Diksi (2025), Vol. 33, No. 1, **99-124**
doi.org/10.21831/diksi.v32i2

Exploring trends and challenge on second language learning using bibliometric analysis

Arti Prihatini[1]*, Fida Pangesti[1], Gamal Kusuma Zamahsari[2]

AFFILIATION
[1]Universitas Muhammadiyah Malang, Indonesia
[2]Universitas Bina Nusantara, Indonesia
* Corresponding Author:
artiprihatini@umm.ac.id

ARTICLE HISTORY
- Received 1 July 2024
- Accepted 28 March 2025
- Published 31 March 2025

CITATION (APA STYLE)
Prihatini, A., Pangesti, F., & Zamahsari, G. (2025). Exploring trends and challenge on second language learning using bibliometric analysis. *Diksi, 33*(1), 99-124. doi:https://doi.org/10.21831/diksi.v33i1.75678

Abstract: Second language learning is becoming a research trend. Unfortunately, there was a lack of research that sketched this field. In filling this gap, this study aims to map the research trends in second language learning in Scopus. This study was conducted by bibliometric analysis involving research articles on second language learning in 2013-2022. The data were collected from Scopus. The data were analyzed using the VOSviewer application to visualize research trends. The current study found that research clusters focused on students (motivation and emotions), second language learning, and linguistic elements (word, lexicon, and speech). This research focuses on school-based second language learning. Over the past decade, second language learning has combined education, psychology, neurology, and technology. From 2017, second language learning publications rose considerably. The United States has published the most second-language acquisition articles over the past decade. The United Kingdom is the second country with the most publications. Five of the ten top countries originate from Europe, two from North America, and the remaining two from China and Hong Kong. The results benefit teachers in teaching, students in the learning process, and researchers in investigating second language learning.

Keywords: *bibliometric analysis, language learning, psycholinguistics, second language learning*

INTRODUCTION

Second language learning is more sophisticated (Larson–Hall, 2017) and has become a research trend over the last two decades (Plonsky, 2013; Zhang, 2019). Grounded in the collective efforts of numerous scholars who have produced a substantial body of literature, our comprehension of second language learning has been consistently enhanced, and the field is rapidly expanding and displaying changes and advances (Plonsky, 2014; Zhang, 2019). The development is demonstrated by the vital role, impact, and collaboration of second language learning in the linguistic field linked to other fields, including computer science, psychology, cognitive science, sociology, and education (Jiang, 2020; Lei & Liao, 2017).

Defining the essential topics in second language learning research becomes more challenging as the field develops. Bibliometric data can identify essential topics by generating and comparing data from many publications to detect systematic patterns and reveal developmental research trends. This method is known as bibliometric analysis, conducted in quantitative (Lei & Liu, 2018; Zhang, 2019) and qualitative research (Cobo et al., 2011; Donthu et al., 2021).

By analyzing the research trends, we may find a topic overview, knowledge gaps, novel ideas, and possibilities for further study (Donthu et al., 2021; Plonsky, 2014). Moreover, bib-

liometric studies can enable scientists to place their planned advancements in the discipline (Donthu et al., 2021) based on a fresh viewpoint on the significance of particular publications, their authors, the concepts, and the papers to which these essential works are related (Lei & Liu, 2018; Radev et al., 2015)

Bibliometric analysis is a prevalent and thorough method for gathering, investigating, and interpreting quantifiable data using mathematical and statistical analysis of published research papers to assess information inside the publication and untangle the evolutionary subtleties of a particular subject (Agarwal et al., 2016; Donthu et al., 2021). Bibliometry measures the quantity and analyzes publication quality, such as books, articles, and other forms. In addition, the bibliometric study measures the research impact by examining qualitative characteristics that can only be quantified through peer review (Agarwal et al., 2016; Donthu et al., 2021). Thus, scientific progress from global to author levels could be assessed by the bibliometric analysis (Shahid & Qadir, 2021) to develop a complete grasp of the chosen topic and to assist in identifying the variables utilized in research on teaching and learning (Shoaib et al., 2021).

A limited amount of research has been undertaken on the bibliometric approach to the development of language and linguistics (Lei & Liao, 2017), notably in the multidisciplinary field of language education (Shahid & Qadir, 2021). Despite this, there are few examples of bibliometric endeavors in related fields. Much global research examined bibliometric analysis in applied linguistics (De Bot, 2015; Lei & Liu, 2018), second language acquisition (Zhang, 2019), language and linguistics (CheshmehSohrabi & Mashhadi, 2022; Yan & Zhang, 2023). De Bot (2015) examined applied linguistics between 1980 and 2010 using expert views and citation analysis in comprehensive research. De Bot examined over one hundred applied linguists to identify leading experts and emerging trends. He found developmental trends as applied linguistics has grown increasingly interdisciplinary due to the rising impact of cross-disciplinary theories (such as complexity theory and sociocultural theory) and methodologies (e.g., corpus linguistics, sociolinguistics, neurolinguistics). Another study analyzed applied linguistics trends and consequences from 2005 to 2016 (Lei & Liu, 2018). A more recent study (Lei & Liu, 2018) investigated applied linguistics using co-citation analysis and keyword analysis. According to the research, incorporating theories from various fields has resulted in significant improvements over the past decade. Also, Lei and Liu developed an interest in subjects such as multilingualism and sociopsychology. Zhang (2019) examined the foremost Second Language Acquisition (SLA) trends between 1997 and 2018. The Web of Science was utilized to extract the (co) citations and keywords of over 8,000 papers published in 16 prestigious journals. He was able to identify shifts and trends in the most popular subjects, themes, ideas, and journals' emphasis.

This investigation might effectively illustrate the bibliometric profile of increasingly diverse SLAs.

Researchers also sketched trends based on the journals (Al-Hoorie & Vitta, 2019; Lindstromberg, 2016; Mohanty et al., 2016; Plonsky, 2013, 2014; Syahid & Qodir, 2021). Plonsky (2013, 2014) examined papers published in two leading journals (Language Learning and Studies in Second Language Acquisition). In a more recent study, researchers analyzed documents published in a single publication (Language Teaching Research) over almost two decades (Lindstromberg, 2016), a scientometric analysis of periodic literature, including two journals: Language Sciences and Linguistics and Education) (Mohanty et al., 2016), and a fifteen-year review of the Journal of Language and Linguistic Studies (Shahid & Qadir, 2021).

A growing need is sketched the research map for second-language learning studies. In filling this gap, this study aims to map second language learning research trends during 2013-2022. The current study addresses this gap through bibliometric analysis by organizing data around three visualizations: (a) the network visualization of research clusters, (b) the overlay visualization of research trends from year to year, and (c) the density visualization based on the nature of research productivity.

This study revealed recent research trends in the "second language learning" study. This study also identified the most influential articles in this field to highlight the new trends and discuss the challenges associated with second language learning studies. The results of this study have great significance for researchers in the second language learning areas to determine future research, as well as for language learning policyholders in curriculum design and research funding providers in facilitating further research projects.

METHOD

This study conducted bibliometric analysis to attain these research aims regarding research trends in second language learning publications. This study might give a historical and scientific evaluation of its publishing and citation trends utilizing bibliometrics (Lei & Liu, 2018; Syahid & Qadir, 2021) based on the trinity of publications, indexations, and citations (Nylander et al., 2020). Moreover, in science, bibliometric studies aim to display the bibliometric structure that encompasses the networks connecting research components that contribute to the intelligent system based on clusters of relevant topics in the study area (Donthu et al., 2021). Therefore, this study used bibliometric analysis to describe the research cluster, research overlay, and research density on second language learning.

This study assessed 770 articles published in Scopus over ten years (2013-2022). In addition, this study used question guidelines to collect data for the bibliometric analysis: (1) Do the search terms show how wide-ranging the study is? (2) Is the size of the library extensive enough for the study?

(3) Are there mistakes in the data, such as copies or wrong entries? (4) Does the finished dataset meet the requirements of the methods used for bibliometric analysis in the study? (Cobo et al., 2011; Donthu et al., 2021).

Furthermore, this research was carried out utilizing techniques of purposive sampling based on several conditions: (1) the data were classified as scientific research articles, (2) the data was published in scientific journals, (3) the data had relevance to the topic in second language learning, (4) the data was published in 2016-2021, and (5) Scopus indexed the articles. Scopus was selected because it provides a more comprehensive journal coverage than Web of Science, information on abstracts, authors, and citations, connections to full-text articles and other library resources, and up to 30 keywords. Because writers are constantly paired with their affiliations, Scopus can precisely match author names (Agarwal et al., 2016).

The collected data is selected based on the review process below.

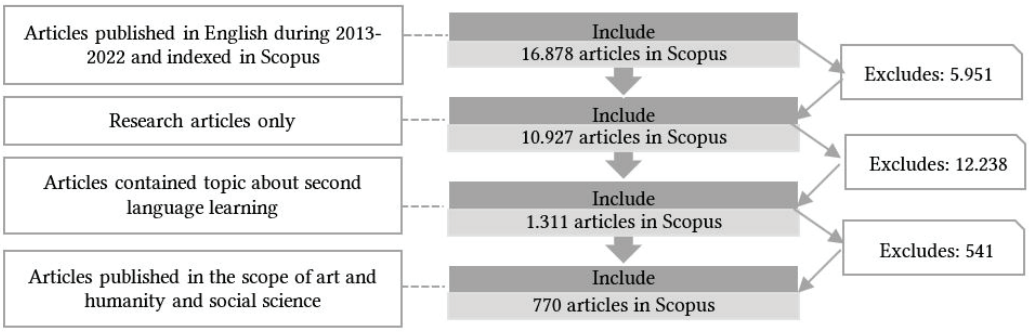

Figure 1. The Review Process for Study Selection

The data analysis was carried out in several stages, namely (1) identifying research trends based on research titles and abstracts, (2) determining research trends based on the co-occurrences of the research topics, and (3) analyzing the network to identify research topic clusters based on network visualization, (6) analyzing research trends last decade based on overlay visualization, and (7) analyzing research density based on density visualization.

