

Two Decades' Development of Systemic Functional Linguistics Research: A Bibliometric Analysis

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ABSTRACT

This comprehensive bibliometric analysis spans two decades, utilizing Web of Science data, systematically traces the evolution of Systemic Functional Linguistics (SFL). By meticulously examining a robust dataset comprising 1,685 articles published from 2003 to 2023, our study reveals a sustained and globally distributed interest in SFL, with significant contributions originating from the USA, China, Australia, the UK, Spain, and Canada. The findings highlight a consistent and substantial upward trajectory in SFL research output over the 20 years. Additionally, our investigation delves into annual global scientific trends within SFL, exposing a clear and growing emphasis on main areas such as corpus linguistics, discourse analysis, multimodality, computational linguistics, and education. As the findings underscore the interdisciplinary nature of these emerging trends, the study proposes a collaborative approach to enhance the growth and impact of Systemic Functional Linguistics. By promoting partnerships across disciplines, the research community can better harness collective expertise and insights, fostering a more dynamic and impact future for SFL.

INTRODUCTION

Systemic Functional Linguistics (SFL) is a robust theoretical framework for comprehending the intricate relationship between language and social structures, offering profound insights into how language functions within diverse contexts. As SFL continues to influence our understanding of language, its global research landscape has expanded significantly, marked by a proliferation of scholarly contributions that have shaped the theoretical foundations and practical applications of this linguistic paradigm. In this paper, we undertake a comprehensive exploration of the global research evolution and discern the prevailing trends in Systemic Functional Linguistics, employing a bibliometric analysis.

Bibliometrics provides a quantitative lens to examine scholarly output, citation patterns, and collaborative networks, enabling us to unravel the multifaceted dimensions of SFL research globally. Our objective is to identify key contributors, influential publications, emerging themes, and collaborative networks that have played pivotal roles in shaping the trajectory of SFL. By utilizing bibliometric methodologies, we aim to offer a nuanced understanding of the evolution of Systemic Functional Linguistics, providing valuable insights for scholars and practitioners within the field.

This analysis contributes not only to the advancement of SFL research but also to the broader discourse on the dynamic evolution of linguistic theories and their impact on our comprehension of language in social contexts. As we embark on this bibliometric exploration, our goal is to unravel the intricate tapestry of Systemic Functional Linguistics research, shedding light on its past developments and pointing toward future avenues of exploration. Through this examination, we aim to contribute to the ongoing dialogue surrounding the global trends and evolution of SFL, fostering a deeper understanding of its significance in the broader field of linguistics.

Overview global studies of SFL

The field of Systemic Functional Linguistics has undergone a remarkable evolution, and a comprehensive review of current studies reflects the dynamic nature of research in this domain. Researchers globally have contributed significantly to the understanding and application of SFL principles in diverse linguistic and cultural contexts.

Halliday's foundational concepts, including systemic functional grammar and the register theory, continue to serve as cornerstones for numerous studies.

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Cross-cultural applications of SFL have expanded our insights into how language functions within specific sociocultural settings (Eggs and Slade 1997). Studies applying SFL in educational contexts demonstrate its efficacy in informing language teaching practices and curriculum design (Martin and Rose 2008).

The incorporation of multimodal discourse analysis within SFL frameworks has enriched our understanding of how language interacts with various semiotic resources (Kress and van Leeuwen 2002). Additionally, the digital age has prompted researchers to study how SFL can be applied to explore digital technologies in educational contexts (Coffin 2013). Interdisciplinary collaborations have become a hallmark of SFL research, with scholars engaging in fruitful partnerships with fields such as sociology, anthropology, psychology, and computer science (Matthiessen et al. 2010). This interdisciplinary approach has broadened the scope of SFL studies, providing a more holistic perspective on language in various contexts.

Over its developmental stages, SFL has evolved through four key phases, each elucidating different dimensions of linguistic analysis. The initial stage, as described by Halliday, introduced the concept of hierarchical and categorical grammar, emphasizing three levels of language: form, substance, and context. It proposed four categories in language—unit, structure, class, system—and three associated scales: rank, exponence, and delicacy.

Subsequently, in the late 1960s to early 1970s, SFL progressed into systemic functional grammar, distinguishing syntagmatic and paradigmatic relations within language structures Halliday et al. (1966).

The third stage, spanning from the late 1970s to the late 1990s, saw SFL embracing language as social semiotic Halliday et al. (1978). This phase delved into the relationship between linguistic systems and social structures under the umbrella of social semiotics, aiming to analyze meaning creation in a social and cultural context.

The latest phase, applicable linguistics, emerged in the early 21st century, with Halliday et al. (2008) introducing the concept as a comprehensive approach applicable to both theoretical and practical language-related issues faced by modern society.

Halliday's representative works, such as *Language as Social Semiotic* Halliday et al. (1978) and *An Introduction to Functional Grammar* Halliday et al. (1985), laid the foundation for SFL by emphasizing language's functional aspects and its role as a semiotic system for expressing meaning. The robust theoretical foundation and applicability of SFL have garnered widespread attention, fostering interdisciplinary developments in functional

grammar research Fontaine et al. (2012), Thompson et al. (2013), education research (Trojan et al. 2019), multimodal discourse analysis (O'Halloran and Fei 2014), corpus linguistics (He 2021), and translation research Veroz et al. (2017). Scholarly publications over the past two decades have significantly contributed to the various facets of SFL research. However, the core tenets of SFL revolve around the three metafunctions: ideational, interpersonal, and textual. The ideational metafunction focuses on the representation of experience, the interpersonal metafunction deals with interaction and relationships, and the textual metafunction addresses the organization of discourse Halliday et al. (1985). Furthermore, SFL incorporates ideas such as register and genre Figueiredo et al. (2010). It underscores the impact of social context on linguistic decisions Inako et al. (2019), and acknowledges the significance of various text types Briones et al. (2016).

