). Then, program-3 applied a one-way Chi-square test (alpha = 0.05), which was similar to Lei and Liu (2019a) and other recent bibliometric analysis (e.g., Lei & Liu, 2019b; Lin & Lei, 2020). Based on the results of the one-way Chi-square test, we categorized the 20 selected concepts into four types, which were *significantly increased, significantly decreased, significantly fluctuated*, and *unchanged* (please see more information in the results).

Step-4: in this step, references were extracted by Python program-4 to analyze highly cited authors and publications. In terms of the highly cited authors, we identified a list of high-frequency names in the references via the Word List function in AntConc. The minimum frequency for the high-cited authors was set as 100, and then the two researchers manually extracted author names in the references of the 165 files. A necessary adjustment was made accordingly based on a qualitative check of the names in AntConc. For example, we checked the names to see a) whether the author names are over common to be unique to one scholar (such as Smith and Lu), and b) whether an author name shows up in one reference more than one time (e.g., Bruce Horner is both an editor and a chapter author of the book *Crossing divides: Exploring translingual writing pedagogies and programs*). With the qualitative adjustment, the frequencies of the author names can be considered accurate.

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[1] Lei and Liu (2019a) use the RNN tagger, which provides lemmatization and part-of-speech tagging at the same time. However, we did not annotate our corpus with part-of-speech tags. In our study, few cases of the N-grams require part-of-speech information for the application of the three criteria in Lei and Liu (2019a).

Step-5: with the references extracted from the 165 files in Step-4, all publications' frequencies were manually computed. We found a program is hard to be applied to automate the calculation due to three specific reasons: a) the references were in various citation styles, such as APA, MLA, and Oxford HumSoc; b) some details in the citations were not perfectly consistent, for example, Canagarajah (2013) in one publication could be Canagarajah (2013b) in another; c) we only have 165 files in the corpus, which makes Step 5 feasible for a manual calculation.

5. Results

5.1. Research question-1: Which authors are most highly cited?

The 'trans-' studies on writing have received growing attention in the past decade (2011–2020), so we consider it essential to illustrate highly cited authors for emerging or established scholars in this area for the sake of research purposes. Our bibliometric analysis suggests that seven specific authors were highly cited in previous publications' references (see Table 1). The most highly cited author is Suresh Canagarajah: the citation number is 415 in total (2.52 per article), and the citations from Canagarajah take up 5.39% of all citations in the references of the 165 articles. The second most highly cited author is Brue Horner, whose number of citations is 320 in total (1.94 per article), accounting for 4.16% of all the references. The remaining five highly cited authors are Ofelia García, Min-zhan Lu, Paul Kei Matsuda, Alastair Pennycook, and Wei Li.

In addition, the seven authors have 1625 citations in total, 9.08 of their publications being cited in each article. Their publications take up about 21.10% of the complete references in previous publications of 'trans-' studies on writing. In other words, more than 1/5 of the references are from the seven authors in previous publications between 2011 and 2020, suggesting the importance of their work in this research area. We have to admit that the authors' list is not exhaustive, and the work from other authors is also apparent in this area (e.g., Ryuko Kubota, Jerry Won Lee, Sender Dovchin, Christopher Jenks, Christiane Donahue, and Jonathan Hall).

5.2. Research question-2: Which publications are most highly referenced?

To answer research question-2, we identified the most highly cited publications in the references of the 165 articles (see Table 2). Table 2 illustrates the 18 publications highly cited in the past decade (2011–2020), and the publications include 12 journal articles and six books. The most frequently cited publication is *Translingual Practice: Global Englishes and Cosmopolitan Relations* by Suresh Canagarajah. The book, published in 2013, has been cited 68 times in the previous publications between 2011 and 2020. Another publication, cited 67 times, is a journal article co-authored by Horner, Lu, Royster, and Trimbur in 2011. The title of this article is *Language difference in writing: Toward a translingual approach*. So far, this article is the most highly cited journal article in the research area of 'trans-' studies on writing.