This study designed three indicators for data analysis: (1) quantity indicators, which assess the productivity of specific research; (2) quality indicators, which analyze research performance; and (3) structural indicators, which show how publications and research areas are linked (Agarwal et al., 2016; Al-Hoorie & Vitta, 2019; Arnott et al., 2019; Cobo et al., 2011; Drysdale et al., 2013; Durieux & Gevenois, 2010). Descriptive statistics could measure quantity indicators (Larson–Hall, 2017), descriptive statistics, inferential statistics, or a combination of the two (Drysdale et al., 2013). For example, quantity indicators can be used to characterize the scientific development of a field by counting researchers and their work (Lei & Liu, 2018) and assessing the productivity of the identified themes and thematic areas (Cobo et al., 2011).

Although descriptive statistics can be informative (Larson–Hall, 2017), a journal's statistical quality is unidimensional, considering its overall quality (Al-Hoorie & Vitta, 2019). Other aspects involve non-statistical parts of quantitative articles and different types of articles, such as qualitative and intellectual ones (Al-Hoorie & Vitta, 2019), demonstrating the (presumed) quality based on the bibliometric significance of these themes and subject areas (Cobo et al., 2011). Based on structural indicators, some network characteristics, such as the average length of the shortest path, clustering factors, degree distribution, and spectral properties, may be applied to describe the difference between a random network and a real-world network. Based on these studies, different theories of how citation networks change over time have been made (Durieux & Gevenois, 2010; Radev et al., 2015).

Cobo et al. (2011) and Donthu et al. (2021) describe the bibliometric analysis tool specifically. Nevertheless, this study employs some of those analysis tools based on the stages of data analysis, and these indicators are as follows.

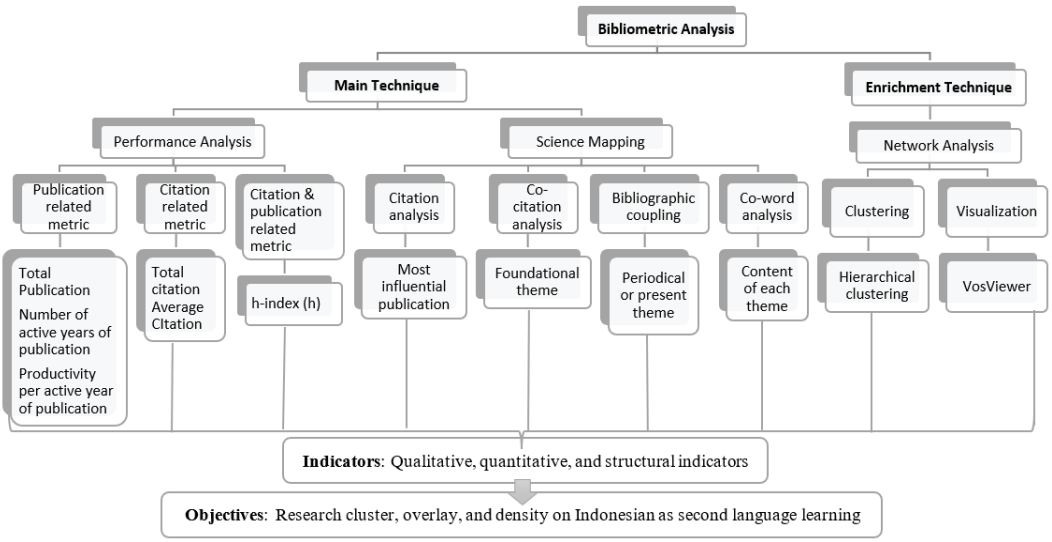

Figure 2. Bibliometric Analysis Toolbox

Figure 2 shows that there are two techniques in bibliometric analysis: main and enrichment techniques. The main technique consists of performance analysis and science mapping. Performance analysis explores how various study participants have impacted a particular field (Cobo et al., 2011), typically presented in empirical research though more analytically (Donthu et al., 2021). There are numerous performance analysis metrics available. The most common metrics are publications, citations, and research output, with publications serving as a stand-in for productivity.

In contrast, citation is a gauge of impact and influence (Donthu et al., 2021). The analysis of science mapping focuses on examining the intellectual interactions and structural ties among research elements (Donthu et al., 2021), aiming to depict the bibliometric and academic framework of a research field through the integration of network analysis (Baker et al., 2020).

Science mapping methodologies encompass citation analysis, co-citation analysis, bibliographic coupling, and co-word analysis (Donthu et al., 2021). Conversely, themes are delineated by identifying keywords and their connections (Cobo et al., 2011).

Within enrichment methodologies, network analysis emerges as a recommended approach encompassing network metrics, clustering algorithms, and visualization techniques. Network metrics elucidate the comparative significance of research entities such as authors, institutions, and countries, offering insights beyond those derived solely from publications or citations. Furthermore, clustering serves as an additional enrichment tool in bibliometric analysis, with the goal of delineating thematic or social groupings depending on the specific focus of the investigation. The curation and observation of network clusters facilitate a deeper understanding of the development and dynamics within a research domain (Donthu et al., 2021). Visualization is used to illustrate research trends based on bibliographic data. These analyses were processed by bibliometric software, VOSviewer, to study such data (Donthu et al., 2021; Syahid & Qodir, 2021). For example, bibliographic mapping networks such as co-citation could (http://www.VOSviewer.com/; (Eck & Waltman, 2020).

The metric for performance analysis is described below (Donthu et al., 2021).

Table 1. Metrics for Performance Analysis

Metric	Description
Publication related metrics	
Total publications (TP)	The whole publication of the research constituent
Number of active years of publication (NAY)	Number of years that research constitutes recorded publication
Productivity per active year of publication (PAY)	TP ÷ NAY
Citation-related metrics	
Citation-related metrics	Total citations of research constituent
Average citations (AC)	Average citations (e.g., per publication, per year, per period) of research constituent
Citation-and-publication-related metrics	
h-index (h)	h number of publications cited at least h times (i.e., a measure of influence)

The metric for science mapping is described below(Baker et al., 2020; Cobo et al., 2011; Donthu et al., 2021).

Table 2. Metrics for Science Mapping

Technique	Usage	Units Of Analysis	Data Requirements	E.G
Citation analysis	To analyze the relationships among papers by discovering the most influential publications in a particular field of research.	Documents	Author name, Citations, Title, Journals, DOI, or References	Chomsky (2005)
Co-citation analysis	To analyze the connections between cited articles to gain an understanding of the evolution of the fundamental themes in a particular academic field.	Documents	References	Hans & Hicks (2016)
Bib-lio-graphic coupling	To analyze the connections between cited publications in order to gain an understanding of the cyclical or ongoing development of topics within a study field.	Documents	Author name, Title, Journals, DOI, or References	Kloe & Hasan (2015)
Co-occurring keywords	The phenomenon known as "keyword co-occurrence" occurs when two different keywords appear in the same article simultaneously, suggesting a connection between the two ideas.	Keyword co-occurrence	Keyword	Pawlak (2018)

RESULTS AND DISCUSSION

Results

Performance Analysis Based

Publication-and-citation-related metrics

The research results are presented in the following table.

Table 3. Publication and Citation Metrics

Description	Results
Publication year	2013 - 2022
Citation years	2013 - 2022
Total publications	770
Total citations	7921
Authors	2042
Cites/year	880,11
Cites/papers	10,29
Authors/papers	2.61
h-Index	41
g-Index	56

Table 3 shows the number of second language learning publications 770 in the last decade. The number of citations is 7921, with an average of 880.11 per year and 10.29 per paper. It means that every year in 2013 – 2022, the documents are cited close to 880 times, and every paper is cited ten times yearly. There are 2042 authors focus on second language learning research, with an average of 2.61 authors per paper. It means that each paper consists of 2-3 authors. Furthermore, the h-index of the document collection was 41, denoting the presence of 41 documents garnering a minimum of 41 citations each, as the h-index is derived from the h number of publications cited at least h times.

Publication and citation trend analysis

The development of the number of second language learning publications is presented in the following figure.