Systemic networks and lexicogrammar are integral components of SFL, highlighting the interconnectedness of linguistic elements within a system. This theoretical framework has found applications in diverse fields, including education and discourse analysis. In education, SFL has influenced pedagogical approaches, such as Genre Pedagogy, and has contributed to literacy education and curriculum development. In discourse analysis, SFL provides tools to examine the structure and function of texts, encompassing both spoken and written language. Moreover, SFL extends its applicability to multimodal communication, acknowledging the importance of visual and gestural modes alongside traditional linguistic modes. The theory has been instrumental in analyzing the complexities of communication beyond the written and spoken word.

As SFL continues to evolve, emerging trends include the exploration of environmental discourse, critical SFL perspectives, and applications to address contemporary social issues Bartlett et al. (2014). In conclusion, the current state of SFL research is a testament to its adaptability and relevance in addressing linguistic challenges globally. Researchers worldwide have enriched the field by applying SFL principles across various domains, contributing to a nuanced understanding of language in diverse contexts. The interdisciplinary nature of SFL studies, coupled with emerging trends and future directions, positions Systemic Functional Linguistics as a vibrant and evolving field in contemporary linguistic scholarship. SFL is not confined to exploring the inherent nature, processes, and common characteristics of language; it also delves into the practical applications of linguistics Carapic et al. (2006).

The future of SFL research may involve further integration with emerging linguistic theories and the continued exploration of diverse linguistic landscapes.

Critical evaluation of previous research into SFL

The existent examination of SFL research presents a thorough exploration of the field's evolution, shedding light on various facets such as Appraisal theory, functional grammar, transitivity, multi-modal discourse analysis and education. While this overview offers valuable insights into existing scholarship, it is crucial to make critical comments to discern potential gaps between their studies and our investigation. Prior research predominantly concentrates on historical developments, providing a contextual understanding of SFL in various fields. In contrast, our study aims to conduct a more in-depth analysis of the last two decades, focusing on the evolution of research and recent trends in SFL.

Although earlier research includes studies from various countries like China, the United States, the UK, Australia, and France, it may lack a systematic and comprehensive analysis across a broader spectrum of nations. Our study addresses this gap by employing a bibliometric approach to capture a more diverse and globally representative overview of SFL.

Previous research recognizes the challenge of keeping pace with rapidly evolving research but does not utilize a bibliometric approach to systematically analyze the quantitative aspects of research evolution. Our study, centered on bibliometric analysis, bridges this gap by offering a detailed knowledge map, facilitating a more systematic and data-driven understanding of research trends in SFL.

Despite numerous studies exploring different aspects of SFL, a significant gap persists. To date, there has been no comprehensive overview of the entire research landscape spanning recent decades. This study aims to fill that gap by conducting a bibliometric-based analysis to explore the current status and trending topics within the field of SFL studies. Furthermore, it seeks to elucidate the potential impacts of SFL research on society. This study is expected to serve as a valuable resource for both scholars and practitioners in the SFL research domain. For aspiring researchers in SFL, this study offers a foundation to build their expertise by familiarizing themselves with authoritative contributions in the field. For seasoned researchers, it provides insights into the evolution of SFL research, identifies promising research avenues, and encourages international collaboration among institutions and authors.

This study revealed a notable prevalence of SFL in the world. However, keeping pace with rapidly evolving research and pinpointing trends remains a challenge for scholars. This study, employing bibliometric analysis, aims to serve as a vital resource for researchers, offering a

knowledge map to facilitate the rapid understanding of information and study results. Beyond aiding novice researchers, the study intends to identify research gaps, potential collaborators for seasoned scholars, and provide rating agencies with a reliable benchmark for assessing the effectiveness of authors, institutions, and nations in SFL research.

By addressing these critical comments and leveraging bibliometric analysis, our study aims to complement the existing overview by providing a more focused, systematic, and data-driven examination of the research evolution and trends in SFL over the past two decades.

METHODS

Research questions

In the pursuit of a comprehensive understanding of SFL development from 2003 to 2023 and its anticipated future trajectory, this study employs a bibliometric tool to address the following research questions:

- (1). What foundational information characterizes the development of Systemic Functional Linguistics in the last two decades?
- (2). What is the contemporary landscape of Systemic Functional Linguistics as reflected in scholarly publications and research trends?
- (3). What are the anticipated prospects for Systemic Functional Linguistics in the foreseeable future?

Through these inquiries, the study provides a holistic understanding of the historical progression, current state, and potential future directions of Systemic Functional Linguistics research. The bibliometric approach captures the essence of the past and present and offers insights to guide future SFL research endeavours.

Data sources

The selection of Web of Science is driven by various factors, setting it apart from alternative platforms. Web of Science is recognized as the world's most comprehensive academic information resource, covering over 8,700 core academic journals across diverse disciplines. Its multidisciplinary nature is crucial for capturing the broad spectrum of SFL research. The database's enduring reputation as the oldest and most authoritative research publication and citation database adds reliability to the data. Including citation indices, such as Social Sciences Citation Index (SSCI) and the Arts and Humanities Citation Index, enhances the analysis by providing insights into the citation impact of SFL research. This feature enriches the depth of understanding compared to databases without such indices.

Web of Science's powerful retrieval function facilitates efficient and targeted searches, which is crucial for swiftly identifying and extracting pertinent scientific research information. This capability supports a systematic and comprehensive bibliometric analysis of SFL literature.

With coverage spanning approximately 34,000 journals, Web of Science's global reach ensures a diverse and representative dataset, capturing varied contributions to SFL research from different regions worldwide.

In summary, the decision to utilize the Web of Science as the primary data source is grounded in its comprehensive coverage, multidisciplinary scope, established authority, inclusion of citation indices, powerful retrieval functionality, and global reach.

These attributes collectively position the Web of Science as the optimal platform for conducting an insightful and thorough bibliometric analysis of Systemic Functional Linguistics research.