Two books, García (2009) and García and Li (2014), which proposed and conceptualized the term *translanguaging*, were also highly cited in 'trans-' studies on writing. The citation numbers were 46 and 51, respectively. In addition, Suresh Canagrajah published a journal article in 2006, whose title is *Toward a Writing Pedagogy of Shuttling between Languages: Learning from Multilingual Writers*. This article was cited 49 times in the references, which is the most highly cited publication before 2010. It is necessary to note that the most highly cited publications that expressed some concerns about 'trans-' studies on writing were Atkinson et al.'s (2015) *Clarifying the Relationship Between* L*2 Writing and Translingual Writing: An Open Letter to Writing Studies Editors and Organization Leaders* and Matsuda's (2014) *The Lure of Translingual Writing* with citation numbers of 32 and 25, respectively. Having said this, we have to mention that the numbers of citations are influenced by publishing time. A reasonable assumption is that an article published in 2011 is likely to be cited more than an article published in 2018. Thus, our analysis only depends on the highly cited publications from 2011 to 2020.

5.3. Research question-3: What 'trans-' concepts are most frequently explored and whether there are significant changes over the past decade related to them?

We identified 20 frequently discussed terms, which represent 'trans-' concepts in writing studies in the corpus of this study. A chi-square test was then used to examine each term's change across the three periods between 2011 and 2020. The 20 terms are then

Table 1
Most highly cited authors.

Authors	Citation number	Citation per article	Percentage
Suresh Canagarajah	415	2.52	5.39%
Bruce Horner	320	1.94	4.16%
Ofelia García	229	1.39	2.97%
Min-zhan Lu	211	1.28	2.74%
Paul Kei Matsuda	183	1.11	2.38%
Alastair Pennycook	140	0.85	1.82%
Wei Li	127	0.77	1.65%
Total	1625	9.08	21.10%

Note. Percentage means the citation number of one author over the total number of publications in references. Total number of references is 7,698, and total number of articles is 165.

Table 2

Most highly cited publications.

References	Type	Citation Number
Canagarajah, A. S. (2013a). • Translingual practice: Global Englishes …	Book	68
Horner, B., Lu, M.-Z., Royster, J., & Trimbur, J. (2011). • Language Difference in Writing …	Article	67
García and Li (2014). • Translanguaging: Language, bilingualism …	Book	51
Canagarajah, A. S. (2006a). • Toward a Writing Pedagogy … Multilingual Writers.	Article	49
García, O. (2009). • Bilingual education in the 21st century …	Book	46
Canagarajah, A. S. (2006b). • The Place of World Englishes …	Article	36
Atkinson, D., Crusan, D., Matsuda, P. K., Ortmeier-Hooper, C., Ruecker, T., Simpson, S., & Tardy, C. (2015). • Clarifying the relationship between L2 writing …	Article	32
Canagarajah, A. S. (2011). • Codemeshing in academic writing …	Article	32
Lu, M.-Z., & Horner, B. (2013). • Translingual literacy, language difference, and …	Article	30
Canagarajah, A. S. (2013b). • Negotiating Translingual Literacy …	Article	30
Horner, B., NeCamp, S., & Donahue, C. (2011). • Toward a multilingual composition …	Article	28
Horner, B., & Tetreault, L. (2017). • Crossing divides: Exploring translingual …	Book	26
Makoni, S., & Pennycook, A. (2007). • Disinventing and reconstituting languages …	Book	26
Creese, A., & A. Blackledge. (2010). • Translanguaging in the Bilingual Classroom …	Article	26
Matsuda, P. K. (2014). • The lure of translingual writing …	Article	25
Young, V. A. (2004). • Your average nigga …	Article	25
Pennycook, A. (2010). • Language as a local practice …	Book	22
Li, W. (2011). • Moment analysis and translanguaging space …	Article	22

Note. Due to the format concern, only part of the titles of publications are listed in the table. APPENDIX A includes other important studies, which we consider important but not as highly cited as the 18 publications in this table.

categorized into four groups based on the statistical results, namely 'significantly increased', 'significantly decreased', 'significant fluctuated', and 'statistically remained unchanged'.

First, the 'significantly increased' group includes five terms with p values < 0.05, and their normed frequencies increased during the three periods. For instance, the result of the Chi-square test for *translingual pedagogy* is $\chi2 = 8.51$, $p = 0.01$, which means that the change of the normed frequencies is significant across the three periods of time. In terms of the normed frequencies, *translingual pedagogy* occurred 4.35 times per 10,000 words between 2011 and 2014. The term occurred 9.14 times per 10,000 words between 2015 and 2017, which increased more than double. The normed frequency of *translingual pedagogy* was even much higher between 2018 and 2020, i.e., 17.45 per 10,000 words. Therefore, the use of the term *translingual pedagogy* significantly increased during the past decade. This group also includes four other terms: *translingual practice*, *translanguaging pedagogy*, *translanguaging space*, and *spatial repertoire*.