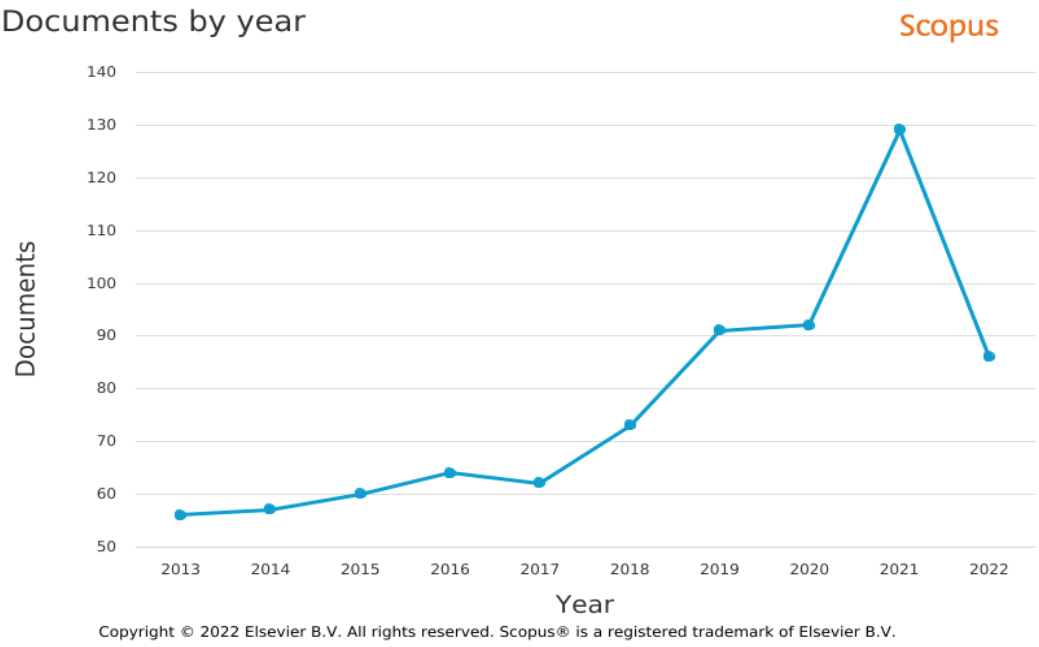

Figure 3. Number of Annual Publications in Second Language Learning

Figure 3 describes the distribution of published documents by publication year. Figure 3 illustrates that the quantity of second language learning publications that increased from 2013 to 2016, although the increase was less significant. In early 2017, the number of publications decreased, then increased significantly until 2019, but in 2020, the number did not change much from the previous year. It was only in 2021 that the number of publications seemed to increase significantly, reaching 130, but in 2022 it decreased again. Even so, there is still a possibility that the number of publications will increase because this data was taken by the end of 2022. Based on the prior research findings, publications from 1990–2010 (Plonsky, 2014) and 1997-2018 (Zhang, 2019) indicate the development of the discipline over the past two decades. The perceptible increase in growth can be attributed

to the broadened scope, heightened diversity, and accelerated advancement within the domains of language and linguistics (Shahid & Qadir, 2021).

Science Mapping and Network Analysis

Citation analysis

Based on citation analysis, the articles with the most citations are presented as follows.

Table 4. Most Cited Papers in Second Language Learning Studies

Title	Year	Journals	TC	Source
Age of language learning shapes brain structure: A cortical thickness study of bilingual and monolingual individuals	2014	Brain and Language	165	(Klein et al., 2014)
The changing face of language learning: Learning beyond the classroom	2015	RELC Journal	129	(Richards, 2015)
Implementing flipped classroom using digital media: A comparison of two demographically different groups perceptions	2016	Computers in Human Behavior	111	(Sohrabi & Iraj, 2016)
Changing language mindsets: Implications for goal orientations and responses to failure in and outside the second language classroom	2016	Contemporary Educational Psychology	96	(Lou & Noels, 2016)
The neuroanatomy of bilingualism: how to turn a hazy view into the full picture	2016	Language, Cognition and Neuroscience	91	(García-Pentón et al., 2016)
From language-specific to shared syntactic representations: The influence of second language proficiency on syntactic sharing in bilinguals	2013	Cognition	89	(Bernolet et al., 2013)
Transfer of Learning Transformed	2013	Language Learning	87	(Larsen-Freeman, 2013)
The development of shared syntax in second language learning	2017	Bilingualism	74	(Hartsuiker & Bernolet, 2017)
Guidelines for Designing Social Robots as Second Language Tutors	2018	International Journal of Social Robotics	71	(Belpaeme et al., 2018)
Perception of tones by infants learning a non-tone language	2014	Cognition	71	(Liu & Kager, 2014)

Language aptitude for pronunciation in advanced second language (L2) Learners: Behavioral predictors and neural substrates	2013	Brain and Language	71	(Hu et al., 2013)
On the effects of second language immersion on first language production	2013	Acta Psychology	69	(Baus et al., 2013)
The Role of Multiword Building Blocks in Explaining L1 and L2 Differences	2017	Topics in Cognitive Science	67	(Arnon & Christiansen, 2017)
An exploration of Chinese EFL students' emotional intelligence and foreign language anxiety	2013	Modern Language Journal	65	(Shao et al., 2013)
Second language lexical development and cognitive control: A longitudinal fMRI study	2015	Brain and Language	64	(Grant et al., 2015)
Foreign accent strength and listener familiarity with an accent code termine speed of perceptual adaptation	2013	Attention, Perception, and Psychophysics	64	(Witteman et al., 2013)
Emotions in classroom language learning: What can we learn from achievement emotion research?	2019	System	62	(Shao et al., 2019)
Second language acquisition of Mandarin Chinese vocabulary: context of learning effects	2015	Educational Technology Research and Development	62	(Lan et al., 2015)
Digital literacies and language learning	2015	Language Learning and Technology	62	(Hafner et al., 2015)
The role of partial knowledge in statistical word learning	2014	Psychonomic Bulletin and Review	56	(Yurovsky et al., 2014)

Table 4 demonstrates that the citation number can identify the most influential articles in second language learning in the last decade. Research on second language learning in the last decade has tended to be multidisciplinary, including psychology, neurology, and technology.

Most cited articles were received by the documents published in 2013, totaling 6 documents; 2014 as many as 3 documents; 2015 as many as 4 documents; 2016 as many as 3 documents; 2017 as many as 2 documents, 2018 as many as 1 document, and 2019 as many as 1 document. These findings indicate that articles published first tend to have the opportunity to have multiple citations.

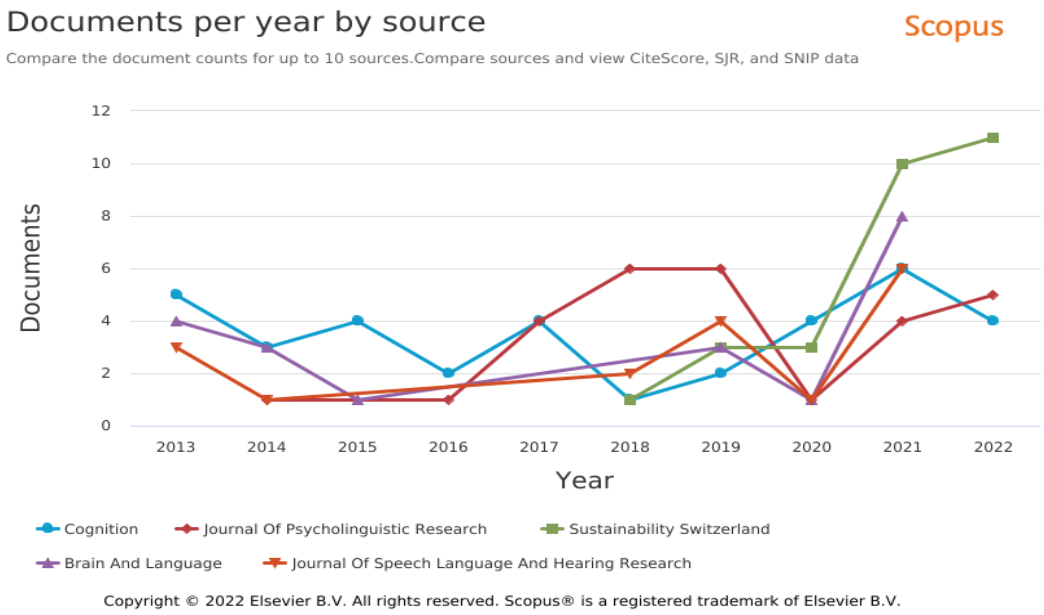

Figure 4. Top Journal with The Highest Publication and Citation

Figure 4 shows that the journal with the most publications and citations experiences fluctuating publication and citation rates. In general, these journals experienced a reduction in the quantity of publications and citations in 2014 and then increased in 2017 and 2019. However, the number of publications decreased in 2020, namely the Journal of Psycholinguistics, Journal of Speech-Language and Hearing Research, and Brain and Language. Furthermore, the number of publications and citations published in the five journals increased in 2021. Overall, the journal that consistently experiences increased publications and citations is Sustainability Switzerland.

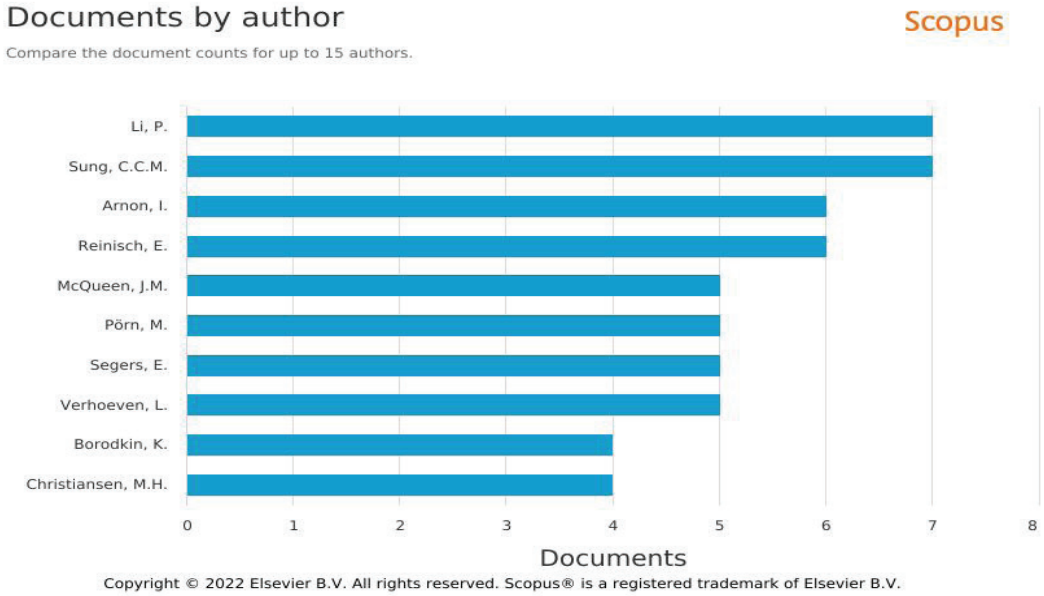

Figure 5. Top Authors with The Highest Publication and Citation

Figure 5 shows the leading authors by publications and citations number are Li, P from the Department of Psychology and Center for Brain, Behavior, and Cognition, Pennsylvania State University, USA, and Sung from the Department of English, Lingnan University, Hong Kong with a total of seven articles published. Furthermore, Arnon from the Psychology Department, Hebrew University, Israel, and Reinisch from the Max Planck Institute for Psycholinguistics, the Netherlands, produced 6 articles. Then, McQueen (Max Planck Institute for Psycholinguistics, Netherland), Porn (Åbo Akademi University, Finland), Segers (Radboud University, Netherland), Verhoeven (Radboud University, Netherland) each published 5 articles; and Borodkin (University of New York, USA) and Cristiansen (Cornell University, USA) 4 articles.

