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Strategies for Keyword Selection for High-Impact Bibliometric Research Papers

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Abstract

The academic publishing environment is becoming increasingly competitive as millions of scholarly articles are more thoughtful and influential. Bibliometric studies occupy a significant but minor part of this giant ecosystem, providing a quantitative understanding of research trends, productivity, and impacts. For writers in this specialized area, choosing keywords is more than a formality; it is a decisive factor in whether a paper can be found and whether it will be correctly indexed, thus leading to future scholarly consequences. Within the scope of this report, the researcher examined the complexity behind keyword functionality and generated a structured framework for optimizing keyword collection in bibliometric research papers. This study takes the reader or the writer/researcher through a complicated journey to identify keywords in bibliometric analyses. It points to the contrast between natural language and the controlled vocabulary terms, stressing the outstanding contribution of the author as an expert in the domain. With the identification of the way keywords are used in academic records, an author may beneficially choose keywords that promote the visibility of the paper, thus ensuring that it reaches out to the most pertinent population and maximises the scholarly resources of the paper. The correct choice of these words is critical in ensuring that a piece of scholarly work will be retrieved as intended by the author and will be a brief representation of the key points of the research. The report will describe five fundamental types of keywords and the best practices of their practical usage to enable researchers to overcome the competitive landscape of publishing and ensure higher visibility of their valuable research. This painstaking process is essential for various authors and the larger academic ecosystem, contributing to a more connected and findable academic record.

Keywords: *Bibliometric Study, Keywords, Impact, Citation Analysis, Science Mapping, Data Source.*

1. Overview of Bibliometrics as a Research Field:

Bibliometrics is a quantitative analysis of published literature encompassing various performance metrics of academic and professional writing, such as journal articles and books (Fassin, 2021). This field systematically examines factors such as citation counts, which measure how often others reference work, and the H-index, which reflects an author's productivity and the impact of their publication. (Ruscio, 2016) It employs statistical or mathematical methods to count academic publications, citations, and authorship.

The discipline's origins can be traced back to the late 1960s, notably with British librarian Alan Pritchard's broader application of the term 'bibliometrics,' "which covered all forms of written communication, distinguishing it from earlier, more confined uses". Modern bibliometric methodology utilizes "quantitative approaches such as author analysis, citation analysis, and keyword analysis, operating on extensive and objective datasets"(Matorevhu, 2024). These analyses are structured around two primary approaches: performance analysis, which assesses the "impact of researchers, institutions, or countries, and science mapping, which visualises the structure and dynamics of scientific research".(Tyagi, 2024).

The field of "bibliometrics is not static; it has experienced continuous growth in published articles from 2000 to 2023"(Menaka & Selvam, 2025). A "notable trend is the increasing integration of bibliometric analysis with advanced technologies such as artificial intelligence (AI) and data science"(Li et al., 2025). This signifies a dynamic and expanding field, suggesting that keywords for bibliometric studies should reflect traditional methodologies and capture emerging interdisciplinary connections. For instance, a paper leveraging AI in bibliometric analysis would benefit from keywords that bridge these two domains, thereby enhancing its discoverability by researchers at the intersection of these fields. "The inclusion of terms like 'Artificial Intelligence' or 'Data Science' alongside 'Bibliometrics' can attract a broader, more forward-looking audience and signal the paper's contemporary relevance"(Yenişehir, 2024).

Figure 1 Research Impact

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2. Review of Literature:

Bibliometrics, a cornerstone of quantitative research assessment, is a statistical analysis of published literature. “Its origins can be traced back to the 1920s, with a more formal coining of the term 'bibliometrics' in 1969 by Alan Pritchard”(Joseph & Rajan, 2024). This discipline systematically examines academic and professional writing performance metrics such as journal articles and books. Key metrics include citation counts, which measure how often others reference work, and the H index, which reflects an author's productivity and the impact of their publications. Bibliometric methodology is a quantitative research method that functions with extensive and objective data, such as author, citation, and keyword analyses. “Such analyses take the form of two primary tactics: performance analysis”(Moed, 2009) and science mapping.

“Bibliometric analysis has a wide range of applications and benefits various stakeholders in academia, government, and industry”(Zhang et al., 2020). Scholarly analysis assists in revealing under-researched fields and tends to direct the authors in a new direction. It can also be used to assess journals and aid authors in selecting high-impact journals in which to publish their work (Litmaps, n.d.). Institutionally, bibliometrics are important in benchmarking performance against peers, strategic planning, informed resource allocation, and recruitment decision making. “Funding agencies and government organizations employ bibliometric knowledge to determine research funding priorities and the effects of funded programs. In business, it can help monitor technology and innovation trends and analyze competitors' research output”(Mejia & Kajikawa, 2017).

Keywords are fundamental concepts representing a scholarly text's significant content, chosen by authors who effectively act as domain expert indexers for their work. Their primary function is to enhance retrieval and visibility, “ensuring a direct and accurate match between the chosen terms and the paper’s content for future users searching academic databases”(Medelyan & Witten, 2008). “Authors often select terms directly related to the topic, object, objective, and the specific scientific methods employed in their research”(Fadlalla & Amani, 2015). However, the “keyword assignment process is highly subjective, heavily dependent on the author's cognition and knowledge”(Onyancha, 2018). A significant challenge arises from the distinction between natural language keywords, freely assigned by authors, and controlled vocabulary terms, which adhere to a standardised language. Authors are frequently unaware that keyword assignment is an indexing process that requires controlled vocabularies, and they often struggle to find concrete research terms within existing controlled vocabularies. This leads them to revert to their preferred natural language choices, even if less standardised, which can necessitate extensive data cleaning in subsequent bibliometric analyses. “Despite these challenges, Strategies and informed keyword selection can dramatically improve a paper's visibility, leading to higher citation counts and broader scholarly impact”(Roldan-Valadez, Rios, et al., 2018).

Various bibliometric measures exist for assessing research output and impact. “Journal-level metrics include the Journal Impact Factor (JIF), Eigen Factor Score, SCImago Journal & Country Rank (SJR), Source Normalized Impact per Paper (SNIP), and CiteScore”(Brown, 2011). While JIF are “widely used to gauge a journal's relative importance, they are often misused as a proxy for quality and should not be used to

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assess individual articles or authors"(Teixeira Da Silva & Memon, 2017), author-level metrics primarily focus on the H-index, which reflects productivity and impact. "Publication metrics include raw citation counts, citation percentiles, and Field-Weighted Citation Impact (FWCI), normalizing citations across disciplines"(Butler et al., 2017). Emerging "Altmetrics" track online mentions and shares, offering complementary insights into impact beyond traditional citations, although they are unsuitable for formal research evaluations. The limitations of these metrics, such as disciplinary variations and susceptibility to manipulation, necessitate careful interpretation and a multifaceted approach to research evaluation.

Researchers rely on various software tools and data sources to conduct such analyses. "Popular tools include VOSviewer, CiteSpace, ScientoPy, and Biblioshiny, each offering unique functionalities for network visualisation, trend analysis, and data preparation"(Ruiz-Rosero et al., 2019). The Web of Science (WoS) Core Collection, Scopus, Google Scholar, and SciVal are the key data sources for bibliometric studies. "Furthermore, bibliometric techniques are increasingly being applied to safeguard research integrity by identifying anomalies in research output that may indicate questionable authorship and affiliation practices, such as sudden surges in publication volume or hyperprolific authorship"(Ullah et al., 2022).

3. Methodology for Article Construction:

The development of this article, "Strategies for Keyword Selection for High-Impact Bibliometric Research Papers," followed a systematic approach designed to ensure comprehensive coverage, accuracy, and practical utility for the intended audience.

A. Defining the Scope and Objectives:

The initial phase involved thoroughly understanding the core request: identifying the top 5 (later expanded to categories) for bibliometric study articles. This necessitated defining "bibliometrics" and understanding the critical role of keywords in academic publishing. The objective was to provide actionable insights for authors to maximize their papers' discoverability and impact.