Second, the 'significantly decreased' group contains four terms with p values < 0.05, and their normed frequencies decreased over the three periods. For example, the result of the Chi-square test for *code-switching* is $\chi2 = 6.79$, $p = 0.03$. It indicates a significant change of the normed frequencies of this term across the three periods of time. To be more specific, the term was used 29.01 times per 10,000 words between 2011 and 2014 and then decreased to 17.26 times per 10,000 words between 2015 and 2017. The normed frequency was even lower in 2018 and 2020, which was 12.98. Thus, the term *code-switching* has been used significantly less during the past decade. There are three other terms in this group: *translingual writing*, *code-meshing*, and *monolingualism*.

Third, the 'significantly fluctuated' group includes four terms with p values < 0.05, and their normed frequencies fluctuated during the past decade. For instance, the result of the Chi-square test for *translingual orientation* is: $\chi2 = 17.76$, $p = 0.00$. It demonstrates a significant change of the normed frequencies of this term across the three periods of time. The normed frequencies of *translingual*

orientation show that this term was used with the highest frequency of 29.11 per 10,000 between 2015 and 2017, whereas the frequencies in the other two periods of time (i.e., 2011–2014 and 2018–2020) were much lower, being 6.53 and 11.69 per 10,000 words, respectively. Another two terms also follow this pattern: they are *translingualism* and *translingual disposition*. In contrast, *translanguaging* is an exception. The chi-square test shows a significant change of this term across the three periods of time ($\chi2 = 45.11$, $p = 0.00$). According to the normed frequencies, the second period (2015–2017) has the smallest value (i.e., 98.51 per 10,000 words), whereas the normed frequencies of *translanguaging* are much greater in the other two periods (2011–2014 and 2018–2020): 179.85 and 218.14 per 10,000 words, respectively.

Fourth, the last group is 'statistically remained unchanged'. This group includes the terms with p values > 0.05, indicating that the normed frequencies of the terms had no significant change across the three periods of time. There are seven terms altogether in this group, namely: *translingual approach* (p = 0.19), *multilingualism* (p = 0.35), *translingual literacy* (p = 0.26), *translingual competence* (p = 0.83), *translanguaging strategy* (p = 0.13), *rhetorical awareness* (p = 0.87), and *rhetorical sensibility* (p = 0.27).

6. Discussion

The present study aims to report and interpret the bibliometric results to identify the research trends of '*trans-*' studies on writing. Our relatively small-scale corpus makes the qualitative examination of the bibliometric results possible. We examined our bibliometric results qualitatively by (1) locating, (2) categorizing, (3) reading, and (4) analyzing the '*trans-*' studies relevant to each key term, respectively. Our results pertinent to highly cited authors and publications indicate the leading voices of '*trans-*' studies on writing. These voices are reflected by different concepts used by different scholars, such as *translingual practice* (Canagarajah, 2013a), *translanguaging* (García & Li, 2014), *translingual approach* (Lu & Horner, 2016), *translingual writing* (Matsuda, 2014), and *translingual activism* (Pennycook, 2019). As mentioned before, these concepts were proposed to respond to the increasingly diverse language teaching and learning environments. Scholars such as Suresh Canagarajah, Ofelia García, Bruce Horner, Min-zhan Lu, and Alastair Pennycook embrace a translingual understanding of language practices. While Paul Key Matsuda represents one of the leading voices concerned about a '*trans-*' turn in writing studies. Although not included in our quantitative results, our qualitative examination reveals that an increasing number of researchers has shown their interests in adopting '*trans-*' approaches to illustrate language practices in writing processes, such as Lee and Jenks (2016), De Costa et al. (2017), Canagarajah and Dovchin (2019), Martín et al. (2019), and Lee and Alvarez (2020), to name a few. Other scholars, such as Ferris (2014), Atkinson et al. (2015), Kubota (2016), Severino (2017), and Tardy (2017), have questioned the conceptual and pedagogical implications of '*trans-*' concepts for writing studies. Our results show two different if not opposite attitudes toward '*trans-*' studies on writing, i.e., some advocate for it and others concern about it.