Data collection and extraction

This study carefully selected the Web of Science as the data source, focusing on 2003 to 2023. The gathered literature data encompassed comprehensive information, including author names, abstracts, keywords, source years, DOI numbers, and references within the articles.

The data collection process unfolded in three distinct stages—the initial stage involved data retrieval, commencing with a keyword search. The keyword search formula is $TS=(\text{"Systemic functional linguistic*"} \text{ or } \text{"Functional linguistics*"} \text{ or } \text{SFL}) \text{ OR } TS=(\text{"Metafunction"} \text{ or } \text{"Ideational metafunction"} \text{ or } \text{"Interpersonal metafunction"} \text{ or } \text{"Textual metafunction"}) \text{ OR } TS=(\text{"Appraisal theory"} \text{ or } \text{"appraisal framework"}) \text{ OR } TS=(\text{"Systemic* functional grammar"} \text{ or } \text{"Functional grammar"} \text{ or } \text{"Grammar* metaphor"}) \text{ OR } TS=(\text{Transitivity} \text{ or } \text{"Transitivity analysis"} \text{ or } \text{"Transitivity system"} \text{ or } \text{"transitivity process"}) \text{ OR } TS=(\text{"Multimodal discourse analysis"})$.

Subsequently, we judiciously selected papers indexed in the Social Sciences Citation Index (SSCI) as well as the Arts and Humanities Citation Index (AHCI) to align with the research questions, scrutinizing critical articles within the research topic.

The second stage involved data cleaning, wherein papers were meticulously sifted to prevent duplication. In the third stage, the identified documents were downloaded and compiled. Initially, 1,000 files were downloaded, followed by an additional 685 files in the subsequent download. These two sets of files were then compressed using bibliometric tools to facilitate the subsequent data analysis.

Bibliometrics analysis tools

In the era of big data, the vast literature across diverse research areas poses a challenge regarding organization and transparency. Scholars employ qualitative and quantitative methods to structure this extensive literature to comprehensively understand previous findings Aria et al. (2017).

Bibliometrics stands out among these approaches, offering a systematic, transparent, and repeatable review process based on statistical measurements of science, scientists, or scientific activities Broadus et al. (1987). Notably, bibliometrics involves analyzing data extrinsic to the text, such as author affiliation, word frequency, usage statistics, and common citations Wilson et al. (2012).

Bibliometrics, a branch of library science that applies mathematics and statistical analysis to bibliographies, presents several advantages in literature and statistics, index calculation, network analysis, and knowledge graph drawing Salini et al. (2016).

This tool can import and process literature information from databases like SCOPUS and Web of Science, perform statistical analyses of relevant scientific literature indices, construct data matrices, conduct coupling and cooperative analysis, and generate comprehensive visualizations of literature information.

Today, bibliometric tools find extensive applications in various fields, including medicine, enterprise economy, scientific research management, computer software, applications, linguistics and education Han et al. (2017) Erboz et al. (2023), Marginson et al. (2022), Ci et al. (2021). Zhao et al. (2023), Lee et al. (2023), Yan et al. (2024), Peng et al. (2023), Samsul et al. (2023), Wang et al. (2024).

The increasing use of bibliometric analysis across disciplines suggests its efficacy in facilitating research based on abundant literature. This method allows for data visualization, identifying trends and themes in academic research, tracking shifts in disciplinary boundaries, pinpointing prolific scholars and institutions, and offering a comprehensive overview of prevailing research.

This study was carried out utilizing RStudio software and the bibliometrics R-package version 4.2.0. The aim was to investigate trends and key issues pertaining to SFL, while also suggesting future research directions.

To utilize Biblioshiny within the R language environment, we are required to follow specific steps. Initially, we downloaded and installed R program version 4.2.0 (<https://cran.r-project.org/>) and the RStudio operating platform(<https://rstudio.com/>). After launching RStudio, the bibliometric program was initiated by entering the

following command code in the windows: Install “packages (‘bibliometrix’, dependencies=TRUE); library(bibliometrix); biblioshiny ()” Upon executing this code, the Biblioshiny web interface became accessible through the Google Chrome browser. The study encompassed the importation and analysis of raw Web of Science data using Biblioshiny.

RESULTS AND DISCUSSION

Main information about the data

Table 1 provides essential information encapsulating significant findings in Systemic Functional Linguistics from 2003 to July 28, 2023. The dataset comprises 1,685 documents sourced from 285 outlets, including articles, proceedings, editorials, book reviews, and early access noteworthy averages include a document average age of 6.92 and an average of 10.16 citations per document. The study cites a total of 53,581 references, underscoring extensive attention to Systemic Functional Linguistics over the past two decades.

The 1,466 papers represent the most substantial categories of published documents, while the 1,334 and 4,606 keywords plus and author’s keywords, respectively, highlight the diverse topics within Systemic Functional Linguistics. The study also identifies 1,944 contributors to Systemic Functional Linguistics studies during this period. Of these, 754 authors contributed to single-authored documents, emphasizing individual scholarly contributions.

In terms of collaboration, 956 single-authored documents indicate a significant scholarly focus on Systemic Functional Linguistics, with a co-authors per document ratio of 1.63. Moreover, international co-authorships stand at 15.01%, indicating widespread collaboration among scholars in the field.

Annual scientific production

Figure 1 presents a dynamic trend of the annual scientific output in Systemic Functional Linguistics. Over the period from 2003 to 2023, there was a consistent increase in the number of articles.

The peak year for productivity was 2021, witnessing 178 publications, including notable works such as A Social Semiotic Perspective on Emoji: How Emoji and Language Interact to Make Meaning in Digital Messages (2023) and culturally sustaining approaches to academic languaging through systemic functional linguistics (Sembiante and Tian 2021). Importantly, this upward trajectory has been sustained, with an annual growth rate of 9.95 percent.