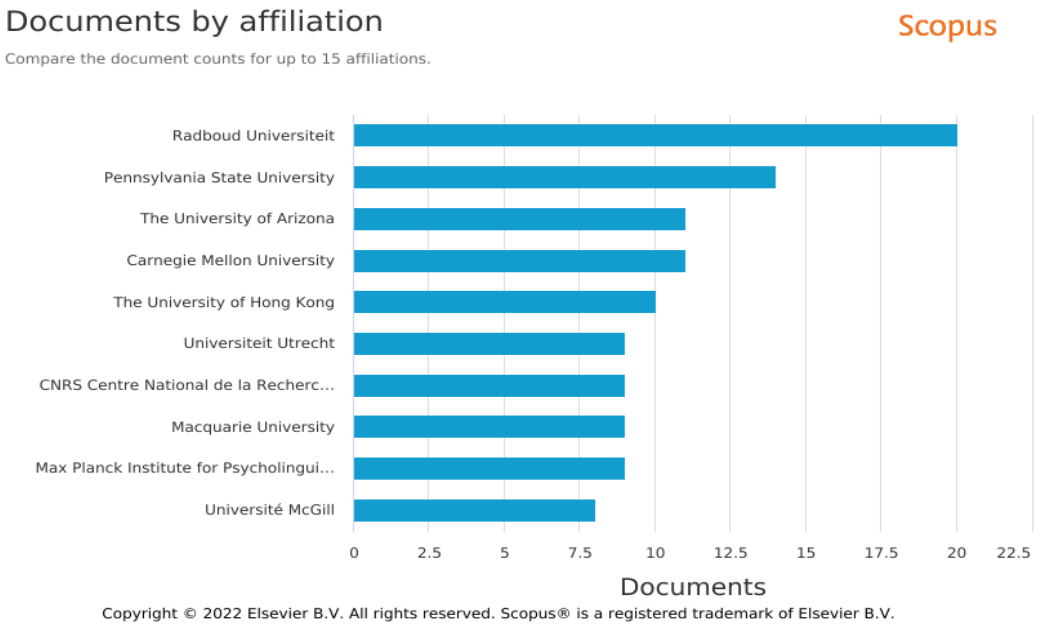

Figure 6. Top Affiliation with The Highest Publication

Figure 6 shows the affiliates with the most number of publications. Radboud Universiteit is the affiliate with the most publications on second language learning, namely 20 articles. Four of the 10 affiliations are from the European continent: Radboud Universiteit, Universiteit Utrecht, Mac Planck Institute for Psycholinguistics, and CNRS. The other four affiliates are from the Americas: Pennsylvania State University, The University of Arizona, Carnegie Mellon University, and Universite McGill. The rest are The University of Hong Kong from the Asian continent and Macquarie University from the Australian continent.

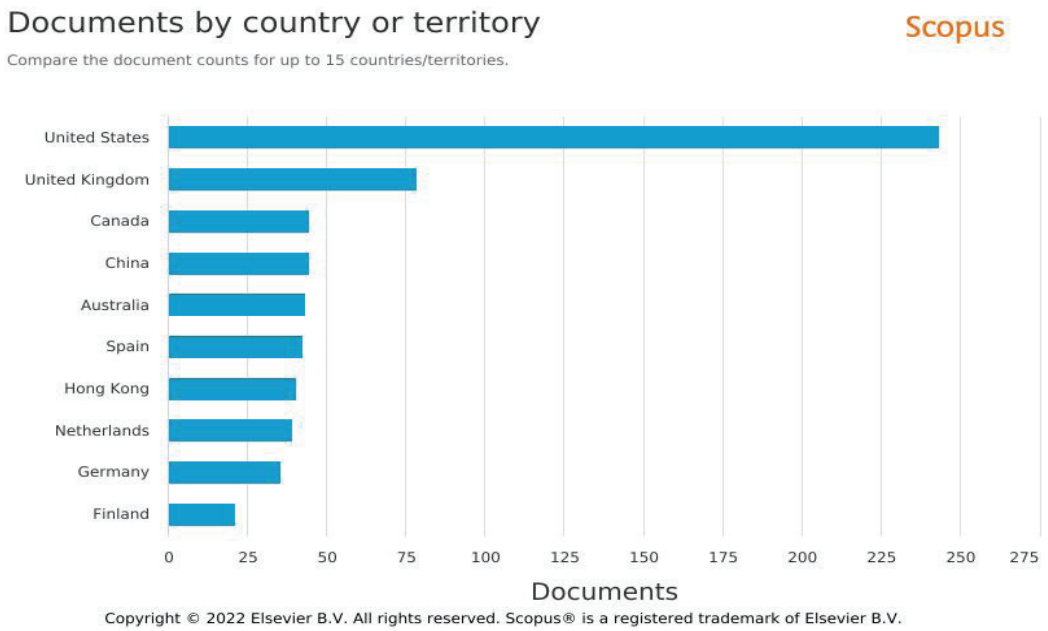

Figure 7. Top Country with The Highest Publication

Figure 7 shows the 10 countries with the most second-language learning publications. In the last decade, the United States has produced the highest number of published works, totaling 243 articles focusing on second language learning. The United Kingdom is the second country with the most publications, with 76 articles. The difference in numbers is quite far from the United States. Among the 10 countries, five come from the European continent: the United Kingdom, Spain, the Netherlands, Germany, and Finland. Two countries originate from the American continent, namely the United States and Canada.

Co-word analysis

The results showed that the second language learning research trend appeared from the following clusters.

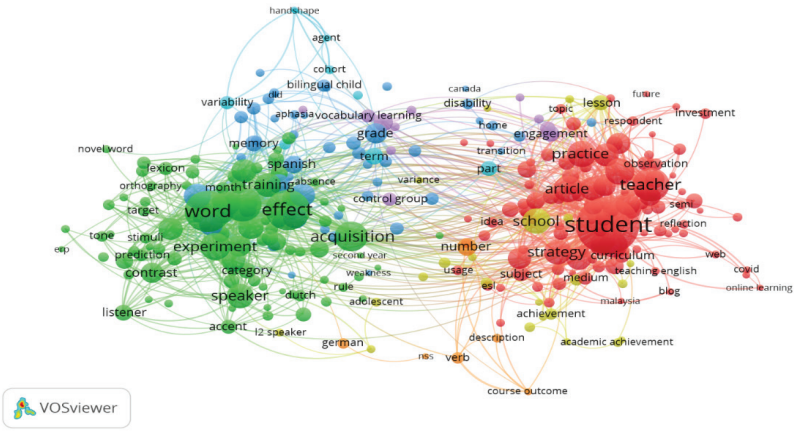

Figure 8. Research Cluster on Second Language Learning (Co-word Analysis)

Figure 8 shows seven clusters on second language learning research with 307 topic items, 17,281 total links, and 131,523 total link strength. Clusters 1 (red) and 2 (green) have the most topic items, links, and link strength. Second language learning research tends to focus on learning English and Chinese.

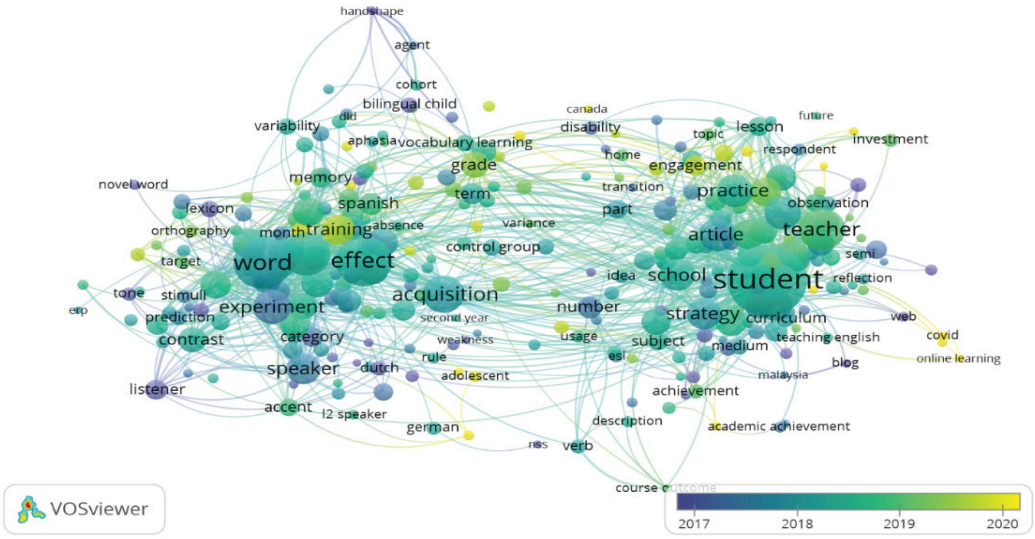

Figure 9. Research Overlay on Second Language Learning

Figure 9 shows that the popular topics from 2013 to 2018 were research discussing second language acquisition, especially in words, word learning, speakers, listeners, bilingualism, language production, and the effects of language learning. Concerning learning, the topics that are also widely discussed are students, strategy, curriculum, learning practices, and academic achievement. After that, until mid-2019, the research topics changed to teachers, motivation, learning environment, and learning effectiveness. In that year, research also discussed the involvement of memory in language processing within the framework of second language acquisition.