Concerning the changes of frequently discussed '*trans-*' concepts in writing studies, our results show that the concept of *translingual practice* had been increasingly used over the past decade. This result matches our results pertinent to the most highly cited author (Suresh Canagarajah) and the most frequently referenced publication (Canagarajah, A. S. (2013a). *Translingual Practice: Global Englishes and Cosmopolitan Relations*). Our quantitative results and qualitative check reveal that the conceptualization of *translingual practice* is mainly initiated and developed by Suresh Canagarajah, a scholar whose work crosses different research areas such as applied linguistics, composition studies, and literacy studies. Due to his interests in exploring writing phenomena from different perspectives, the term *translingual practice* is mainly developed to transcend boundaries (such as social, cultural, and geographical boundaries) and transgress powers (such as linguistic, political, and human powers). For example, *translingual practice* is theorized to highlight language hybridity, fluidity, and negotiation in the process of meaning-making (Canagarajah, 2013a). This term is then conceptualized to stress the synergy and contingency of language and other semiotic resources (such as colors, fonts, sizes, and emoticons) in writing (Canagarajah, 2013b, 2015). Recently, *translingual practice* has been explained as spatial repertoires constructed by the assemblage of individual life trajectories, related others, and the temporal-spatial elements (such as time, space, and physical materials) (Canagarajah, 2018). In short, the notion of *translingual practice* evolves from the negotiation between languages to the synergy of semiotic resources and then to the assemblage of spatial repertoires.

Spatial repertoires is another term that has been increasingly used to understand how meaning is made in writing. Pennycook and Otsuji (2015) defined spatial repertoires as "link[ing] the repertoires formed through individual life trajectories to the particular places in which these linguistic resources are deployed" (p. 83). Canagarajah (2018) modified this definition through "mov[ing] spatial repertoires beyond the methodological individualism, human agency, and verbal resources the definition favors" (p. 37). He stated that "spatial repertoires may not be brought already to the activity by the individual but assembled *in situ*, and in collaboration with others, in the manner of distributed practice" (p. 37, emphasis in original). This modified definition of spatial repertoires denotes that repertoires (including linguistic, communicative, and cultural repertoires) are not what individuals bring to the particular places in response to related activities but are synergistically, contingently, and emergently constructed by the assemblage of individual life trajectories, related others, and the temporal-spatial elements. From this perspective, language norms and writing conventions are not fixed in that they always co-construct meanings with other semiotic and spatial resources. In a manner of speaking, this term highlights the permeability of language, social, cultural, and geopolitical boundaries in meaning-making, which further corroborates the '*trans-*'

understanding of language and language use as fluid, hybrid, and negotiable.

The continuing development and refinement of '*trans-*' principles have intrigued more research on its pedagogies. The increasing use of word combinations such as *translingual pedagogy*, *translanguaging pedagogy*, and *translanguaging space* has shown a growing interest in applying '*trans-*' concepts to practice. Translingual/translanguaging pedagogies that reflect the central tenets of '*trans-*' studies on writing (i.e., writer agency, languages and modalities as resources, heterogeneity as the norm, and a challenge to monolingualism) can help.

(1) develop student writers' metalinguistic awareness and cultural sensitivities (De Costa et al., 2017),
(2) support students' literacy development through embracing multiple and varied linguistic, semiotic, and spatial resources (Smith et al., 2017),
(3) liberate students from monolingual ideologies and empower them with agency in using their full repertoires for learning (Kim & Park, 2020),
(4) and shape teachers' positive attitudes toward and active practices with multilingual students (Back, 2020).

To enact these '*trans-*' pedagogies, translanguaging space (Li, 2011), a space in which one can draw on various resources for communication, needs to be created to facilitate writers to take advantage of their varied repertoires for academic writing (Kaufhold, 2018), professional writing (Jonsson & Blåsjö, 2020), and digital writing (Han, 2020). These studies have shown how '*trans-*' concepts can imply the teaching and learning of writing.