B. Information Gathering and Synthesis:

Various scholarly resources and expert guidelines on bibliometrics, keyword selection, and academic publishing best practices were reviewed. This involved:

i. **Core Concepts:** Extracting definitions and historical context of bibliometrics, its methodologies (performance analysis and science mapping), and key metrics (H-index, citation counts, and Impact Factor).
ii. **Keyword Functionality:** Delving into the distinction between author-assigned (natural language) keywords, controlled vocabularies, and challenges and opportunities in keyword assignment.
iii. **Best Practices:** Identify strategies for effective keyword selection, including balancing specificity and breadth, considering the target audience, and recognizing the importance of consistency.
iv. **Application Areas:** Exploring diverse fields where bibliometrics are applied, from research trends to institutional evaluation and policy.
v. **Tools and Data Sources:** Cataloguing popular software tools and databases used in bibliometric analysis.
vi. Recent Studies: Reviewing keywords from highly cited bibliometric studies to identify standard and emerging terms.
vii. **Outline of the Story**: The collected data were arranged coherently, starting with a general introduction to the precise categories of

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keywords and finishing with the general best practices.

This outline was constructed to create knowledge step-by-step.

i. **Introduction:** Literature review on the significance of keywords in bibliometric publishing.

ii. **Keywords:** How They Work: Describing the mechanics of keywords in scholarly indexing.

iii. **Top 5 Categories of Keywords Essentials**: This section presents the main actionable framework based on synthesized research.

iv. **Best Practices:** Providing practical tips on optimising keyword choice.

v. **Conclusion:** Main messages and the imperative of Strategies.

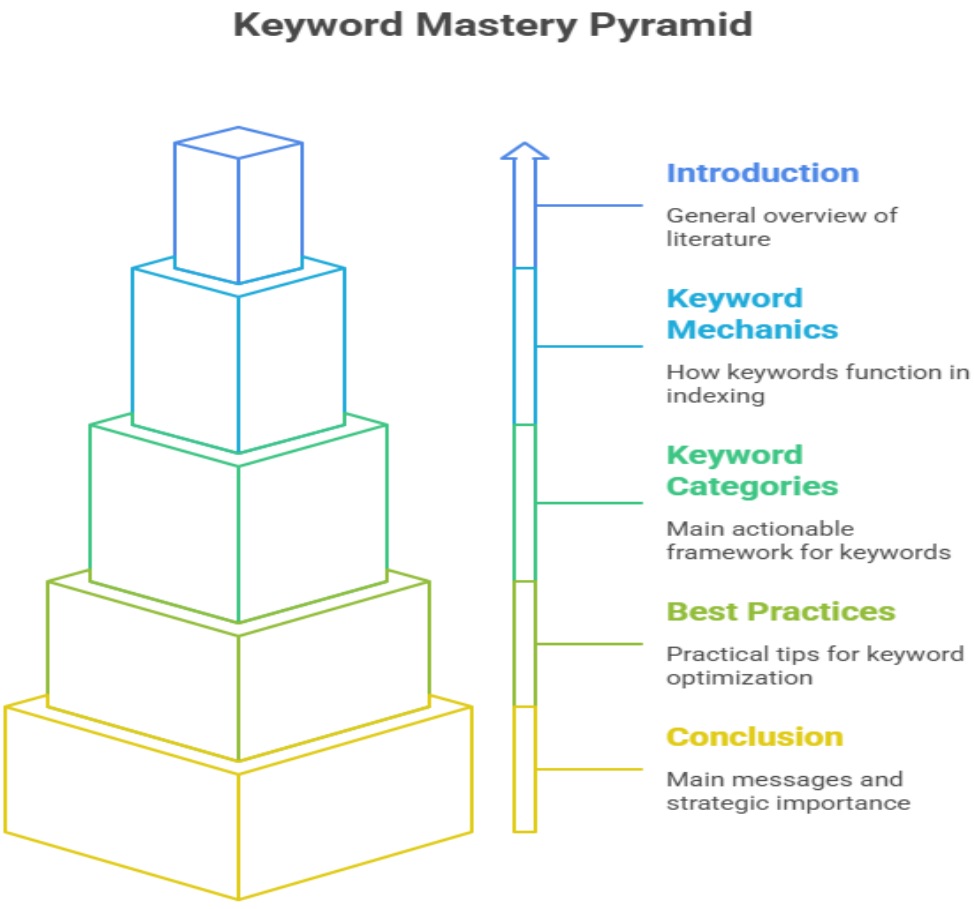

Figure 2 Keyword Mastery Pyramid

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a. Drafting and Elaboration:
All sections were drafted, merging information from different sources and explaining the concepts with clear examples and texts. The basic message was retained, and an effort was made to incorporate the errors in grammar as identified according to earlier instructions. APA-style citations were carefully included to provide credit to sources of information.

b. Polishing and Proofreading:
The paper has been through multiple editorial cycles within the company to ensure that it is correct, consistent, and meets stipulated requirements, such as maintaining grammatical mistakes and proper APA reference style. This cyclic process ensured that the results were informative and fulfilled all the user requirements.

Keywords: The Essential Role in Academic Publishing Discoverability, Indexing, and Impact

Keywords constitute a relatively basic notion, yet they denote the meaningful "part of a scholarly text, selected by the authors, who practically perform as expert indexers of the field of their work"(Chaudhari & Banga, 2023). They serve as the primary method of improving retrieval and visibility, as future users of academic databases need a direct and precise correspondence of the selected terms with the content of the paper. "Accurately assigned keywords are the primary consideration to ensure that a scholarly work will be found as intended by the author, as a one-sentence summary of the key points of the research"(Jamwal, 2024).