Since late 2019, research has centered on second language learning, mainly focusing on teachers, students, schools, and technology involvement. Consequently, research endeavors have explored innovative methodologies such as gamification, robotics, and online learning platforms. Additionally, the impact of the COVID-19 pandemic on second language acquisition has become a notable area of interest for researchers. Text and vocabulary learning has been discussed extensively since the end of 2019. Several psychological aspects that have started to get the attention of researchers since 2020 are self-confidence, efficacy, willingness, creativity, and adolescents.

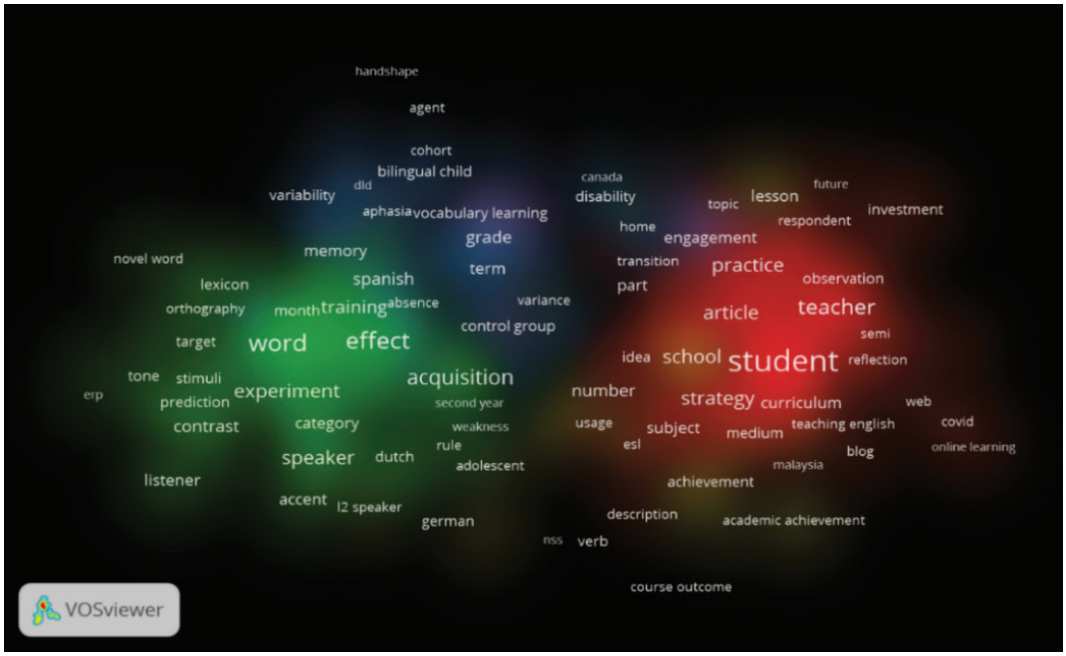

Figure 10. Research Cluster Density on Second Language Learning

Figure 10 shows that research density is dominated by research cluster 1, which focuses on second language learning in the school context, and cluster 2 on second language acquisition. On the other hand, clusters 3,4,5,6, and 7 are classified as less dense. In other words, cluster 3-7 research topics are discussed less. So, most publications contain a second language acquisition/second language teaching cluster and the psycholinguistics/bilingualism cluster.

In addition, research density can be seen from mapping research topics based on co-occurrence.

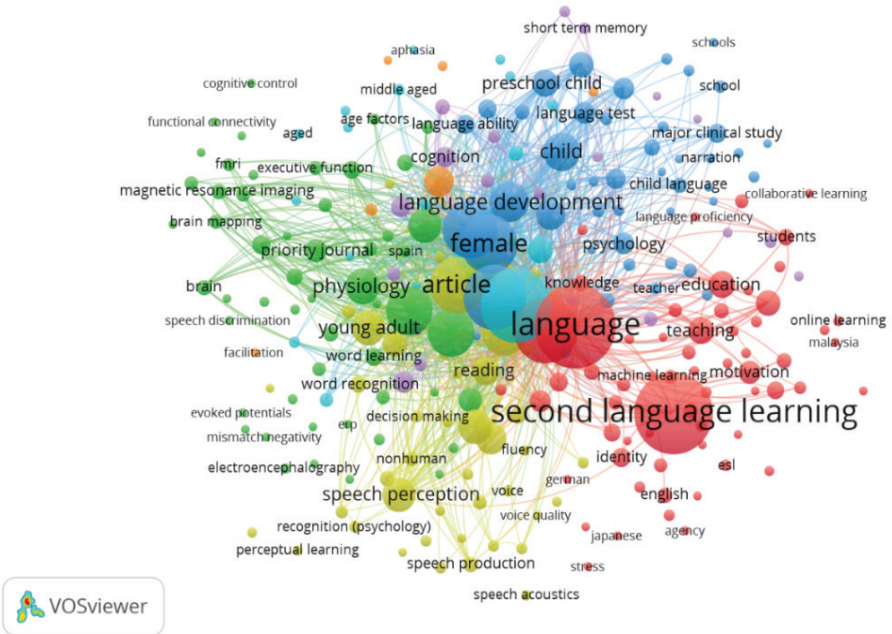

Figure 11. Research Cluster Density on Second Language Learning Using Co-occurrences

Figure 11 shows that there are seven research clusters. Keywords in the middle with large bullets indicate high occurrences. It means that previous researchers have widely discussed these research topics, such as learning a second language by studying language development based on bilingualism, multilingualism, and gender differences. However, the research topics at the edges of the figure show that they are not widely discussed in second language learning research, such as perceptual learning, collaborative learning, willingness to communicate, translanguaging, and stress.

Similar to cluster 1, cluster 4 (yellow) also focuses on second language learning in schools, which refers to lesson usefulness and academic achievement. On the other hand, cluster 2 (green) focuses on linguistic aspects in the context of experiments in second language acquisition. The linguistic aspect that is the focus of attention is the word. However, some studies also discuss the lexicon, speech, accent, pronunciation, tone, phoneme, and orthography.

On the other hand, cluster 3 also discusses second language processing in the context of bilingualism. Factors of concern are the difficulties experienced by students, memory, individual differences, and differences in age, grade, and region in second language processing. Subsequent clusters are less popular than clusters 1-4. Cluster 5 examines engagement in second language learning involving teachers and students' roles. Apart from that, this cluster also discusses gestures, vocabulary learning, and reading comprehension. Cluster 6 focuses on variability, while Cluster 7 focuses on verbs and course outcomes.

Discussion

Research Trends on Second Language Learning Based on Performance Analysis

The number of second language learning publications last decade in this study (770 publications) was far more than Arnott's findings on 21st Century Canadian K-12 French as a Second Language Research. Arnott takes a fairly specific topic with 153 publications. However, some articles may address multiple programs (Arnott et al., 2019). In another study, a total of 482 publications were found in the Journal of Language and Linguistic Studies from 2005 to 2019 (Shahid & Qadir, 2021); 7866 publications on second language acquisition between 1997 and 2018 (Zhang, 2019); and 8886 studies on teaching, language, English instruction, and higher education institutions between 2011 and 2020 (Shoaib et al., 2021). The difference in the number of publications on the findings of this study and previous studies is caused by several factors, namely the year range, the scope of the research topic, and the inclusion and exclusion criteria in bibliographic data collection.

This study's H-index of 41 indicates good evolution and positive impact indicators (Donthu et al., 2021), as it is a more accurate measure of

research influence than the journal impact factor. It illustrates a "durable" performance instead of a singular accomplishment (Agarwal et al., 2016). The h-index provides a reliable evaluation of a researcher's contributions' relevance, significance, and overall impact (Agarwal et al., 2016; Aksnes et al., 2019; Cobo et al., 2011).

Research Trends on Second Language Learning Based on Science Mapping and Network Analysis

The inclination towards increased citation rates for articles published in earlier issues is logical, as articles published earlier have a more significant opportunity to accumulate citations over time (Aksnes et al., 2019). In general, most cited articles examine second language learning from a learning point of view by utilizing other disciplines, such as psychology (Lou & Noels, 2016; Shao et al., 2013, 2019), neurology (García-Pentón et al., 2016; Klein et al., 2014), and technology (Belpaeme et al., 2018; Sohrabi & Iraj, 2016). Nonetheless, citation patterns differ significantly between disciplines (Agarwal et al., 2016). It is evident from previous research that the popular theories used are psycholinguistics, socio-pragmatic, cognitive and neurodevelopmental, and usage-based language acquisition to analyze second language acquisition (Jiang, 2020; Lei & Liu, 2018; Zhang, 2019).