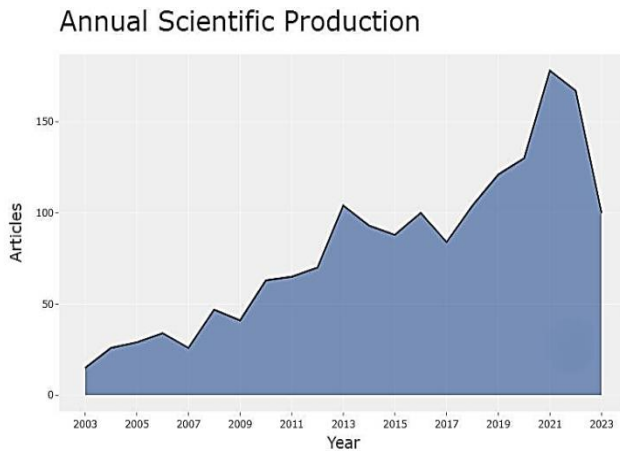
The expansion of studies on Systemic Functional Linguistics and the total number of published articles has been particularly noteworthy from 2017 to 2021. The annual fluctuations in literature production may signify shifts in research subjects, interests, depth, and future development directions.

Systemic Functional Linguistics has consistently held a prominent position in the linguistic field over the last two decades, suggesting its enduring significance and potential as a continued focus in linguistic studies. In essence, Systemic Functional Linguistics has captivated substantial academic interest throughout this period.

Table-1: Main information about the data.

Description	Results
Main information about data	
Timespan	2003:2023
Sources (Journals, Books, etc.)	285
Documents	1685
Annual Growth Rate %	9.95
Document Average Age	6.92
Average citations per doc	10.16
References	53581
Document Contents	
Keywords Plus (ID)	1334
Author’s Keywords (DE)	4606
Authors	
Authors	1944
Authors of single-authored docs	754
Authors Collaboration	
Single-authored docs	956
Co-Authors per Doc	1.63
International co-authorships %	15.01
Document Types	
article	1466
article; book chapter	5
article; early access	57
article; proceedings paper	26
book review	88
book review; early access	5
editorial material	16
editorial material; early access	1
review	20
review; early access	1

Figure 1: Annual scientific production. The diagram reveals a dynamic trend of the annual scientific output in Systemic Functional Linguistics over the past two decades.

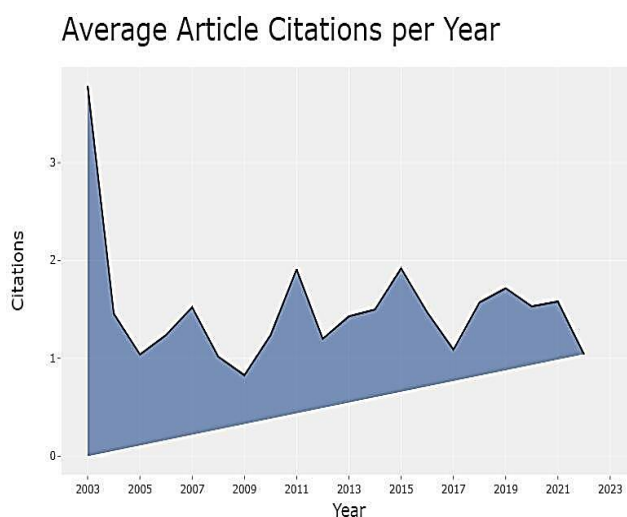


Analysis of cited documents

Average citations per year

Figure 2 provides the average citations per year, revealing a fluctuating trend with the highest recorded at 3.786 in 2003. Notably, 2003 saw a peak in citation rate despite a relatively low number of articles published, suggesting a probable correlation between citation rate and article quality over quantity. This correlation may hinge on the relevance of the cited article to the scholar's own work.

Figure 2: Average citations per year. The diagram of average citations per year reveals a fluctuating trend in document citations.



Most globally cited articles

The top 10 globally cited documents in the field of Systemic Functional Linguistics are listed as follows. Notably, *Differential Object Marking: Iconicity vs. Economy* Aissen et al. (2003), stands out as the most cited, accumulating 576 citations. This article delves into the penetration of differential object marking in object classes,

exploring the tension between iconicity and the economy principle of avoiding case-marking. The resolution of this tension varies across languages.

Following closely is *Genre pedagogy: Language, literacy and L2 writing instruction* Hyland et al. (2007), accruing 396 citations. Hyland et al. (2007) introduces genre-based language teaching principles, outlines classroom models, and discusses practical implementation, especially in ESP and SFL methods. Another notable work is *Ambient affiliation: A linguistic perspective on Twitter* Zappavigna et al. (2011), with 292 citations. Zappavigna et al. (2011) employs Systemic Functional Linguistics to analyze the structure and meaning of tweets following Barack Obama's 2008 U.S. presidential election victory.

It underscores the significance of conducting a longitudinal study in Systemic Functional Linguistics, emphasizing that articles with higher citations wield more influence in the study of this field.

Analysis of authors, affiliations, and countries

Prolific authors

There are 10 leading influential authors in the field of Systemic Functional Linguistics. Zhang emerges as the most prolific author, contributing 14 articles primarily focused on the intersection of Systemic Functional Linguistics and education. Notably, *Connecting OER With Mandatory Textbooks in an EFL Classroom: A Language Theory-Based Material Adoption* Zhang et al. (2018), stands out as the most cited in his collection, amassing 30 references. In this work, Zhang illustrates, under the guidance of SFL, the impact of blending mandatory textbooks and open educational resources on EFL learners' adjustment and learning practices.

Following Zhang, Zappavigna published 13 documents, concentrating on the relationship between language and society. In the article *Searchable Talk: the Linguistic Functions of Hashtags* Zappavigna et al. (2015), linguistic metafunctions are employed to explore how hashtags enact three simultaneous communicative functions.

Ranking third is Martin, who has dedicated his work to Appraisal Theory. In *The Language of Evaluation: Appraisal Theory* Martin et al. (2003), a foundational book, he comprehensively explains Attitude, Engagement, and Graduation subsystems, establishing a robust theoretical framework for Appraisal Theory within Systemic Functional Linguistics. Among the top five relevant authors is O'Halloran, who has contributed significantly to multimodality. In her work, she applies the Systemic Functional approach to Multimodal Discourse Analysis (O'Halloran 2008), delving into the meaning arising through language and visual imagery in printed texts.