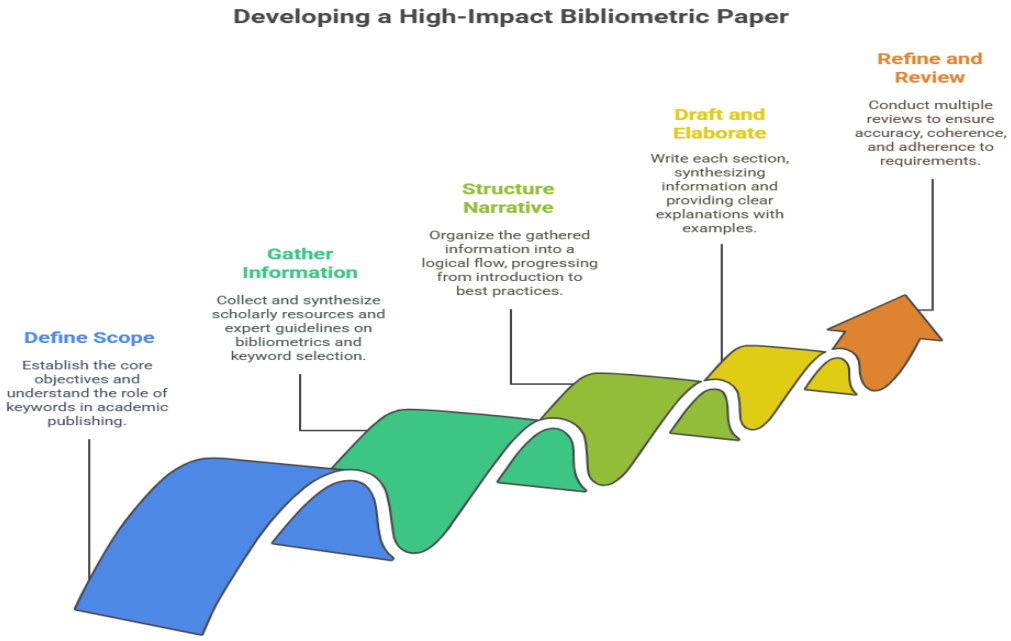

Figure 3 Developing Article steps

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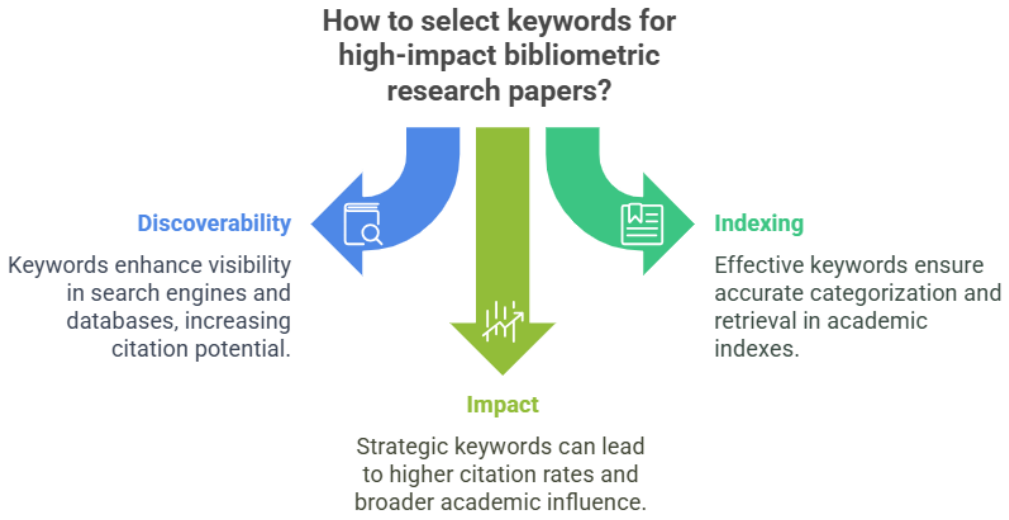

Figure 4 Critical Role of Keywords in Academic Publishing for Discoverability, Indexing, and Impact

The assignment of keywords is a deceptively simple exercise that may have a critical aspect. Even though authors are domain experts, they often lack the understanding that the assignment of keywords is an indexing task that requires a subtle approach to information retrieval systems, not a mere descriptive effort (Silva et al., 2019). "Such a fundamental mismatch can seriously hurt the discoverability of a given paper, which directly affects its possible number of citations and, subsequently, its overall scholarly impact and the academic reputation of its author"(Bradshaw, 2003). In cases where authors are unfamiliar with the indexing process, the keywords they select may not be optimal for machine retrieval, even though they may be very sensitive to humans. "This may result in decreased visibility, subsequently decreasing citation possibilities and hence the perceived influence and possibilities to procure funds of the author and paper"(Desai et al., 2021). Valuable research may be lost in large academic databases without a skilled keyword approach.

4. Understanding Keyword Functionality in Academic Publishing:

An excellent keyword choice depends on a clear concept of how diverse forms of keywords operate in academic publications and information retrieval systems. This section outlines the main differences and discusses his central role as well as the most common opportunities and problems.

4.1. Distinction Between Author-Assigned (Natural Language) Keywords and Controlled Vocabulary/Indexing Terms

Academic publishing Keywords in scholarly publishing typically include natural language and controlled vocabulary terms.

a) "Natural Language Keywords are terms that the author of the publication arbitrarily assigns, and their vocabulary is not controlled externally"(Murphy et al., 2003). The authors carefully chose what they felt was the best representation of their content. "However, although intuitive, free selection is not standardised in any way and is left to individual judgment"(Andrews & Lo, 2012). These keywords are usually captured in institutional repositories with no vocabulary control, which results in spelling,

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capitalization, or singular/plural variations that are not usually standardized or treated (Westell, 2006). To illustrate, one paper refers to the concept of family business, and "another refers to family firms, and both concepts describe the same idea, which requires data cleaning in further analyses"(Zhu & Wu, 2011)

b) Controlled Vocabulary/Indexing Terms: "On the contrary, these are standardized according to a keyword selection language"(Pu & Yu, 2008). Professional indexers assign these terms following a subject analysis of the textual content, which is consistent and precise throughout a database.

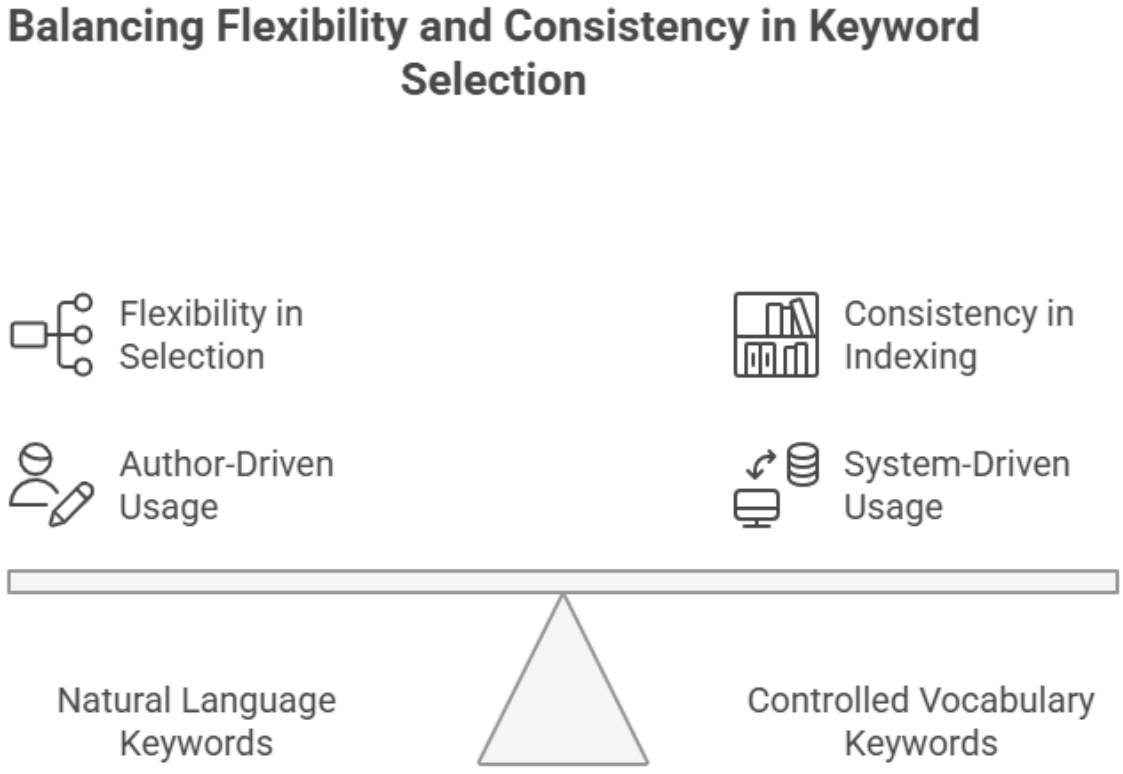

Figure 5 Balancing Keyword Selection

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Academic indexing systems inherently create tensions between the author's freedom to express themselves using natural language and the requirements of the system that require standardized controlled vocabularies. Many authors report problems locating representative terms in controlled vocabularies because they do not consider the degree of specificity of the terms used in their studies. "Although natural language keywords can uniquely represent specific, emergent, or interdisciplinary concepts that have not yet been formalized in controlled vocabularies, their non-standardized form may hinder systematic retrieval across multiple academic databases"(Jamwal, 2024). However, such controlled vocabularies can be too strict, in which case they will not cover the frontiers of scientific progress or will require authors to use less specific or conceptually remote terms. Such a dynamic highlights the need for an advanced keyword strategy that balances flexibility and standardization.

Table 1 gives a comparison overview to explain these differences further.

This table is valuable because it addresses the "research material's core conceptual and practical challenge: the inherent tension and disconnect between how authors select keywords and how academic databases index them". A comparative chart between natural language terms and controlled vocabulary terms gives the authors an initial outlook of the two systems. This transparency is needed to enable authors to transcend the subjective assignment of keywords into a more informed and strategic process. This indirectly leads them to think of a hybrid strategy in which the evidence base is complementary and advantageous (Silva et al., 2019). This enables them to make more effective decisions that would maximize both the specificity and overall discoverability of their bibliometric studies.