In particular, the article with the most citations discusses the comparison of the brain structure of monolingual and bilingual individuals based on neurology and learning, namely research (Klein et al., 2014). In addition, most cited papers refer to individual differences/student backgrounds, such as bilingual and monolingual individuals (Klein et al., 2014), second language aptitude (Hu et al., 2013), second language anxiety (Shao et al., 2013), language mindset (Lou & Noels, 2016), and emotional intelligence (Shao et al., 2019). Previous research also found keywords that became hot topics, including L2 aptitude and L2 anxiety in second language acquisition from 1997-2018 (Zhang, 2019) and anxiety from 2011 to 2022 in linguistic studies (Yan & Zhang, 2023). Regarding education, second language learning is associated with literacy (Hafner et al., 2015), the context of learning effects(Lan et al., 2015), second language immersion (Baus et al., 2013), flipped classroom (Sohrabi & Iraj, 2016). In previous research, some keywords, such as language and literacy teacher, were the most recently emerging in 2022 (Arnott et al., 2019; Fuad et al., 2022). Based on the linguistic unit, most cited papers discuss accent (Witteman et al., 2013), tones (Liu & Kager, 2014), pronunciation (Hu et al., 2013), words (Yurovsky et al., 2014), vocabulary(Lan et al., 2015), lexical development (Grant et al., 2015), and shared syntax (Bernolet et al., 2013; Hartsuiker & Bernolet, 2017).

Based on these findings, research on second language learning in the last decade has tended to be multidisciplinary. Previous research also shows that the field of applied linguistics has become increasingly multidisciplinary as a result of the increasing influence of cross-disciplinary theories

(e.g., complexity theory and sociocultural theory) and methodologies (e.g., corpus linguistics, sociolinguistics, neurolinguistics) (DeBot, 2015). In a more recent study, Lei and Liu (2019a) investigated the area of applied languages using both co-citation analysis and keyword analysis. According to Lei and Liu's study, incorporating theories from other academic fields has resulted in significant changes over the past decade. This research trend emerges due to the multidisciplinary nature of linguistics, which is notably recognized as a distinct branch within the social sciences. This is particularly evident when considering its various sub-disciplines, such as sociolinguistics, psycholinguistics, cognitive linguistics, and educational linguistics (often referred to as applied linguistics in a narrower context) (Lei & Liao, 2017). These findings differ from research trends since 2000 that isolated specific teaching strategies, language forms, or student background factors as restricted impacts on linguistic growth and engagement. These findings also show the complexity of research about using one method, strategy, or attribute in predicting student learning success in a second language (Arnott et al., 2019).

Based on the findings of this study, the most cited papers show the most popular research topics in the last decade. The most cited recent articles will assist us in understanding the most popular publications and themes (Lei & Liu, 2018) and identify the most influential publications (Donthu et al., 2021). Correspondingly, Academics focus on highly cited papers because citations are a significant predictor of research excellence. Following highly cited papers helps academics remain current on area advancements to make better research subject and direction decisions (Yan & Zhang, 2023). Nevertheless, citations do not indicate other research quality factors. The growing use of citation metrics in research evaluation and funding may indicate a reduced focus on other vital aspects of study quality, such as rigor, novelty, and societal relevance (Aksnes et al., 2019). Thus, citations could be employed to identify the most influential publications within a research area, offering insights into its intellectual evolution (Donthu et al., 2021) by considering the citation number from the documents associated linked with the topics (Cobo et al., 2011).

This study found that Brain and Language is one of the most published journals. These findings are different from the results of the study by Lei & Liao (2017), who found that the journals Brain and Language (top 1) and Journal of Speech and Hearing Research (top 7) have become high-impact linguistics journals from Mainland China, Hong Kong, Taiwan, and Macau in 2003–2012. In addition, Brain and Language are the top 9 most popular linguistics journals. In other research, Cognition was also the top journal on second language acquisition during 1997-2018 second language acquisition (SLA) 1997-2018 (Zhang, 2019). On the other hand, the list of top journals on research is different (Lei & Liu, 2018) who researched the bibliometrics of applied linguistics from 2005-2016. Despite differences in results, these

findings show that Brain and Language has become a consistent journal in research on linguistics, second language acquisition, and second language learning in the last two decades.

This study found that Li, Pis the leading author by publications and citations number. Yan & Zhang (2023) also found that Li, P is in the top 27 positions with 2 publications. The difference in findings occurs because this research focuses on second language learning, while Yan & Zhang focus on linguistics and language. Nonetheless, Li, P can be said to have an interest in linguistics, language research, and second language learning. Additionally, this ranking is inconsistent with the list of professionally rated leaders in De Bot (2015) about applied linguistics 1997-2015, Lei & Liu (2018) about applied linguistics 2005-2016, Shoaib et al. (2021) about Teaching, Language, Learning of English and Higher Education Institutions 2011-2020, Shahid & Qadir (2021) about Journal of Language and Linguistic Studies 2005-2019, Yan & Zhang (2023) about linguistics studies 2011-2021, and Zhang (2019) about second language acquisition (SLA) 1997-2018. The discrepancy may be due to the research topic and year range used in collecting bibliographic data.

Affiliates who pay intensive attention to second language learning come from the continents of Europe and America. North American colleges have made significant contributions to the discipline. Over 65% of full-length publications and 57% of citations in the top second language acquisition journals originated from North American colleges between 1997 and 2007. US universities produced 55% of documents and 45% of citations (Zhang, 2019). Georgetown, Pennsylvania State, Michigan State, Northern Arizona, Maryland, and Auckland universities were included in both periods (Zhang, 2019). During the COVID-19 pandemic, 21 Asian nations, 14 European countries, five American countries, four African countries, and one Australian country participated in technology-based foreign language learning research. Asia contributed more to technology-related foreign language learning research in 2020–2022 (Fuad et al., 2022).

The United States is the nation with the most published works. The United Kingdom is the second country with the most publications. The other two countries are China and Hong Kong. In addition, it also comes from Australia. So, it can be concluded that the top countries with the most publications come from the Americas and Europe (Plonsky, 2014; Ulya et al., 2019). Previous research discovered that the proportional quantity of publications from conventional publication powerhouses, such as the United States, has shown a gradual but steady decline proportionally. In contrast, publications from other nations, such as China, have shown a substantial and constant increase (Lei & Liu, 2018). The United States intends to lead second language acquisition research until 2022. In 1997–2007, the top five regions were the United States, Canada, England, Australia, and Japan. In 2008–2018, the top five regions were the United States, England, China, Canada, and Japan (Zhang, 2019).

China and Hong Kong are the top countries on the Asian continent. This research found that China occupies the fourth position with the most second-language learning publications in 2022. In 2015, China experienced increased publications, world share, and global ranking (Liu et al., 2015). In 2017, (Lei & Liao, 2017) also found that research in linguistics has propelled China to the position of only second place, after the United States. Even in 2021, China is the top country (Shoaib et al., 2021).

The main topics of Cluster 1 focus on students, such as motivation and emotions (Gao & Lv, 2018; Shao et al., 2013; Weger, 2013). Some of the most prominent academics working on the subject of student background have come around to supporting the theory (Arnott et al., 2019) because individual differences are another hot area in the field (Zhang, 2019). In addition, there is quite a lot of research that discusses the components of language learning, such as teachers, curriculum, strategies, courses, and games (Alrabai, 2015; Reinhardt & Sykes, 2014; Ssentanda et al., 2019; Teng, 2020). Previous research also found that keywords in the list of top twenty keywords of the published documents included students and language learning (Shoaib et al., 2021). Based on these findings, the characteristics of students are not considered as an obstacle to learning but rather as a reference in developing a more comprehensive second language learning (Arnott et al., 2019).

Second language learning research tends to focus on learning English and Chinese, as previous research (Chen et al., 2013; CheshmehSohrabi & Mashhadi, 2022; Teng, 2020). However, researchers in the last decade have examined second language acquisition based on the production process (Eger & Reinisch, 2019). On the other hand, researchers also discuss second language processing in the context of bilingualism (García-Pentón et al., 2016).

This study found that the popular topics from 2013 to 2018 were research discussing second language acquisition. After that, until mid-2019, the research topics changed to teachers, motivation, learning environment, and learning effectiveness. In that year, research also discussed the role of memory in language processing in the context of second language acquisition. The findings of this study are in line with previous research that there has been an increase in research interest in sociopsychological aspects in second language acquisition in 1997-2018 (Zhang, 2019), applied linguistics in 2005-2016 (Lei & Liu, 2018), and 21st Century Canadian K-12 French as Second Language Research in 2000-2017 (Arnott et al., 2019).

From the end of 2019 until now, research has led to engagement in second language learning involving the roles of teachers, students, schools, and technology. Several psychological aspects that have started to get the attention of researchers since 2020 are self-confidence, efficacy, willingness, creativity, and adolescents. Similar findings were also found in previous research that the most recently emerging keywords in 2022 were mobile

learning and learning with Information, Communication, and Technology, especially in foreign language learning in Indonesia during the Covid-19 pandemic (Fuad et al., 2022; Lei & Liu, 2018).

These results suggest that overlay visualization analysis distributed the most emerging terms in the present time (Fuad et al., 2022). Based on these findings, the diverse alteration trends identified seem to arise from changes in research interests rather than a shift in publication age (Lei & Liu, 2018). Research topics move dynamically from time to time. Lei & Liu (2018) conveyed several classifications of research developments, namely (1) remained constant, (2) significantly increased, (3) significantly decreased, (4) noticeably but not significantly increased, and (5) noticeably but not significantly decreased.