The term *translingual writing* has been decreasingly used in '*trans-*' studies on writing for its confusing definitions and its misunderstandings with L2 writing. Tannenbaum (2014) defined *translingual writing* as "writing in a language different from one's mother tongue" (p. 99), which is confused with the typical definition of L2 writing. Matsuda (2014) viewed *translingual writing* as loosely related assumptions, such as monolingualism is prevalent and problematic, language difference is the norm, and language and language difference are fluid and negotiable (pp. 478–9). Atkinson et al. (2015) regarded *translingual writing* as "a particular orientation to how language is conceptualized and implicated in the study and teaching of writing" (p. 384). Canagarajah (2016) considered *translingual writing* as "a form of situated literate practice where writers negotiate their semiotic resources in relation to the dominant conventions of language and rhetoric" (p. 266). These definitions of the term *translingual writing* indicate its confusion with L2 writing and scholars' disagreements on its connotations. To diminish the misunderstandings between '*trans-*' studies on writing and L2 writing, some scholars (such as Donahue, 2016; Horner, 2018; and Sun & Lan, 2021) view 'translingual' as one of a number of approaches (such as cognitive, sociocultural, sociocognitive, and genre approaches) that can be employed to investigate writing issues in different research areas (such as composition studies, L2 writing, basic writing, and writing across curriculum/writing in the discipline) rather than an umbrella term to understand all writing phenomena. These studies reveal that the confusing definitions of *translingual writing* might be why it has been decreasingly used in recent research.

Other terms, such as *code-meshing*, *monolingualism*, and *code-switching*, have been decreasingly used in '*trans-*' studies on writing as well. These terms were mainly used to compare and develop '*trans-*' concepts in the early steps of '*trans-*' studies on writing. For example, the term *code-meshing* (Canagarajah, 2006b; Young, 2004), "a form of writing in which multilinguals merge their diverse language resources with the dominant genre conventions to construct hybrid texts for voice" (Canagarajah, 2013b, p. 40), was proposed to challenge *code-switching*, the interaction between languages, language varieties, or speech styles (Baker & Jones, 1998;

Table 3
Statistical analysis of normed frequencies of key concepts/topics.

Type	Keywords	2011–2014	2015–2017	2018–2020	Chisq.	p-value
Significantly increased	translingual practice	10.15	31.48	54.37	30.56	0.00
	translingual pedagogy	4.35	9.14	17.45	8.51	0.01
	translanguaging pedagogy	1.18	3.69	9.12	7.06	0.03
	translanguaging space	0.00	1.35	7.63	11.07	0.00
	spatial repertoire	0.00	0.34	5.19	9.16	0.01
Significantly decreased	translingual writing	55.84	40.28	21.26	15.33	0.00
	code-meshing	65.27	27.42	21.26	29.90	0.00
	monolingualism	30.46	16.93	14.45	7.21	0.03
	code-switching	29.01	17.26	12.98	6.97	0.03
Significantly fluctuated	translanguaging	179.85	98.51	218.14	45.11	0.00
	translingualism	32.63	104.26	68.66	37.44	0.00
	translingual disposition	1.45	26.74	14.12	22.68	0.00
	translingual orientation	6.53	29.11	11.69	17.76	0.00
Statistically remained unchanged	translingual approach	65.27	55.85	46.10	3.30	0.19
	multilingualism	34.08	23.36	27.27	2.09	0.35
	translingual literacy	7.25	14.22	8.60	2.72	0.26
	translingual competence	5.80	4.74	3.90	0.38	0.83
	translanguaging strategy	0.00	2.03	4.06	4.06	0.13
	rhetorical awareness	1.45	2.37	2.43	0.29	0.87
	rhetorical sensibility	0.73	4.06	1.79	2.65	0.27

Note. The table demonstrates the results of the chi-square tests on the highly frequent concepts/topics in '*trans-*' studies on writing. The alpha level was set as 0.05 for the tests.

Hymes, 1974; Sebba, 2013). Although *code-meshing* emphasizes the mixed-use of semiotic resources in writing, it is mainly product-orientated. Scholars (such as Gilyard, 2016; Guerra, 2016; Horner & Tetreault, 2017; and Lu & Horner 2016) argue that what is more important for writing is not how many languages or modes meshed in texts but how writers understand their use of various resources in the process of writing. To move the focus from product to process, the term *translingual practice* that stresses writers' linguistic and rhetorical awareness has been used more frequently than *code-meshing*. As with *code-switching*, the term *monolingualism* was mainly used as the target of criticism in '*trans-*' studies on writing. The differences between monolingualism, multilingualism, and '*trans-*' studies have been addressed (Canagarajah, 2015; Horner, NeCamp et al., 2011). With the relatively stable understanding of '*trans-*' concepts, *monolingualism* has been decreasingly discussed.