SN	Characteristic	Natural Language Keywords	Controlled Vocabulary Terms
1	Definition	Terms freely assigned by the author.	Standardised
2	Source of Terms	The author's discretion is to decide the	Professional indexers, subject-specific thesauri (e.g.,
3	Standardisation	Low	High
4	Specificity	High can capture novel, emerging, or	Variables
5	Flexibility	Highly	Low adherence to predefined terms.
6	Primary	Direct content description from	Facilitate precise and comprehensive information retrieval.
7	Impact on Retrieval	Variable	High (for known terms); enables systematic and exhaustive searches.

Table 1 Type of Keywords: Natural Language Keywords Controlled Vocabulary

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4.2. The significance of the Author as a Domain Expert in Choosing Keywords:

Because "authors have extensive knowledge of their research field, they can effectively locate basic concepts that adequately reflect the substantial contents of their texts"(Zhang et al., 2015). They are "professional indexers because they choose the terms explicitly relevant to the subject, object, goal, and the scientific approaches they used in their study"(Lim, 2001). Strategic decisions about their use are usually based on how future users would search for their work, so the conceptual identity between the selected words and the paper's content directly ensures high retrieval effectiveness.

4.3. Challenges and opportunities in assigning keywords to bibliometric studies:

Regardless of the author's professionalism, several obstacles to optimal keyword assignment exist; however, they also reflect the great potential for improvement.

A) Challenges:

i. **Subjectivity and Lack of Guidance:**
The "keyword assignment process is subjective and relies significantly on the author's cognitive ability and knowledge"(Ramalho Correia & Carlos Teixeira, 2005). Moreover, the directions for submitting an article to a "scientific journal or self-archiving system often do not provide clear guidelines on performing subject indexing to assign keywords, which adds to the authors' confusion and inconsistency".

ii. **Specificity Mismatch**
Authors are challenged by finding specific research terms in the existing controlled vocabularies, "prompting them to commonly revert to their choice terms in natural language, often less standardized" (Murphy et al., 2003). This conflict between the detailed information in a paper and the generalized language of indexing systems causes practical conflict.

iii. **Data Cleaning Requirement:**
Because the author's keywords are not standardized, downstream bibliometric analysis directly requires an intensive data cleaning procedure to merge equivalent terms (Passas, 2024). This exemplifies the instant consequences of an inconsistent keyword when applied to a greater scholarly data ecosystem.

B) Opportunities:

i. Increased Findability: Through strategies and wise keyword choices, a paper's visibility in academic databases can be increased exponentially, thereby increasing the number of citations and the overall reach of a scholar.

ii. Expert Knowledge: Authors and domain experts have an unequalled opportunity to determine the most accurate and relevant terms to apply in their work, but only when they have perfect knowledge of the indexing purpose and implications"(Krithara et al., 2023)

iii. Hybrid Approach: "Realizing the complementary nature of natural language and controlled vocabulary terms makes it possible to adopt a hybrid information representation and retrieval system to optimize specificity and standardization towards maximum discoverability"(Janssens et al., 2008).

iv. This is an inherent author advantage of bibliometric studies, as the latter analyses keywords, citations, and publication patterns. With a profound comprehension of the function of keywords in bibliometric analysis (e.g.,

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through co-word analysis or keyword co-occurrence networks), the authors of bibliometric papers can use this knowledge to strategically keyword their papers. As an example, a "popular method in bibliometric studies is the so-called keyword analysis or co-word analysis, and such programs as VOSviewer and ScientoPy are explicitly aimed at creating so-called keyword co-occurrence networks.(Abdollahi et al., 2021) This implies that the authors of bibliometric studies are closely acquainted with the analysis of keywords, their connections are traced, and they indicate thematic clusters. This practical, first-hand understanding of how the process of "bibliometric analysis works gives them a unique opportunity to develop an advantage when choosing their keywords"(Wang & Chai, 2018), which will be most effectively indexed and found by the same or similar analytical operations, otherwise said, they may meta-optimize their publications to be more discoverable and influential in the scholarly ecosystem they are analyzing.

5. Top 5 Categories of Keywords-essential in a Bibliometric Study:

Designing a good keyword strategy in a bibliometric study paper is not a mere description, but a strategy that significantly augments the discoverability of a paper and its academic performance. "According to the essence, main components, and multiple applications of bibliometric analysis, it is possible to determine five general spheres that are crucially important to be considered by the author accurately"(Kumar, 2025). These categories cover methodological rigor, particular analytical methods, thematic emphasis, and practical implications of the study in a comprehensive manner, and hence directly serve indexing and retrieval by interested scholarly communities and optimal exposure of the paper to them.

a) Disciplinary & Methodological Terms:

These keywords define a paper's main scholarly field and indicate its general scientific direction. They play a significant role in preliminary sifting, performed by academic databases, and instant communication of the paper's founding characteristics to prospective readers. Their insertion ensures that the paper is filed under the appropriate sector in the big scheme of information science and research evaluation.

b) Bibliometrics and Scientometrics:

Bibliometrics and Scientometrics are the most basic terms used. "The general domain is bibliometrics. The terms scientometrics are closely related or used interchangeably or as a superset covering the quantitative study of science and scientific communication"(Do Carmo et al., 2022). The bibliometric study carried out in a paper should have the phrase bibliometrics as one of the essential keywords to identify its discipline, including the strategies of "Bibliometrics and Scientometrics, which indicate finer disciplinary awareness. The terms scientometrics and bibliometrics are occasionally used interchangeably. However, scientometrics may have a broader focus on science of science, whereas bibliometrics may have a narrower focus on the literature. By including both, "authors can effectively capture a wider audience interested in the specific literature analysis or the broader quantitative study of scientific output, thus maximising discoverability across closely related scholarly communities"(Borgman, 1989).

c) Bibliometric Analysis:

"This term directly describes the action or type of study being conducted (Rejeb et al., 2023). It emphasizes the practical application of bibliometric principles, clearly indicating the paper's methodological core.

d) Quantitative Analysis:

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Since "bibliometrics is explicitly defined as the "quantitative analysis of published literature"(Lo & Chai, 2012),this term explicitly highlights the methodology's empirical and statistical nature, attracting researchers interested in quantitative research methods.

6. Specific Analytical Techniques:

These keywords provide granular details regarding the specific analytical techniques utilized in the bibliometric study. "This level of methodological specificity is crucial for researchers seeking to replicate findings, compare methodologies, or identify studies employing particular analytical frameworks relevant to their work"(Kumar, 2025). This allows precise filtering by advanced users of academic databases.

a) Performance Analysis and Science Mapping:

"These are consistently identified as the 'two main approaches' or techniques in bibliometric analysis"(Tyagi, 2024). They represent broad categories of bibliometric inquiry, each encompassing various subtechniques.

b) Specific Techniques under Science Mapping and Performance Analysis:

i. **Citation Analysis:** This "fundamental technique involves researching how publications are interrelated through citations to identify key works and trends in a given area"(Darman et al., 2023).

ii. **Co-citation Analysis:** This "technique discovers thematic clusters by identifying connections between frequently co-cited documents, which can indicate significant research themes"(Phan Tan, 2022).

iii. **Bibliographic Coupling:** Investigates links based on documents that share standard references, thereby showing similarities in subject matter (Al-Jedaiah et al., 2024; Litmaps, n.d.).

iv. **Co-word Analysis/ Keyword Co-occurrence Analysis:** This method identifies the simultaneous use of keywords in records to detect relationships between different research topics (Al-Jedaiah et al., 2024; Litmaps, n.d.). This is particularly salient for studies that analyze the keywords themselves.