These findings are consistent with previous research that most publication venues contain two significant clusters: the second language acquisition/second language teaching cluster and the psycholinguistics/bilingualism cluster (CheshmehSohrabi & Mashhadi, 2022; Zhang, 2019). In second-language acquisition research, there is a rising need to integrate theories of second-language acquisition and psycholinguistic paradigms devised or modified to evaluate the instruction and acquisition of a second language within authentic contextual settings (Jiang, 2020).

Meanwhile, several keywords have low density, such as accent, disability, outcome, and bilingual child. Low density indicates that the research topic has not received sufficient attention from researchers. According to these findings, despite past recommendations for change, second language studies require significant adjustment (Plonsky, 2014). In second-language acquisition studies, there is a growing need to blend theories from second-language acquisition and psycholinguistics, adapted for real-world learning contexts, with a focus on pragmatic knowledge acquisition (Jiang, 2020). Globalization has made second language acquisition essential for many individuals, and the field's rapid expansion is fascinating for researchers, students, and instructors. Because this advancement will constantly enhance our understanding of second language acquisition, it will eventually benefit individuals engaged in second language acquisition and utilization (Zhang, 2019). Previous findings demonstrate to linguistic scholars the features of highly cited papers in the linguistics field, aiding in identifying research trends and potential paths for future investigation (Yan & Zhang, 2023).

Previous research also found that recently emerging keywords about foreign language learning in Indonesia in 2022 are gender (Fuad et al., 2022), bilingual education, and identity (Lei & Liu, 2018). Prior research also found increasing interest in multilingualism and sociopsychology (Lei & Liu, 2018; Yan & Zhang, 2023; Zhang, 2019). Multilingualism has increased since 2009 (Lei & Liu, 2018).

In addition, there are several other topics of interest in other research, but not in this study, such as "barriers", "academic difficulties", and "rural

areas" in the context of learning foreign languages in Indonesia in 2022 (Fuad et al., 2022), explicit knowledge, language policy, corpus-based study, heritage language, and corpus linguistics in the context of applied linguistics (Lei & Liu, 2018).

CONCLUSION

This study employed bibliometric analysis to characterize trends and shifts in second language acquisition over the past decade. This investigation identified influential publications, research topics, journals, authors, countries, and institutions. The most influential publications, co-occurrence analysis, and co-word analysis reveal trends in research topics that research clusters concentrated on students (e.g., motivation and emotions), second language learning, and linguistics constituents (word, lexicon, and speech). Research density emphasizes second language acquisition and second language learning in the school context. These trends suggest that research on second language acquisition over the past decade has tended to be multidisciplinary by merging psycholinguistics with education, psychology, neurology, and technology.

The number of second language learning publications increased significantly starting in 2017. The number of publications on second language learning in top journals in the last decade has changed yearly. Nevertheless, Brain and Language has become a consistent journal in research on linguistics, second language acquisition, and second language learning. The most influential authors include Li, P (top 1) from the Department of Psychology and Center for Brain, Behavior, and Cognition, Pennsylvania State University, USA, who is interested in linguistics, language research, and second language learning. Four of the ten research institutions are European; the other four are American affiliates. The US has published the most second language learning articles in the recent decade, with 243 articles. UK publications are second with 76 articles. Five European countries—UK, Spain, Netherlands, Germany, and Finland—are among the 10. Five of the ten countries are in Europe: the United Kingdom, Spain, the Netherlands, Germany, and Finland. The United States and Canada are two nations that originated on the American continent. The other two nations originate in China and Hong Kong.

For second language learning researchers, the keyword analysis revealed new tendencies. The list of the most significant publications is available for researchers' use. In addition, students who are interested in pursuing studies in this area might use this list as a condensed study guide. This list can also serve as a resource for scholars and students who are newcomers to the field of second language acquisition to identify key publications and authors quickly. Journal network research has also highlighted the field's top journals' focuses, which may help writers choose the best publication(s) for their papers. The rise of globalization has pushed many people toward the

necessity of learning a second language. Therefore, the area is proliferating, benefiting learners, instructors, and researchers.

This study only lists limited publications and authors due to space constraints. Language acquisition is not a minor discipline. This study only looks at trends and problems related to learning a second language in the area of psycholinguistics in the research paper at Scopus. So, other researchers can use journal indexes like Web of Science, Google Scholar, and others to study and expand this area of research. In addition, works not published in journals, such as books, dissertations, and conference papers, can also advance our understanding of the evolving dynamics and impact of second language acquisition.

REFERENCES

Agarwal, A., Durairajanayagam, D., Tatagari, S., Esteves, S. C., Harlev, A., Henkel, R., Roychoudhury, S., Homa, S., Puchalt, N. G., Ramasamy, R., Majzoub, A., Dao Ly, K., Tvrda, E., Assidi, M., Kesari, K., Sharma, R., Banihani, S., Ko, E., Abu-Elmagd, M., … Bashiri, A. (2016). Bibliometrics: Tracking research impact by selecting the appropriate metrics. *Asian Journal of Andrology*, *18*(2), 296–309. https://doi.org/10.4103/1008-682X.171582

Aksnes, D. W., Langfeldt, L., & Wouters, P. (2019). Citations, citation indicators, and research quality: An overview of basic concepts and theories. *SAGE Open*, *9*(1). https://doi.org/10.1177/2158244019829575

Al-Hoorie, A. H., & Vitta, J. P. (2019). The seven sins of L2 research: A review of 30 journals' statistical quality and their CiteScore, SJR, SNIP, JCR Impact Factors. *Language Teaching Research*, *23*(6), 727–744. https://doi.org/10.1177/1362168818767191

Alrabai, F. (2015). The influence of teachers' anxiety-reducing strategies on learners' foreign language anxiety. *Innovation in Language Learning and Teaching*, *9*(2), 163–190. https://doi.org/10.1080/17501229.2014.890203

Arnon, I., & Christiansen, M. H. (2017). The role of multiword building blocks in explaining l1–l2 differences. *Topics in Cognitive Science*, *9*(3), 621–636. https://doi.org/10.1111/tops.12271

Arnott, S., Masson, M., & Lapkin, S. (2019). Exploring trends in 21st century Canadian K-12 French as second language research: A research synthesis. *Canadian Journal of Applied Linguistics*, *22*(1), 60–83. https://doi.org/10.7202/1060906ar

Baker, H. K., Pandey, N., Kumar, S., & Haldar, A. (2020). A bibliometric analysis of board diversity: Current status, development, and future research directions. *Journal of Business Research*, *108*(August 2019), 232–246. https://doi.org/10.1016/j.jbusres.2019.11.025

Baus, C., Costa, A., & Carreiras, M. (2013). On the effects of second language immersion on first language production. *Acta Psychologica*, *142*(3), 402–409. https://doi.org/10.1016/j.actpsy.2013.01.010

Belpaeme, T., Vogt, P., van den Berghe, R., Bergmann, K., Göksun, T., de Haas, M., Kanero, J., Kennedy, J., Küntay, A. C., Oudgenoeg-Paz, O., Papadopoulos, F., Schodde, T., Verhagen, J., Wallbridge, C. D., Willemsen, B., de Wit, J., Geçkin, V., Hoffmann, L., Kopp, S., … Pandey, A. K. (2018). Guidelines for Designing Social Robots as Second Language Tutors. *International Journal of Social Robotics*, *10*(3), 325–341. https://doi.org/10.1007/s12369-018-0467-6

Bernolet, S., Hartsuiker, R. J., & Pickering, M. J. (2013). From language-specific to shared syntactic representations: The influence of second language proficiency on syntactic sharing in bilinguals. *Cognition*, *127*(3), 287–306. https://doi.org/10.1016/j.cognition.2013.02.005

Chen, C.-M., Wang, J.-Y., & Chen, Y.-C. (2013). Facilitating english-language reading performance by a digital reading annotation system with self-regulated learning mechanisms. *Educational Technology and Society*, *17*(1), 102–114. https://www.scopus.com/inward/record.uri?eid=2-s2.0-84894801553&partnerID=40&md5=10c066c4c81745bf5bd790456b5209cd

CheshmehSohrabi, M., & Mashhadi, A. (2022). Using data mining, text mining, and bibliometric techniques to the research trends and gaps in the field of language and linguistics. *Journal of Psycholinguistic Research*. https://doi.org/https://doi.org/10.1007/s10936-022-09911-6

Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011). An approach for detecting, quantifying, and visualizing the evolution of a research field: A practical application to the Fuzzy Sets Theory field. *Journal of Informetrics*, *5*(1), 146–166. https://doi.org/10.1016/j.joi.2010.10.002

De Bot, K. (2015). *A history of applied linguistics: From 1980 to the present*. Routledge

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, *133*(1), 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

Drysdale, J. S., Graham, C. R., Spring, K. J., & Halverson, L. R. (2013). An analysis of research trends in dissertations and theses studying blended learning. *Internet and Higher Education*, *17*(1), 90–100. https://doi.org/10.1016/j.iheduc.2012.11.003

Durieux, V., & Gevenois, P. A. (2010). Bibliometric indicators: Quality masurements of scientific publication. *Radiology*, *255*(2), 342–351. https://doi.org/10.1148/radiol.09090626

Eck, N. J. van, & Waltman, L. (2020). *VOSviewer (Version 1.6.15)*. Centre for Science and Technology Studies (CWTS) of Leiden University

Eger, N. A., & Reinisch, E. (2019). The impact of one's own voice and production skills on word recognition in a second language. *Journal of Experimental Psychology: Learning Memory and Cognition*, *45*(3), 552–571. https://doi.org/10.1037/xlm0000599