Table-2: Most Relevant Authors

Authors	Articles	Articles Fractionalized
ZHANG X	14	10.5
ZAPPAVIGNA M	13	8.25
MARTIN JR	12	8.33
KELLOGG D	10	5.83
O'HALLORAN KL	10	3.57
TROYAN FJ	10	5.5
BUTLER CS	9	7.5
OTEIZA T	9	4.5
SCHLEPPEGRELL MJ	9	5.83
CHEN Y	8	5.33

Author productivity through Lotka's law

Lotka's Law, initially proposed by American scholar A.J. Lotka in the 1920s, serves as an empirical law to characterize scientific productivity, specifically elucidating the correlation between the number of scholars and the papers they produce. It is credited as the first to unveil a connection between author frequency and article count, forming the cornerstone of bibliometrics and standing as a fundamental principle in this field.

Figure 3 provides a comprehensive breakdown of author contributions, revealing that a substantial proportion of the total authors, precisely 1,551 individuals (accounting for 79.8%), have contributed only a single document to the body of Systemic Functional Linguistics (SFL) research. Furthermore, the data show that 220 authors (11.3%) have authored two documents, and 86 (4.4%) have contributed three documents each.

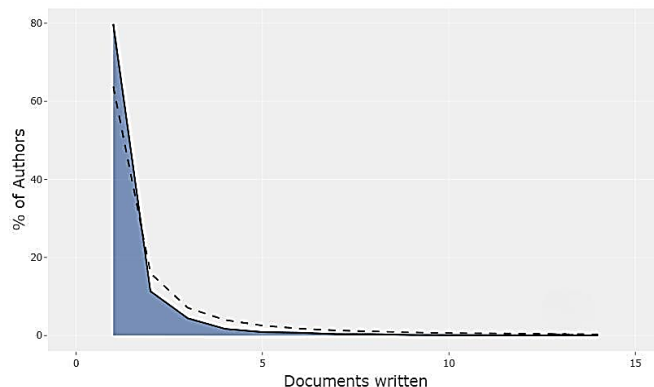
What stands out is the prevalent trend wherein most authors publish just one paper. This observation underscores the current landscape of SFL scholarship, pointing to the need for a more robust and diversified community of scholars. Encouraging greater scholarly output and engagement is pivotal in establishing a more representative and impactful presence within Systemic Functional Linguistics.

This insight into authorship patterns highlights the existing dynamics and unveils opportunities for improvement and long-term growth in SFL research.

By fostering an environment that encourages multi-faceted contributions and sustained involvement, the field can evolve towards increased richness and diversity of perspectives, ultimately enriching the discourse and understanding within Systemic Functional Linguistics.

Figure 3: Lotka's Law. The diagram specifies the correlation between the number of scholars in the field of Systemic Functional Linguistics and the number of papers they have published.

The Frequency Distribution of Scientific Product

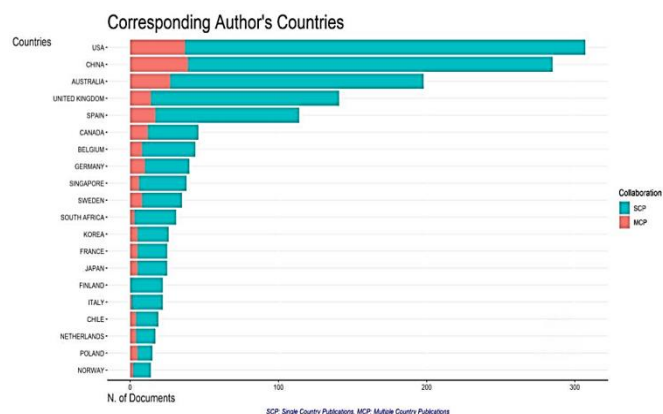


Most relevant affiliations and countries

Based on the volume of articles published in Systemic Functional Linguistics, the University of Sydney, Macquarie University, The Hong Kong Polytechnic University, Nanyang Technology University, Ghent University, Sun Yat-sen University, The University of New South Wales, the University of Michigan, The Pennsylvania State University, and City University of Hong Kong emerge as the top ten influential affiliations, producing 87, 85, 60, 56, 54, 46, 46, 40, 37, and 33 articles, respectively, in the last two decades. These institutions serve as pivotal contributors to the study of Systemic Functional Linguistics, reflecting collaborative efforts and a shared focus on advancing this field.

Figure 4 delineates the countries of the top 20 corresponding authors, highlighting the number of papers co-authored by authors of the same nationality (SCP), the number of papers co-authored with authors from other countries (MCP), and the ratio of international cooperation (MCP-ratio).

Figure 4: Top 20 corresponding authors' countries. The diagram delineates the countries of the top 20 corresponding authors.



domain. Additionally, Figure 5 illustrates a notable increase in the use of the term “language” in Systemic Functional Linguistics, signifying its indispensable role and significant impact on the field.

In essence, the Word Cloud analysis provides a comprehensive visual representation of the research landscape, elucidating the key themes that have shaped Systemic Functional Linguistics research over the past two decades.

Figure 6: Word cloud (author’s keywords). The diagram reveals some of the most frequent words in the field of Systemic Functional Linguistics in author’s keywords.