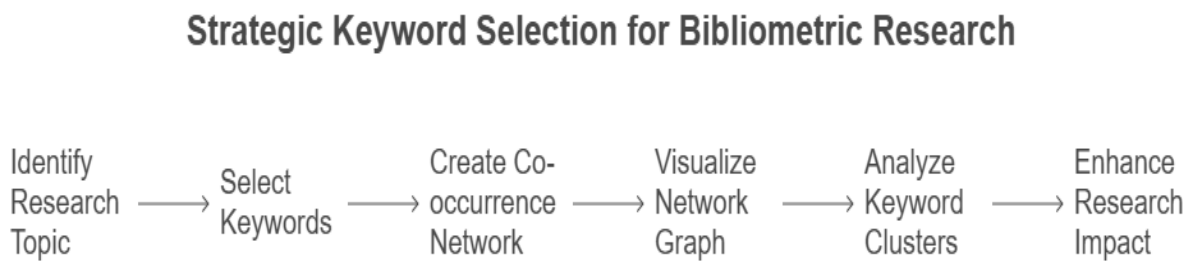

Figure 6 Select Keywords Steps

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7. Co-authorship Analysis:

Allows an investigation into collaborative networks formed between social and institutional researchers through scientific research.

The explicit emphasis on specific analytical techniques implies that authors should move beyond the general term "**bibliometric analysis**" to specify *which* methods were employed. The structured breakdown in the research material, listing main approaches and then specific techniques, strongly signals that mere general terms are insufficient." If a researcher is specifically interested in **Co-word Analysis**, they will search for that term"(Whittaker, 1989). Authors attract a highly relevant audience "by including these precise methodological keywords, increasing the paper's utility for methodological advancements and comparative studies. Furthermore, the increasing sophistication of bibliometric software tools"(Prerana et al., 2023) not only facilitates these detailed analyses, but also necessitates this level of precision in keyword selection, enabling more targeted and valuable search results for methodologists.

A. Key Metrics & Indicators

These keywords highlight the quantitative measures used to assess the research output, impact, or influence. These are critical for studies focused on evaluation, benchmarking, or methodological advancements in bibliometric indicators, allowing readers to quickly ascertain the paper's evaluative framework.

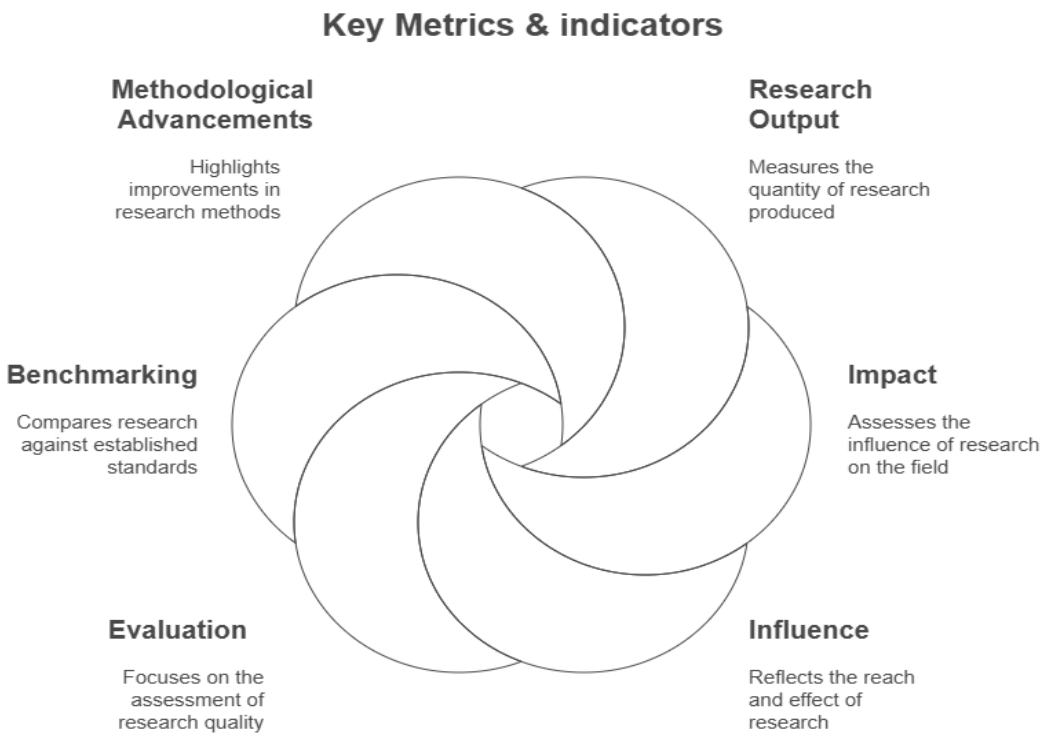

Figure 7 Key Metrics & Indicators

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a) **Citation Counts:** A fundamental and widely used measure of how often a work is referenced by others (EBSCO, 2024; Litmaps, n.d.; De Montfort University Library, 2025).

b) **H-index (Hirsch index):** "A quantitative bibliometric indicator that reflects both an author's productivity and the impact of their publications"(Choudhri et al., 2015).

c) **Impact Factor:** "A qualitative bibliometric indicator specifically for journals"(Revett et al., 2010). Authors should be aware of common misuse and inherent limitations, as approximately 20% of articles contribute to 80% of citations, even in high-impact journals.

d) **Field-Weighted Citation Impact (FWCI):** "This metric normalises citations relative to similar publications (in the same field, type, and age), allowing for fairer comparisons across diverse disciplines"(Raman et al., 2022).

e) **Altmetrics:** This is an alternative bibliometric that tracks the number of referrals, tweets, likes, and shares a publication receives on social media, offering complementary insights into impact beyond traditional citations"(Butler et al., 2017).

f) Other relevant measures are the crown indicator, fractionalization, normalization, self-citation, and the top 5%. Journal-level metrics such as the Eigen Factor Score, SCImago Journal & Country Rank (SJR), Source Normalized Impact per Paper (SNIP), and CiteScore are also important.

A "comprehensive discussion of various metrics, including their definitions, usefulness, and significant limitations"(Villaseñor-Almaraz et al., 2019) reveals a critical nuance: a bibliometric study may not merely *apply these metrics but also critically analyse or compare* them. The repeated warnings about the "misuse" of the Impact Factor and its limitations imply that a bibliometric paper might have a research question beyond simply *using* these metrics to *evaluate* or *critique* them. "If the paper's core contribution are a critical assessment or a comparative study of different metrics, then keywords like "Metric Validation," "Indicator Comparison," or "Responsible Metrics"(Wiechetek & Pastuszak, 2022), would be far more precise and impactful than just listing "H-index" or "Impact Factor." This signals a higher scholarly contribution, appealing to researchers interested in research evaluation methodologies.

B. Research Themes & Application Areas:

These keywords connect bibliometric methodology to a specific domain of knowledge, a particular research question, or a practical problem. This dual focus makes the paper discoverable by researchers within that specific subject area regardless of their expertise in bibliometrics, thereby broadening its potential readership and impact.

General Applications of Bibliometrics:

Tracking research growth, measuring impact, identifying collaboration networks, spotting new trends, and supporting decision making in various contexts.

Specific Themes/Applications Frequently Explored:

a) **Research Trends,** "Emerging Trends: A standard output of bibliometric studies is identifying 'what is hot' or gaining popularity in a field.

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b) **Research Impact**: Assessing the influence and effectiveness of studies and published works.
c) **Research Gaps:** Discovering understudied areas or emerging topics warrant further investigation.
d) **Collaboration Networks:** "Co-authorship Networks," and "Mapping and Analyzing Who Is Working Together Within a Research Community.

e) **Policy and Funding:** Informing government and funding agency decisions and evaluating the impact of funded research programs.

f) **Technology Trends:** Innovation Trends": Identifying emerging technologies and innovation patterns within an industry.

g) **Domain-Specific** Examples from Highly Cited Studies: 'COVID-19 Vaccination, ' 'Public health, ' 'Complex system, ' 'Complexity, ' 'Diabetic retinopathy, ' 'AI in ophthalmology. These examples vividly demonstrate the diverse subject areas in which bibliometrics are applied, from health sciences to computer science and social sciences.

g) **Research Integrity:** 'Questionable Authorship/Affiliation Practices': A more "recent and critical application of bibliometrics involves detecting anomalies in research output that may indicate unethical authorship or affiliation practices"(Meho & Akl, 2025).

h) The extensive and diverse range of application areas for bibliometric analysis underscores that a bibliometric study that is methodologically focused is fundamentally interdisciplinary. The "concrete examples of subject-specific keywords from highly cited studies"(Revett et al., 2010) clearly show that bibliometric studies are not confined to "bibliometrics" as a topic but are applied to other fields. Therefore, the authors must strategically select keywords from the core bibliometric domain and analyze the subject area. This dual focus is paramount for maximizing discoverability by bibliometricians (interested in the method) and domain specialists (interested in the findings for their field), thereby fostering broader engagement, potential for cross-disciplinary citations, and ultimately, greater impact on the research.