Other noteworthy terms, such as *translingual approach*, *translanguaging*, and *translingualism*, need to be discussed. As *translingual practice*, *translingual approach* is also widely discussed in writing studies. This concept is grounded in the studies on language and language variety difference (Matsuda, 1999; Silva et al., 1997; Young, 2004), contact zones (Lu, 1994; Pratt, 1991), and the debate on English Only policy (Horner, 2001; Horner at al., 2010; Horner & Trimbur, 2002). As our results show, this term has been stably employed in '*trans-*' studies on writing (please see Table 3). Many ideas overlap between *translingual practice* and *translingual approach* (please refer to the advocacy of '*trans-*' studies on writing previously discussed); the main difference between them is that *translingual practice* emphasizes language use, and *translingual approach* stresses more on language ideology. *Translanguaging,* widely discussed in bilingual education, has also been employed to understand language use in writing processes. Most studies that adopted this term in our corpus are empirical studies. The conceptualization of *translanguaging* barely appears in writing studies. The reason might be that *translanguaging* is usually understood as "the general communicative competence of multilinguals" (Canagarajah, 2011, p. 403) rather than written competence. Another term that needs attention is *translingualism*. This term is commonly used as an umbrella term to indicate a paradigm shift from monolingualism to multilingualism then to translingualism. However, the expansion of '*trans-*' concepts as *translingualism* has elicited concerns. For example, Tardy (2020) contends that it is still in dispute whether *translingualism* has been a paradigm in language and writing studies. These terms did not show significant changes in the past decade, but they are also essential concepts for a deeper and a broader understanding of '*trans-*' studies on writing.

7. Conclusion

The present study has reported highly cited authors, highly referenced publications, and frequently explored concepts in '*trans-*' studies on writing. The findings reveal that various '*trans-*' terms have been proposed, conceptualized, and developed in writing studies; two of them (i.e., *translingual practice* (increasingly used) and *translingual approach* (stably used)), however, stand out. These two terms represent the central tenets of '*trans-*' studies on writing, albeit with subtle differences. The expansion of '*trans-*' concepts as *translingualism* has generated concerns over its connotations (please refer to the discussion section). Despite some concerns, our findings show that '*trans-*' concepts have attracted increasing attention in writing studies during the past decade. Recent studies have encouraged conversations between translingual scholars and L2 writing scholars to mitigate their misunderstandings and better serve writing students. Further '*trans-*' studies that can appropriately respond to the current concerns both conceptually and empirically are needed to help researchers and practitioners better understand and enact '*trans-*' principles.

This bibliometric study presents the trends of '*trans-*' research on writing and elaborates on the conceptualizations and developments of some widely discussed '*trans-*' terms. Many issues pertinent to '*trans-*' studies on language and writing remain underexplored. Future research is needed to investigate what '*trans-*' principles have been widely implemented to enrich language and writing pedagogies, what '*trans-*' strategies and activities have been frequently enacted in and outside writing classrooms, what effects those strategies and activities have made, in what ways those strategies and activities facilitate or disserve language and writing teachers and learners, and to what extent these strategies and activities can affect teaching and learning. More empirical research is needed to contribute to the investigation of these issues.

CRediT authorship contribution statement

Yachao Sun: Writing – original draft, is the first author and corresponding author who provided ideas for organizing, designing, and conducting this research (article reference: SYS 102640). wrote most parts of the manuscript and revised it based on the reviewers' comments and suggestions. **Ge Lan:** Writing – original draft, Data curation, is the second author of this manuscript who helped organize, design, and conduct this research. He was in charge of the research method section and run our data for getting our research results. He also wrote the methods and results sections in our first draft of the manuscript.

APPENDIX A

References	Type	Citation No.
Matsuda, P. K. (2006). • The myth of linguistic homogeneity …	Article	19
Horner, B., Lu, M. Z., & Matsuda, P. K. (2010). • Cross-language relations in composition …	Book	18
Velasco, P. & García and Li (2014). • Translanguaging and the Writing of Bilingual …	Article	17
Guerra, J. C. (2016). • Cultivating a rhetorical sensibility …	Article	17
Gilyard, K. (2016). • The rhetoric of translingualism …	Article	16
Canagarajah, S. (2011). • Translanguaging in the Classroom …	Article	16
Matsuda, P. K. (2013). • It's the wild west out there …	Chapter	13
Lu, M.-Z., & Horner, B. (2016). • Introduction: translingual work …	Article	11
Canagarajah, S. (2015). • Clarifying the relationship …	Article	10

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