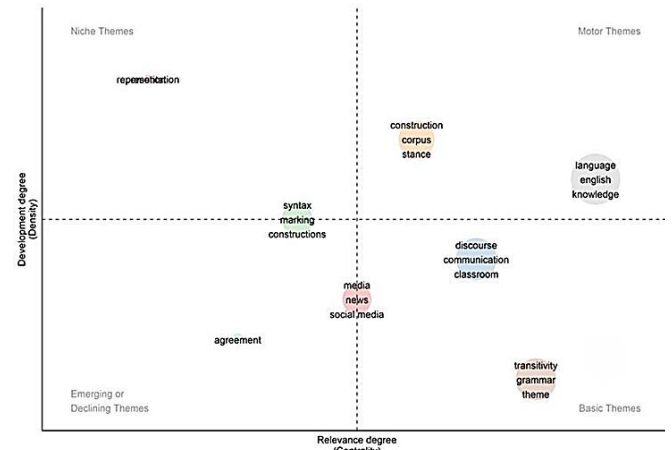


Thematic map analysis

The thematic map vividly depicts the evolution of SFL over the past two decades. Figure 7 reveals that the thematic map is segmented into four quadrants based on the degree of development (density) and relevance (centrality). The upper right quadrant, characterized by high centrality and density, signifies robust motor themes within the research field. Notably, “language,” “English,” “knowledge,” “construction,” “corpus,” and “stance” emerge as focal points, representing the core of research with promising development prospects. Conversely, the upper left quadrant, marked by high density and low centrality, signifies niche themes within SFL research. Here, “representations” stands out as a niche theme with potential for development but limited influence on the overall research field. Another significant quadrant is characterized by high centrality and low density. Terms such as “transitivity,” “grammar,” “theme,” “discourse,” “communication,” and “classroom” occupy this space, representing fundamental themes that are intricately linked to the theoretical framework of Systemic Functional Linguistics. These core topics serve as a robust foundation, providing reasoning and techniques for furthering SFL research. The lower-left quadrant, with poor centrality and density, indicates subject clusters with marginalized influence. Terms like “agreement,” “media,” “news,” “social media,” “syntax”, “marking,” and “constructions” are situated here, suggesting that they are either emerging

or declining themes within the field. This quadrant hints at the dynamic nature of SFL research, with new themes emerging and others losing prominence over time.

Figure 7: Thematic map. The thematic map is divided into four parts based on density and centrality, reflecting the evolution in Systemic Functional Linguistics over the past two decades.



Conceptual structure map

We employ Biblioshiny to utilize Bibliometrix’s Conceptual Structure Map, specifically for Multiple Correspondence Analysis (MCA), an extension of simple correspondence analysis, proves to be a potent technique for managing larger and more intricate datasets (Greenacre and Blasius 2006). This method assists in outlining a conceptual structure within the field and identifying groupings of texts that convey similar concepts. As depicted in figure 8, MCA was utilized to categorize keywords into two clusters. The colors signify distinct clusters, with the distance between keywords indicating their relatedness. Each vertex represents a word, and the node’s size corresponds to its frequency.

Figure 8: Conceptual structure map. This graph divides the keywords into two categories. Colors indicate different clusters and the distance between keywords indicates their relevance.

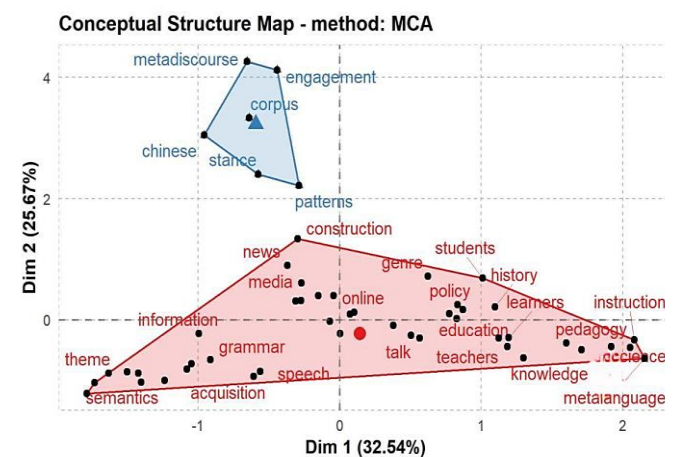


Figure 8 reveals a central theme in Systemic Functional Linguistics, with certain research topics, such as the extensive application of SFL in education, being relatively well-developed. In the red cluster, words like “education,” “student,” “teacher,” “pedagogy,” and “learners” are frequently occurring, reflecting the widespread application of SFL in educational contexts. This result is consistent with Troyan et al. (2019) finding that SFL holds great potential as a contextualized and unifying theoretical foundation for world language teacher education.

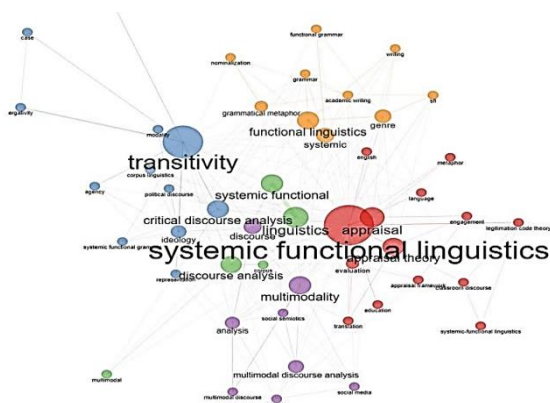
The blue cluster includes the keyword “corpus,” indicating substantial research in SFL related to corpus linguistics (Danis et al. (2022), He et al. (2021). Systemic Functional Linguistics encompasses diverse subjects, including systemic functional grammar, discourse analysis, appraisal theory, multimodal discourse analysis, grammatical metaphor, and transitivity.

Co-occurrence of author’s keywords

Analyzing the co-occurrence of author’s keywords provides valuable insights into the evolving research landscape of Systemic Functional Linguistics over the past two decades. Employing keyword co-occurrence analysis proves to be a powerful methodology for unveiling the overarching knowledge structure within the field. In Figure 9, we present a visual representation of the keyword co-occurrence network derived from a comprehensive examination of publications.

Within this network, each node signifies a specific keyword, and the size of the node corresponds to the frequency of citations the keyword has received. Links between nodes represent the co-occurrence of two keywords, with thicker lines indicating a higher frequency of their simultaneous appearance. In Figure 9, the presence of five distinct clusters, distinguished by different colors, sheds light on the thematic concentrations within SFL research.