C. Tools & Data Sources Utilised:

These keywords are efficient and enable researchers to find studies that utilize specific software tools or datasets with which they are familiar, are learning to use, or are interested in comparison. This category is particularly valuable for methodological replication, tool comparison, and data-source validation, fostering a community of practices around specific technologies.

a) Popular Software Tools:

VOSviewer, CiteSpace, ScientoPy, Biblioshiny, HistCite, CitNetExplorer, BibExcel, and BiblioMagika have all been identified as "popular tools for bibliometric analysis. For instance, VOSviewer is explicitly mentioned for its visualization capabilities. Other tools such as Microsoft Excel, MATLAB, and Origin are also used for data analysis and visualization'(Ruiz-Rosero et al., 2019).

b) Key Data Sources:

The "Web of Science (WoS) Core Collection, Scopus, Google Scholar, and SciVal are frequently cited as primary data sources for bibliometric studies. Clarivate Analytics is also a source of highly cited papers"(Torres-Salinas et al., 2009).

The explicit and "detailed mention of specific bibliometric tools and databases suggests that

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these are not merely procedural details but significant identifiers within the bibliometric research community"(Ullah et al., 2022). Researchers often search for studies that employ a particular tool or dataset to understand its capabilities, explore its application, or compare its results with those of other methods. For example, if a researcher is looking to learn how to use VOSviewer, they may search for papers that *used* VOSviewer. Thus, including these specific tools and data source names as keywords can significantly increase a paper's discoverability among methodologists, tool developers, and data scientists, fostering a specialized community of practices around these technologies.

Table 2 below summarises these five essential keyword categories, providing a concise reference for authors.

SN	Category Name	Description	Example Keywords
1	Core Disciplinary & Methodological Terms	Defines the study's overarching field and broad scientific approach.	Bibliometrics,
2	Specific Analytical Techniques	Details the precise methods employed in the bibliometric study.	Citation Analysis, Co-citation Analysis, Bibliographic Coupling, Co-word Analysis, Co-authorship Analysis, Science Mapping, Performance Analysis, Network Analysis
3	Key Metrics & Indicators	Represents the quantitative measures or evaluative indicators used or discussed.	H-index, Impact Factor, Citation Counts, Field-Weighted Citation Impact,
4	Research Themes & Application Areas	Reflects the specific subject matter or real-world application of the analysis.	Research Trends, Research Impact, Collaboration Networks, Institutional Evaluation, Policy Development, COVID-19, AI in Ophthalmology, Complex Systems
5	Tools & Data Sources	Indicates the specific software or databases central to the study's execution.	VOSviewer, Biblioshyni

Table 2 The Top 5 Keyword Categories for Bibliometric Studies

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This is beneficial in that it further answers the very essence of the question posed by the user ("Top 5 keywords") by providing a structured framework of action that the authors can use to choose keywords. This goes beyond anecdotal recommendations to the systematic. The practice of categorizing keywords allows authors to be sure that they effectively cover the content, methodology, and contribution of their paper and make it as discoverable and relevant to as many members of the scholarly community as possible. Such a systematic process is one of the main lessons that any researcher should take home when working towards publishing with impact.

8. Best Practices in Optimisation of Keyword Selection:

In addition to keyword categorizing, an author needs to follow a few best practices to ensure higher findability and the maximum effect of his or her paper. Such practices are responsive to the peculiarities of indexing systems and audience behavior.

a) Specificity and Breadth:

The author should pursue a balance between keywords that are too narrow and attract only niche audiences (e.g., " diabetic retinopathy" in an AI ophthalmology study) and keywords that are too broad, making the discovery more difficult. The problem of “specificity vs. breadth" is implied when discussing authors who have issues with the lack of specificity in controlled vocabularies (Ng et al., 2021), implying that the authors should consider a layered approach to their keywords. It is a procedure beginning with general disciplinary terms and ending with specific methodological or thematic terms. This reflects how search engines work, from broad to narrow, and ensures that the paper is discovered by researchers who know more or less about the subject.

b) Using Both Author Keywords and Taking into Account the Keywords Plus Ideas:

Author keywords are the direct selection of the author and reminds him/her of the immediate perception of the paper's content (Tomaszewski, 2023). Keywords Plus, in turn, are automatically extracted words, usually based on the titles of cited references in a paper, and represent an orthogonal, machine-predicted view of the thematic relations of the paper. The option "Keywords Plus" signifies that the thematic relevance of a paper is not limited by the conscious decisions made by the author. Authors should review the "Keywords Plus" associated with their work (if available in databases such as Web of Science) or similar highly cited papers to identify additional, machine-inferred relevant terms that might enhance discoverability. This is a form of reverse engineering the indexing process, allowing authors to strategically select their keywords while being mindful of how automated systems might augment their chosen terms.

c) Considering Target Audience and Database Indexing Practices:

Keywords should be chosen with the intended audience in mind, whether they are bibliometricians, domain specialists, policymakers, or industry professionals. Understanding how different academic databases (e.g., Web of Science, Scopus, and Google Scholar) index content and utilize controlled vocabularies (e.g., MeSH, ACM Computing Classification System) is crucial for optimal visibility. Variation in database coverage and indexing practices(Harper & Tillett, 2007) means that a "one-size-fits-all" keyword strategy is insufficient. Authors targeting specific high-impact journals or databases should research the preferred vocabulary or standard search terms within those platforms. This implies a need for tailored keyword sets depending on the publication venue, moving beyond generic advice

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to a more sophisticated, platform-specific optimization. Audience-centric keyword design is an act of empathetic design for information retrieval.

d) The Importance of Consistency and Standardisation:

While author keywords are often not standardized, striving for internal consistency in keyword usage within a paper and across an author's entire body of work can significantly aid in building a coherent research profile and improving discoverability. The necessity of "data cleaning" for non-standardized author keywords in bibliometric studies reveals a critical feedback loop. The people who write “bibliometric papers perform this cleaning and are particularly well-placed to appreciate the downstream impact of variable keyword decisions. This understanding should motivate them to engage in more standardized practices in their publication, enhancing the quality of raw data on which bibliometric analyses can be run”(Schulz, 2016). One of the tasks of data cleaning in bibliometrics is to merge similar terms (e.g., "family business" and "family firm"), which implies that authors should take the initiative to use uniform terminology.

e) Avoiding Jargon Where Possible, or Defining it Clearly:

Technical terms are often required to ensure precision in a particular field. However, too much jargon or insufficient definitions can make interpretation and discovery more difficult, particularly among interdisciplinary readers. The interdisciplinary nature of the field is evidenced by the variety of research topics in bibliometric studies, including computer science and sociology. When keywords are highly specialized, the context should be apparent in the abstract or introduction. This makes it accessible to interdisciplinary influence, so that researchers in related areas can read and interact with the work.

Conclusion:

The process of keyword choice is not formal, and strategies are highly obligatory to maximize visibility, discoverability, and, most importantly, the scholarly impact of bibliometric research articles. By carefully using the five types of keywords suggested by Fernandez-Luna, namely disciplinary foundations, analytical methods, primary metrics, thematic implementations, and tools used, the authors may considerably increase the outreach of their paper in global academia.