Fuad, M., Suyanto, E., Sumarno, Muhammad, U. A., & Suparman. (2022). A bibliometric analysis of technology-based foreign language learning during the COVID-19 pandemic: Direction for Indonesia language learning. *International Journal of Information and Education Technology*, *12*(10), 983–995. https://doi.org/10.18178/ijiet.2022.12.10.1710

Gao, X. A., & Lv, L. (2018). Motivations of Chinese learners of Japanese in Mainland China. *Journal of Language, Identity and Education*, *17*(4), 222–235. https://doi.org/10.1080/15348458.2018.1441029

García-Pentón, L., Fernández García, Y., Costello, B., Duñabeitia, J. A., & Carreiras, M. (2016). The neuroanatomy of bilingualism: How to turn a hazy view into the full picture. *Language, Cognition and Neuroscience*, *31*(3), 303–327. https://doi.org/10.1080/23273798.2015.1068944

Grant, A. M., Fang, S. Y., & Li, P. (2015). Second language lexical development and cognitive control: A longitudinal fMRI study. *Brain and Language*, *144*(May), 35–47. https://doi.org/10.1016/j.bandl.2015.03.010

Hafner, C. A., Chik, A., & Jones, R. H. (2015). Digital literacies and language learning. *Language Learning and Technology*, *19*(3), 1–7. https://www.scopus.com/inward/record.uri?eid=2-s2.0-84947263736&partnerID=40&md5=74f856198a246f7e9b3be2b803be5a67

Hartsuiker, R. J., & Bernolet, S. (2017). The development of shared syntax in second language learning. *Bilingualism*, *20*(2), 219–234. https://doi.org/10.1017/S1366728915000164

Hu, X., Ackermann, H., Martin, J. A., Erb, M., Winkler, S., & Reiterer, S. M. (2013). Language aptitude for pronunciation in advanced second language (L2) Learners: Behavioural predictors and neural substrates. *Brain and Language*, *127*(3), 366–376. https://doi.org/10.1016/j.bandl.2012.11.006

Jiang, X. (2020). Trends in usage-based and pragmatic language processing and learning: A bibliometric analysis on psycholinguistics and second-language acquisition studies. *Second Language Acquisition - Pedagogies, Practices and Perspectives*. https://doi.org/10.5772/intechopen.92204

Klein, D., Mok, K., Chen, J. K., & Watkins, K. E. (2014). Age of language learning shapes brain structure: A cortical thickness study of bilingual and monolingual individuals. *Brain and Language*, *131*, 20–24. https://doi.org/10.1016/j.bandl.2013.05.014

Lan, Y.-J., Fang, S.-Y., Legault, J., & Li, P. (2015). Second language acquisition of Mandarin Chinese vocabulary: Context of learning effects. *Educational Technology Research and Development*, *63*(5), 671–690. https://doi.org/10.1007/s11423-015-9380-y

Larsen-Freeman, D. (2013). Transfer of learning transformed. *Language Learning*, *63*(SUPPL. 1), 107–129. https://doi.org/10.1111/j.1467-9922.2012.00740.x

Larson–Hall, J. (2017). Moving beyond the bar plot and the line graph to create informative and attractive graphics1. *Modern Language Journal*, *101*(1), 244–270. https://doi.org/10.1111/modl.12386

Lei, L., & Liao, S. (2017). Publications in linguistics journals from Mainland China, Hong Kong, Taiwan, and Macau (2003–2012): A bibliometric analysis. *Journal of Quantitative Linguistics*, *24*(1), 54–64. https://doi.org/10.1080/09296174.2016.1260274

Lei, L., & Liu, D. (2018). Research trends in applied linguistics from 2005 to 2016: A bibliometric analysis and its implications. *Applied Linguistics*, *40*(3), 540–561. https://doi.org/10.1093/applin/amy003

Lindstromberg, S. (2016). Inferential statistics in language teaching research: A review and ways forward. *Language Teaching Research*, *20*(6), 741–768. https://doi.org/10.1177/1362168816649979

Liu, L., & Kager, R. (2014). Perception of tones by infants learning a non-tone language. *Cognition*, *133*(2), 385–394. https://doi.org/10.1016/j.cognition.2014.06.004

Liu, W., Hu, G., Tang, L., & Wang, Y. (2015). China's global growth in social science research: Uncovering evidence from bibliometric analyses of SSCI publications (1978-2013). *Journal of Informetrics*, *9*(3), 555–569. https://doi.org/10.1016/j.joi.2015.05.007

Lou, N. M., & Noels, K. A. (2016). Changing language mindsets: Implications for goal orientations and responses to failure in and outside the second language classroom. *Contemporary Educational Psychology*, *46*, 22–33. https://doi.org/10.1016/j.cedpsych.2016.03.004

Mohanty, B. K., Maharana, B., & Sethi, B. B. (2016). Scientometric study of periodical literature with journals "language sciences" and "linguistics and education." *Library Philosophy and Practice*, *1*, 1–20.

Nylander, E., Österlund, L., & Fejes, A. (2020). The use of bibliometrics in adult education research. In B. Grummell & F. Finnegan (Eds.), *Doing Critical and Creative Research in Adult Education: Case Studies in Methodology and Theory* (pp. 139–150). Brill. https://doi.org/10.1163/9789004420755

Plonsky, L. (2013). Study quality in SLA. *Studies in Second Language Acquisition*, *35*(4), 655–687. https://doi.org/10.1017/S0272263113000399

Plonsky, L. (2014). Study quality in quantitative l2 research (1990-2010): A methodological synthesis and call for reform. *Modern Language Journal*, *98*(1), 450–470. https://doi.org/10.1111/j.1540-4781.2014.12058.x

Radev, D. R., Joseph, M. T., Gibson, B., & Muthukrishnan, P. (2015). A bibliometric and network analysis of the field of computational linguistics. *Journal of the Association for Information Science and Technology*, *67*(3), 683–706. https://doi.org/10.1002/asi

Reinhardt, J., & Sykes, J. M. (2014). Digital game and play activity in l2 teaching and learning. *Language Learning and Technology*, *18*(2), 2–8. https://www.scopus.com/inward/record.uri?eid=2-s2.0-84901196376&partnerID=40&md5=48e42ff391eef9121aac1ea3cdd7a701

Richards, J. C. (2015). The changing face of language learning: Learning beyond the classroom. *RELC Journal*, *46*(1), 5–22. https://doi.org/10.1177/0033688214561621

Shao, K., Pekrun, R., & Nicholson, L. J. (2019). Emotions in classroom language learning: What can we learn from achievement emotion research? *System*, *86*. https://doi.org/10.1016/j.system.2019.102121

Shao, K., Yu, W., & Ji, Z. (2013). An exploration of Chinese EFL students' emotional intelligence and foreign language anxiety. *Modern Language Journal*, *97*(4), 917–929. https://doi.org/10.1111/j.1540-4781.2013.12042.x

Shoaib, M., Ali, N., Anwar, B., Rasool, S., Raza-E-Mustafa, & Zici, S. (2021). Research visualization on teaching, language, learning of English and higher education institutions from 2011 to 2020: A Bibliometric Evidences. *Library Philosophy and Practice*, *2021*, 1–27

Sohrabi, B., & Iraj, H. (2016). Implementing flipped classroom using digital media: A comparison of two demographically different groups perceptions. *Computers in Human Behavior*, *60*, 514–524. https://doi.org/10.1016/j.chb.2016.02.056

Ssentanda, M., Southwood, F., & Huddlestone, K. (2019). Curriculum expectations versus teachers' opinions and practices in teaching English in rural primary schools in Uganda. *Language Matters*, *50*(2), 141–163. https://doi.org/10.1080/10228195.2018.1536162

Syahid, A., & Qodir, A. (2021). Journal of language and linguistic studies: A fifteen-year bibliometric quest for a bigger impact. *Journal of Language and Linguistic Studies*, *17*(1), 290–314. https://doi.org/10.17263/jlls.903415

Teng, F. (2020). The benefits of metacognitive reading strategy awareness instruction for young learners of English as a second language. *Literacy*, *54*(1), 29–39. https://doi.org/10.1111/lit.12181

Ulya, C., Rohmadi, M., Sudaryanto, M., Chewoh, F., & Baptiste-Burundi, A. J. (2019). The trend of BIPA research in the international scope: A bibliometric analysis. *KEBIPAAN 2019: Proceedings of the 2nd Konferensi BIPA Tahunan by Postgraduate Program of Javanese Literature and Language Education in Collaboration with Association of Indonesian Language and Literature Lecturers*

Weger, H. D. (2013). Examining English language learning motivation of adult international learners studying abroad in the US. *RELC Journal*, *44*(1), 87–101. https://doi.org/10.1177/0033688212473272

Witteman, M. J., Weber, A., & McQueen, J. M. (2013). Foreign accent strength and listener familiarity with an accent codetermine speed of perceptual adaptation. *Attention, Perception, and Psychophysics*, *75*(3), 537–556. https://doi.org/10.3758/s13414-012-0404-y

Yan, S., & Zhang, L. (2023). Trends and hot topics in linguistics studies from 2011 to 2021: A bibliometric analysis of highly cited papers. *Frontiers in Psychology*, *13*(January), 1–12. https://doi.org/10.3389/fpsyg.2022.1052586

Yurovsky, D., Fricker, D. C., Yu, C., & Smith, L. B. (2014). The role of partial knowledge in statistical word learning. *Psychonomic Bulletin and Review*, *21*(1), 1–22. https://doi.org/10.3758/s13423-013-0443-y

Zhang, X. (2019). A bibliometric analysis of second language acquisition between 1997 and 2018. *Studies in Second Language Acquisition*, *42*(1), 1–24. https://doi.org/10.1017/S0272263119000573