Figure 9: Co-occurrence authors’ keywords. This diagram reflects the frequency of author’s keywords citations by the different colored nodes and the size of the nodes.



The red cluster prominently features keywords such as “systemic functional linguistics,” “appraisal,” “appraisal theory,” and “grammatical metaphor.” Their frequent co-occurrence implies a close association, indicating that these topics have been central to SFL research. Similarly, the blue cluster highlights the interconnectedness of “transitivity,” “critical discourse analysis,” “ideology,” and “systemic functional grammar.”

The purple circle draws attention to the singular prominence of “multimodality,” although it appears isolated from other keywords. Notably, it exhibits a mild association with “discourse” and “discourse analysis.” Moreover, the examination of orange and green nodes reveals an intriguing interconnection between “multimodal discourse,” “functional linguistics,” “genre,” “systemic,” and “Linguistics.” This suggests a cohesive relationship among these research areas, underlining the interconnected nature of studies on “discourse analysis,” “systemic functional” research and related topics.

In summary, the co-occurrence analysis provides a nuanced understanding of the thematic concentrations within SFL research, uncovering clusters of interconnected keywords that have shaped the discourse over the past two decades. This methodology proves instrumental in discerning the evolving trends and foci within the field, highlighting the dynamic nature of Systemic Functional Linguistics as it engages with diverse topics and perspectives.

Future research direction in Systemic Functional Linguistics

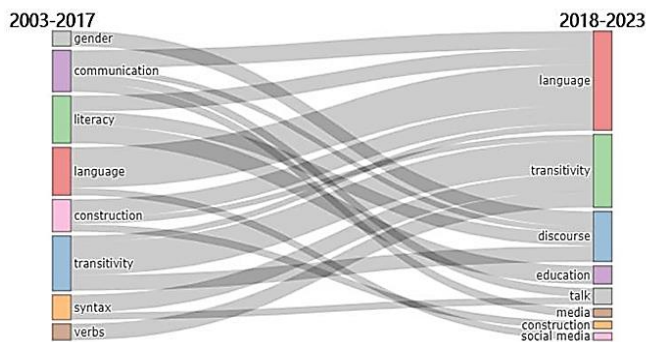
Addressing the question of Systemic Functional Linguistics’ future prospects, this article leverages bibliometric tools, employing Thematic Evolution and Thematic Trends to anticipate upcoming research directions.

Thematic evolution

Illustrated in Figure 10, the evolution of Systemic Functional Linguistics unfolds with a pivotal juncture in 2017, delineating two distinctive periods: 2003–2017 and 2017–2023. Key contributions during the earlier phase focused on grammar and syntax, as evidenced by seminal works like from cognitive-functional Linguistics to Dialogic Syntax Du Bois et al. (2014), Initial vs. Non-initial Placement of agent constructions in Spoken Clauses Kuiper et al. (2017), Layering in structural-functional grammars (Butler et al. (2008), and the syntax–semantics interface in systemic functional grammar Taverniers et al. (2011). Themes prevalent in the 2003–2017 era encompassed “language,” “construction,” “literacy,” “transitivity,” “syntax,” and “verb.” Notwithstanding

dynamic shifts, “language,” “transitivity,” and “construction” sustained their popularity. However, a discernible transformation emerged post-2017, with a notable shift towards themes such as “discourse,” “social media,” and “education.” A plethora of articles from 2018 to 2023 adopted discourse analysis methodologies to scrutinize language in social media and news, marking a significant trend.

Figure 10: Thematic Evolution. The diagram reveals the evolution of Systemic Functional Linguistics over the past two decades.



The evolving thematic landscape points towards the burgeoning significance of “discourse,” “social media,” and “education” in the SFL research agenda. These themes not only underscore the adaptability of SFL to contemporary linguistic phenomena but also indicate areas ripe for further exploration and development. The increasing emphasis on discourse analysis in the context of social media and education suggests promising avenues for future research within Systemic Functional Linguistics. Researchers are encouraged to delve deeper into these emerging themes to unravel new dimensions in linguistic analysis and contribute to the evolving landscape of SFL.

Emerging trends

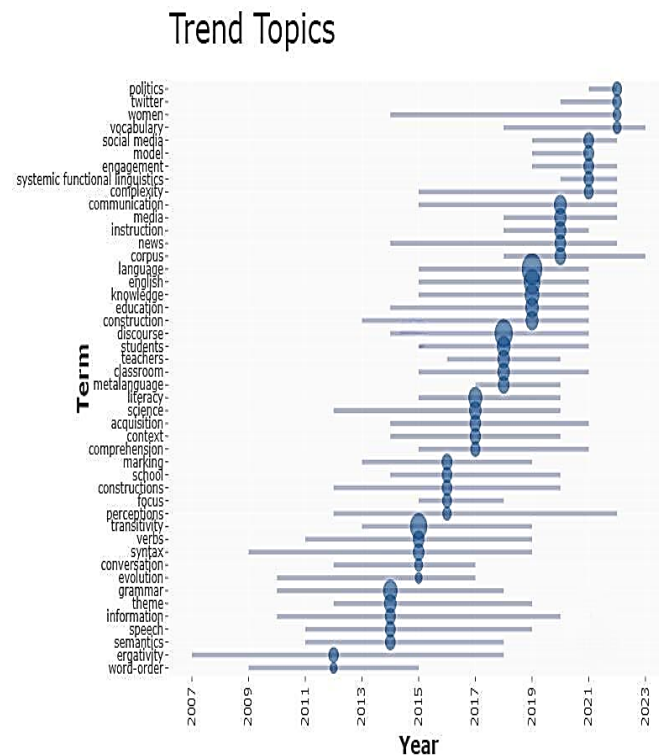
Analyzing trends in the field of Systemic Functional Linguistics through the lens of topic prominence and evolution reveals intriguing insights. The node size, acting as a proxy for topic publication volume and the duration of peak popularity, serves as a valuable indicator. Figure 11 vividly illustrates the considerable size of the blue node, particularly in relation to “language,” “English,” “knowledge,” “education,” and “construction” during 2015. This unmistakably points to a flourishing period in research, emphasizing the enduring significance and productivity of these themes within the realm of Systemic Functional Linguistics.