The authors of bibliometric studies have the advantage of using their insights into information retrieval and scholarly communication patterns, utilizing keyword strategies. Their experience in analyzing keywords functioning in the framework of bibliometric analysis provides them with the “unique opportunity to succeed in using terms that will be indexed and found most appropriately. Adopting a hybrid solution incorporating the best natural language terms with the requirements of controlled vocabulary and database indexing behaviors will result in greater success in research dissemination”(Murphy et al., 2003). There is also tension between strategies of specificity versus breadth, as well as proactive consistency and standardization.

Finally, carefully selected keywords are practical signposts that can bring relevant readers to proper research and advance their knowledge. Such a thorough consideration of the keyword strategy is helpful to individual authors, as it makes their papers more effective and authoritative. It is a part of the academic ecosystem's health, effectiveness, and integrity, contributing to a more connected and discoverable scholarly record.

References:

1. Tomaszewski, R. (2023). Visibility, impact, and applications of bibliometric software tools through

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citation analysis. Scientometrics, 128(7), 4007–4028. https://doi.org/10.1007/s11192-023-04725-2

2. Wikipedia contributors. (n.d.). Impact factor. In Wikipedia. Retrieved May 30, 2025, from https://en.wikipedia.org/wiki/Impact_factor

3. Zhang, J., Zheng, F., Lu, Z., Duan, Z., Yu, Q., & Long, C. (2015). Comparing keywords plus of WOS and author keywords: A case study of patient adherence research. Journal of the Association for Information Science and Technology, 67(4), 967–972. https://doi.org/10.1002/asi.23437

4. Graf, P. (1995). Substitution tree indexing (pp. 117–131). Springer Berlin Heidelberg. https://doi.org/10.1007/3-540-59200-8_52 Fassin, Y. (2021). Research on Covid-19: a disruptive phenomenon for bibliometrics. Scientometrics, 126(6), 5305–5319. https://doi.org/10.1007/s11192-021-03989-w

5. Ruscio, J. (2016). Taking Advantage of Citation Measures of Scholarly Impact. Perspectives on Psychological Science, 11(6), 905–908. https://doi.org/10.1177/1745691616664436

6. Matorevhu, A. (2024). Bibliometrics: Application Opportunities and Limitations. intechopen. https://doi.org/10.5772/intechopen.1005292

7. Tyagi, S. (2024). Bibliometric analysis and scientific mapping of research trends on 'digital divide.' Global Knowledge, Memory and Communication. https://doi.org/10.1108/gkmc-10-2023-0376

8. Menaka, S., & Selvam, V. (2025). Bibliometric Analysis of Artificial Intelligence on Consumer Purchase Intention in E-Retailing. International Journal of Computational and Experimental Science and Engineering, 11(1). https://doi.org/10.22399/ijcesen.1007

9. Li, H., Han, Z., Wu, H., Musaev, E. R., Lin, Y., Li, S., Makatsariya, A. D., Chekhonin, V. P., Ma, W., & Zhang, C. (2025). Artificial intelligence in surgery: evolution, trends, and future directions. International Journal of Surgery (London, England), 111(2), 2101–2111. https://doi.org/10.1097/js9.0000000000002159

10. Yenişehir, S. (2024). Artificial intelligence based on falling in older people: A bibliometric analysis. AGING MEDICINE, 7(2), 162–170. https://doi.org/10.1002/agm2.12302

11. Joseph, J., & Rajan, S. K. (2024). Evolution of Single-Session Therapy: A Bibliometric Analysis. American Journal of Psychotherapy, 77(2), 71–78. https://doi.org/10.1176/appi.psychotherapy.20230054

12. Moed, H. F. (2009). New developments in the use of citation analysis in research evaluation. Archivum Immunologiae et Therapiae Experimentalis, 57(1), 13–18. https://doi.org/10.1007/s00005-009-0001-5

13. Zhang, Y., Porter, A. L., Newman, N., Chiavetta, D., & Cunningham, S. (2020). Parallel or Intersecting Lines? Intelligent Bibliometrics for Investigating the Involvement of Data Science in Policy Analysis. IEEE Transactions on Engineering Management, 68(5), 1259–1271. https://doi.org/10.1109/tem.2020.2974761

14. Mejia, C., Kajikawa, Y. (2017). Using acknowledgement data to characterize funding organizations by the types of research sponsored: the case of robotics research. Scientometrics 114(3), 883–904. https://doi.org/10.1007/s11192-017-2617-2

15. Medelyan, O., & Witten, I. H. (2008).Domain-independent automatic keyphrase indexing with small training sets. Journal of the American Society for Information Science and Technology, 59(7), 1026–1040. https://doi.org/10.1002/asi.20790

16. Fadlalla, A., & Amani, F. (2015). A keyword-based organizing framework for ERP intellectual contributions. Journal of Enterprise Information Management, 28(5), 637–657. https://doi.org/10.1108/jeim-09-2014-0090

17. Onyancha, O. B. (2018). Forty-Five Years of LIS Research Evolution, 1971–2015: An Informetrics Study of the Author-Supplied Keywords. Publishing Research Quarterly, 34(3), 456–470. https://doi.org/10.1007/s12109-018-9590-3

18. Roldan-Valadez, E., Orbe-Arteaga, U., & Rios, C. (2018). Eigenfactor score and alternative bibliometrics surpass the impact factor in a 2-years ahead annual-citation calculation: a linear mixed design model analysis of Radiology, Nuclear Medicine and Medical Imaging journals. La

Radiologia Medica, 123(7), 524–534. https://doi.org/10.1007/s11547-018-0870-y

19. Brown, T. (2011). Journal Quality Metrics: Options to Consider Other Than Impact Factors. The American Journal of Occupational Therapy, 65(3), 346–350. https://doi.org/10.5014/ajot.2011.001396

20. Teixeira Da Silva, J. A., & Memon, A. R. (2017). CiteScore: A cite for sore eyes, or a valuable, transparent metric? Scientometrics, 111(1), 553–556. https://doi.org/10.1007/s11192-017-2250-0

21. Butler, J. S., Schroeder, G. D., Vaccaro, A. R., Wagner, S. C., Kaye, I. D., Morrissey, P. B., Kepler, C. K., & Sebastian, A. S. (2017). The Evolution of Current Research Impact Metrics: From Bibliometrics to Altmetrics? Clinical Spine Surgery: A Spine Publication, 30(5), 226–228. https://doi.org/10.1097/bsd.0000000000000531

22. Ruiz-Rosero, J., Ramirez-Gonzalez, G., & Viveros-Delgado, J. (2019). Software survey: ScientoPy, a scientometric tool for topics trend analysis in scientific publications. Scientometrics, 121(2), 1165–1188. https://doi.org/10.1007/s11192-019-03213-w

23. Ullah, R., Asghar, I., & Griffiths, M. G. (2022). An Integrated Methodology for Bibliometric Analysis: A Case Study of Internet of Things in Healthcare Applications. Sensors, 23(1), 67. https://doi.org/10.3390/s23010067

24. Chaudhari, P. B., & Banga, A. (2023). Writing strategies for improving the access of medical literature. World Journal of Experimental Medicine, 13(3), 50–58. https://doi.org/10.5493/wjem.v13.i3.50

25. Jamwal, K. (2024). Boosting data findability: The role of AI-enhanced keywords. IASSIST Quarterly, 48(4). https://doi.org/10.29173/iq1127

26. Bradshaw, S. (2003). Reference Directed Indexing: Redeeming Relevance for Subject Search in Citation Indexes (pp. 499–510). springer berlin heidelberg. https://doi.org/10.1007/978-3-540-45175-4_45

27. Desai, T. A., Eniola-Adefeso, O., Stevens, K. R., Imoukhuede, P., & Vazquez, M. (2021). Perspectives on disparities in scientific visibility. Nature Reviews Materials, 6(7), 556–559. https://doi.org/10.1038/s41578-021-00329-5