The robust presence of these core topics not only underscores their foundational role but also suggests that they warrant sustained attention in forthcoming studies.

This aligns seamlessly with the broader findings derived from the Thematic Evolution analysis conducted over the period of 2018 to 2023. The convergence of evidence further solidifies the assertion that “language,” “English,” “knowledge,” “education,” and “construction” are poised to remain central and influential in the trajectory of Systemic Functional Linguistics research.

Moreover, the exploration of high-frequency terms unveils additional dimensions to the evolving landscape. Terms like “discourse” making a notable appearance in 2018, “transitivity” gaining prominence in 2015, and “grammar” asserting its significance in 2014 signify the dynamic nature of the field. This dynamicity implies that the thematic exploration of “language,” “English,” “knowledge,” “education,” “construction,” “discourse,” “transitivity,” and “grammar” holds substantial potential for continued growth and exploration in the future of Systemic Functional Linguistics research.

Figure 11: Trend topics. The diagram reveals the trend topic in Systemic Functional Linguistics over the past two decades.



In essence, the emergence of these high-frequency terms and the enduring prominence of foundational topics collectively suggest a rich landscape for exploration and inquiry within the field. Researchers and scholars are encouraged to delve deeper into these themes, acknowledging their historical significance while remaining attuned to the evolving nuances that contribute to the vibrant tapestry of Systemic Functional Linguistics research.

CONCLUSION

Utilizing a bibliometric tool, this study intricately analyzes the 20-year development of SFL. Through visualization methods encompassing productivity, content, and citation analyses, the research aims to uncover the current status and prevalent topics within SFL over the past two decades. Furthermore, it endeavors to predict future research directions, providing valuable insights for scholars and researchers interested in SFL. The bibliometric analysis reveals that SFL remains a comprehensive and popular subject in academia. Key themes such as “language,” “transitivity,” “syntax,” “grammar,” “discourse,” and “education” have consistently shaped and influenced SFL research. The enduring prominence of these themes reflects the enduring nature of SFL as a research domain. Moreover, the collaborative efforts of numerous authors, institutions, and countries underscore the global reach and significance of SFL research. Pivotal figures such as Zhang, Zappavigna, Martin, Kellogg, and O’Halloran have played crucial roles in contributing to the extensive body of SFL literature. The analysis also highlights the top-cited articles, influential journals, and leading countries in SFL research. Articles such as *Differential Object Marking: Iconicity vs. Economy* (Judith et al. (2003)), *Genre pedagogy: Language, literacy, and L2 writing instruction* (Hyland et al. (2007)), and *Ambient affiliation: A linguistic perspective on Twitter* (Zappavigna et al. (2011)) have significantly impacted the field. Journals like *Text and Talk*, *Linguistics and Education*, *Functions of Language*, *Journal of English for Academic Purposes*, and *Lingua* have played crucial roles. The United States, Australia, and the United Kingdom emerge as the leading contributors to the development of SFL, with strong collaborative networks among them. Furthermore, the analysis of Trend Topics indicates that “language,” “English,” “knowledge,” “education,” “construction,” “discourse,” “transitivity,” and “grammar” are poised for continued significance in future SFL research.

While bibliometric methods effectively unveil the knowledge structure and research themes within a research field, offering insights into potential future research directions, they should not be considered a substitute for comprehensive reading. A broad understanding is a prerequisite for delving into the depths of a research field. Looking ahead, there is a need for a more pronounced integration of quantitative methods in Systemic Functional Linguistics to challenge the functional aspects of methodological approaches in research. Additionally, a holistic approach that combines both qualitative and quantitative methods should be embraced in future SFL research.

Limitations and recommendations

As a comprehensive review study aiming to provide an overarching perspective on Systemic Functional Linguistics research over the past two decades through bibliometric analysis, the study inherently falls short of delving into specific facets within the expansive field of SFL. The broad strokes painted by this study, while valuable in providing a panoramic view, might not capture the intricacies and nuances embedded in the various subdomains of SFL research.

Furthermore, this quantitative approach, utilizing a bibliometric tool and relying on data extracted from databases, is inherently constrained by its emphasis on visual representations and statistical analyses. The absence of a qualitative method for data collection and analysis in this study represents a noteworthy limitation, as it precludes a nuanced exploration of the subjective aspects that quantitative metrics may overlook.

To pave the way for a more profound understanding of SFL, it is recommended that future research endeavors adopt a more diversified approach. This involves incorporating qualitative methods alongside quantitative analyses, allowing for a richer exploration of the contextual intricacies that shape SFL research. Moreover, there is a need for studies that focus on more specific issues within the realm of SFL, complementing the broader perspective provided by bibliometric analyses. This targeted approach will contribute to a more comprehensive and nuanced comprehension of the intricacies within Systemic Functional Linguistics, fostering a more robust foundation for future research initiatives. Researchers are encouraged to embrace a multidimensional strategy that goes beyond quantitative metrics, ensuring a holistic and insightful exploration of the multifaceted landscape of SFL.

DECLARATIONS

Author contributions

Xia Zhao developed the research concept, guided Yu Ni in data collection and analysis with bibliometric software, and collaborated on writing the article. Yu Ni gathered and extracted data under Xia Zhao's supervision and contributed to the analysis section. Xincheng Zhao designed the manuscript and drafted the methodology. All authors contributed to revising and approving the final version.

Conflict of interest

The authors declare that no commercial or financial relationships exist that could be perceived as potential conflicts of interest regarding the research conducted.

Ethical approval

This article does not contain any studies with human participants performed by any of the authors.

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