28. Murphy, L. S., Dickerson, V. M., Reinsch, S., Seffinger, M. A., Najm, W. I., Mishra, S. I., & Adams, A. (2003). Searching biomedical databases on complementary medicine: the use of controlled vocabulary among authors, indexers and investigators. In BMC Complementary and Alternative Medicine (Vol. 3, Issue 1). Springer Nature. https://doi.org/10.1186/1472-6882-3-3

29. Andrews, S., & Lo, S. (2012). Not all skilled readers have cracked the code: Individual differences in masked form priming. Journal of Experimental Psychology: Learning, Memory, and Cognition, 38(1), 152–163. https://doi.org/10.1037/a0024953

30. Westell, M. (2006). Institutional repositories: proposed indicators of success. Library Hi Tech, 24(2), 211–226. https://doi.org/10.1108/07378830610669583

31. Zhu, H., & Wu, H. (2011). Quality of data standards: framework and illustration using XBRL taxonomy and instances. Electronic Markets, 21(2), 129–139. https://doi.org/10.1007/s12525-011-0060-4

32. Pu, K. Q., & Yu, X. (2008). Keyword query cleaning. Proceedings of the VLDB Endowment, 1(1), 909–920. https://doi.org/10.14778/1453856.1453955

33. Lim, J.-H. (2001). Building Visual Vocabulary for Image Indexation and Query Formulation. Pattern Analysis & Applications, 4(2–3), 125–139. https://doi.org/10.1007/pl00014574

34. Ramalho Correia, A. M., & Carlos Teixeira, J. (2005). Reforming scholarly publishing and knowledge communication. Online Information Review, 29(4), 349–364. https://doi.org/10.1108/14684520510617802

35. Passas, I. (2024). Bibliometric Analysis: The Main Steps. Encyclopedia, 4(2), 1014–1025. https://doi.org/10.3390/encyclopedia4020065

36. Krithara, A., Paliouras, G., Mork, J. G., & Nentidis, A. (2023). The road from manual to automatic semantic indexing of biomedical literature: a 10 years journey. Frontiers in Research Metrics and Analytics, 8. https://doi.org/10.3389/frma.2023.1250930

37. Janssens, F., De Moor, B., & Glänzel, W. (2008). A hybrid mapping of information science. Scientometrics, 75(3), 607–631. https://doi.org/10.1007/s11192-007-2002-7

38. Abdollahi, A., Mostafa, M. M., Zailani, S., Rejeb, A., & Rejeb, K. (2021). Wireless Sensor Networks in Agriculture: Insights from Bibliometric Analysis. Sustainability, 13(21), 12011. https://doi.org/10.3390/su132112011

39. Wang, M., & Chai, L. (2018). Three new bibliometric indicators/approaches derived from keyword analysis. Scientometrics, 116(2), 721–750. https://doi.org/10.1007/s11192-018-2768-9

40. Kumar, R. (2025). Bibliometric Analysis: Comprehensive Insights into Tools, Techniques, Applications, and Solutions for Research Excellence. Spectrum of Engineering and Management Sciences, 3(1), 45–62. https://doi.org/10.31181/sems31202535k

41. Do Carmo, G., Da Silva, C. A., De Castro Alcântara, V., Do Prado, J. W., & Felizardo, L. F. (2022). The impact of Jürgen Habermas's scientific production: a scientometric review. Scientometrics, 128(3), 1853–1875. https://doi.org/10.1007/s11192-022-04625-x

42. Borgman, C. L. (1989). Bibliometrics and Scholarly Communication. Communication Research, 16(5), 583–599. https://doi.org/10.1177/009365089016005002

43. Rejeb, A., Rejeb, K., Kayikci, Y.,Appolloni, A., & Treiblmaier, H. (2023). Mapping the knowledge domain of green procurement: a review and bibliometric analysis. Environment, Development and Sustainability, 26(12), 30027–30061. https://doi.org/10.1007/s10668-023-03948-w

44. Lo, Q.-Q., & Chai, K.-H. (2012). Quantitative analysis of quality management literature published in total quality management and business excellence (1996–2010). Total Quality Management & Business Excellence, 23(5–6), 629–651. https://doi.org/10.1080/14783363.2012.669553

45. Darman, D., Judijanto, L., Putra, A. S. B., & Harsono, I. (2023). Bibliometric Analysis of Human Resource Development: Trends, Research Focuses, and Recent Developments. West Science Journal Economic and Entrepreneurship, 1(11), 329–338. https://doi.org/10.58812/wsjee.v1i11.373

46. Phan Tan, L. (2022). Bibliometrics of social entrepreneurship research: Cocitation and bibliographic coupling analyses. Cogent Business & Management, 9(1). https://doi.org/10.1080/23311975.2022.2124594

47. Whittaker, J. (1989). Creativity and Conformity in Science: Titles, Keywords and Co-word Analysis. Social Studies of Science, 19(3), 473–496. https://doi.org/10.1177/030631289019003004

48. Prerana, P., Kapoor, D., & Jain, A. (2023). Sustainable tourism and its future research directions: a bibliometric analysis of twenty-five years of research. Tourism Review, 79(3). https://doi.org/10.1108/tr-11-2022-0540

49. Choudhri, A. F., Khan, N. R., Siddiqui, A., & Cohen, H. L. (2015). Understanding bibliometric parameters and analysis. RadioGraphics, 35(3), 736–746. https://doi.org/10.1148/rg.2015140036

50. Revett, K., Sirlantzis, K., & Deravi, F. (2010). Biosignals for User Authentication - Towards Cognitive Biometrics? 71–76. https://doi.org/10.1109/est.2010.32

51. Raman, R., Achuthan, K., Nair, V. K., & Nedungadi, P. (2022). Virtual Laboratories- A historical review and bibliometric analysis of the past three decades. Education and Information Technologies, 27(8), 11055–11087. https://doi.org/10.1007/s10639-022-11058-9

52. Villaseñor-Almaraz, M., Roldan-Valadez, E., Islas-Serrano, J., & Murata, C. (2019). Impact factor correlations with Scimago Journal Rank, Source Normalized Impact per Paper, Eigenfactor Score, and the CiteScore in Radiology, Nuclear Medicine & Medical Imaging journals. La Radiologia Medica, 124(6), 495–504. https://doi.org/10.1007/s11547-019-00996-z

53. Wiechetek, Ł., & Pastuszak, Z. (2022). Academic social networks metrics: an effective indicator for university performance? Scientometrics, 127(3), 1381–1401. https://doi.org/10.1007/s11192-021-04258-6

54. Meho, L. I., & Akl, E. A. (2025). Using bibliometrics to detect questionable authorship and affiliation practices and their impact on global research metrics: A case study of 14 universities. Quantitative Science Studies, 6, 63–98. https://doi.org/10.1162/qss_a_00339

ISSN(online): 2582-659X

55. Torres-Salinas, D., Ruiz-Pérez, R., & Delgado-López-Cózar, E. (2009). Google Scholar como herramienta para la evaluación científica. El Profesional de La Informacion, 18(5), 501–510. https://doi.org/10.3145/epi.2009.sep.03

56. Ng,W. Y., Ong, C. J. T., Zhang, S., Lim, G. Y. S., Wang, Z., Rim, T. H., Tan, S. C. Y., Ting, D. S. W., Tan, G. S. W., Gunasekeran, D. V., Schmetterer, L., & Zheng, F. (2021). Updates in deep learning research in ophthalmology. Clinical Science, 135(20), 2357–2376. https://doi.org/10.1042/cs20210207

57. Harper, C. A., & Tillett, B. B. (2007). Library of Congress Controlled Vocabularies and Their Application to the Semantic Web. Cataloging & Classification Quarterly, 43(3–4), 47–68. https://doi.org/10.1300/j104v43n03_03

58. Schulz, J. (2016). Using Monte Carlo simulations to assess the impact of author name disambiguation quality on different bibliometric analyses. Scientometrics, 107(3), 1283–1298. https://doi.org/10.1007/s11192-016-1892-7

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