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APPLICATION OF INTERNATIONAL SCIENTOMETRIC DATABASES IN THE PROCESS OF TRAINING COMPETITIVE RESEARCH AND TEACHING STAFF: OPPORTUNITIES OF WEB OF SCIENCE (WOS), SCOPUS, GOOGLE SCHOLAR

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ABSTRACT

Currently, the importance of bibliographic databases (DBs) has increased significantly, as they are the main providers of publication metadata and bibliometric indicators used for both research evaluation and research. Since the reliability of these tasks primarily depends on the data source, all DBs users should be able to choose the most appropriate one. Web of Science (WoS), Scopus, and Google Scholar are the main bibliographic databases. The aim of the study is to analyze the capabilities of Web of Science (WOS), Scopus, Google Scholar, as well as to characterize the use of international scientometric databases in the process of training competitive research and teaching staff. Methods. The research is based on systematic and comparative analysis, dialectical methods, as well as methods of classification, generalization, and comparison. Results. Web of Science (WoS), Scopus, and Google Scholar (DBs) databases are still the main and most complete sources of publication metadata and impact metrics. It is shown that Scopus provides a broader and more comprehensive coverage of content. For the second reason, the availability of individual profiles for all authors, institutions, and serial sources, as well as the interconnected DB interface, make Scopus more user-friendly for practical use. Conclusions. A comparative study of publications, citations, and the h-index among 146 scientists from five major disciplines showed a consistent and fairly stable increase in both publications and citations in Web of Science, Scopus, and Google Scholar. This suggests that all three databases provide sufficient coverage stability to be used for more detailed interdisciplinary comparisons. But, it is concluded, that Scopus is better suited for investigators and day-to-day tasks for several reasons.
Keywords: *Scientometric Databases, Metadata, Publications, Citations, Scientific Research*

1. INTRODUCTION

The first scientific citation indices were developed by the Institute for Scientific Information (ISI). The Science Citation Index (SCI) was introduced in 1964 and was later joined by the Social Sciences Citation Index (1973) and the Arts and Humanities Citation Index (1978). In 1997, these citation indices were moved to the Internet under the name Web of Science. Recently, these citation indices, along with some new ones such as the Conference Proceedings Citation Index, the Book Citation Index, and the New Sources Citation Index, were renamed the Web of Science Core Collection (now WoS). The availability of these data was important for the development of quantitative research[1].

In November 2004, two new academic bibliographic data sources containing citation data were launched. Like WoS, Elsevier's Scopus is a subscription-based database with a selective approach to indexing documents (documents from a pre-selected list of publications). A few weeks after Scopus, the Google Scholar search engine was launched. Unlike WoS and Scopus, Google Scholar takes a comprehensive and automated approach, indexing any seemingly academic document that its scanners can find and access online, including those behind paywalls, in deals with their publishers[2]. In addition, access to Google Scholar is free, allowing users free access to a comprehensive and interdisciplinary citation index.

Microsoft launched Microsoft Academic Search in 2006 but discontinued it in 2012 [3]. In 2016, Microsoft launched a new platform called Microsoft Academic, based on Bing's web-scanning infrastructure. Like Google Scholar, Microsoft Academic is a free academic search engine, but unlike Google Scholar, Microsoft Academic facilitates mass access to its data through an application programming interface(API) [4].

In 2018, Digital Science launched Dimensions Database [5]. Dimensions use a freemium model in which basic search and browsing features are free, but advanced features such as API access require a fee. This fee may be waived for non-commercial research projects.

Also in 2018, OpenCitations, an open research infrastructure organization, released the first version of its COCI (OpenCitations Index of CrossRef open DOI-to-DOI) data set. The COCI citation data are taken from literature lists open to CrossRef [6]. Until 2017, most publishers did not publish these citations, but the Open Citation Initiative (I4OC), launched in April 2017, has since convinced many publishers to do so. The rationale is that citation data should be considered part of the public domain and should not only be in the hands of commercial entities[7]. As of this writing, 59% of the 47.6 million articles with citations posted on CrossRef are openly cited. However, some major publishers such as Elsevier, the American Chemical Society, and the IEEE have not yet agreed to open their reference lists. Thus, COCI only partially reflects the citation relationships of papers registered in CrossRef, currently covering more than 106 million entries [8].

New sources of bibliographic data are changing the landscape of literature search and bibliometric analysis. The publicly available data in Microsoft Academic Graph (MAG) has been integrated into other platforms, greatly extending its reach. This openness, however, is a step forward from the previous situation where most citation data was either unavailable (WoS, Scopus) or free, but with significant restrictions on access (Google Scholar) Now citation data is beginning to spread everywhere, and also the owners of closed bibliographic sources such as Scopus are beginning to offer researchers options for free access to their data.

Other citation indices have been developed in various academic platforms, but they are not analyzed in this study for various reasons:

1. Pennsylvania State University's CiteSeerX indexes documents on the public web, not those that can only be found by paid screens[9].

2. ResearchGate generates its own citation index based on full-text documents that its search engine finds online and those that its users upload to the platform. However, the platform does not offer a way to retrieve the data en masse, and it is difficult to use a Web search to retrieve the data because a full list of citations to an article cannot easily be reflected.

3. Lens.org combines coverage with Microsoft Academic, CrossRef, PubMed, and a number of patent data sets. It is not included in this analysis because its two main sources (Microsoft Academic and CrossRef) are already included.

4. Semantic Academic initially specialized in computer science and engineering. It later expanded to include biomedicine, and the interdisciplinary scope of Microsoft Academic has recently been integrated (which is also the reason why we decided not to analyze it).

There are also several regional or thematic citation indices indexing only papers published by journals and/or researchers working in a particular country or region or on particular topics. Given their specific coverage, they are not easily comparable with sources with global and/or interdisciplinary coverage. So, the main goal of the paper is to indicate the perspectives of using of scientific citation indices and offer the most common one.

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2. LITERATURE REVIEW

Document coverage depends on data sources, and studies that analyze differences in coverage can inform potential users about the completeness of each database across subject areas. Regarding citation indices, greater coverage should be equated with higher citation counts for documents if citations can be taken from all documents.

Coverage is not the only important aspect to consider when deciding which data source to use for a particular information need (e.g., literature search, data for bibliometric analysis). Other aspects, such as the functionality of data retrieval, analysis, and export, as well as transparency and cost, are also important but are not analyzed here. Some of these aspects are analyzed in the paper[10].

Many studies have analyzed differences in coverage and citation data between WoS, Scopus, and Google Scholar. WoS covers more than 75 million records in its main collection (which includes the main citation indexes) and up to 155 million records when other regional and subject citation indexes are included [1]. Scopus claims to cover more than 76 million records [12]. Google Scholar does not disclose official data on its coverage [2], but recent independent studies have shown that it covers more than 300 million records [10, 12]. At the moment, most studies agree that Google Scholar has a more comprehensive coverage than Scopus and WoS and includes the vast majority of covered documents. However, the relatively low quality of the metadata available in Google Scholar and the difficulty of extracting them make it difficult to use Google Scholar data in the bibliometric analysis[12, 13, 14, 15, 16].

Since the advent of Scopus, studies of its completeness and validity comparing it to the WoS, the "gold standard" for bibliometric use, have become a major theme in the scientometric literature.

Because completeness of content coverage is the most important criterion to evaluate when choosing the most appropriate data source for all intended purposes, this feature of WoS, Scopus, and Google Scholar has been investigated most thoroughly. Most of the early empirical comparisons focused mainly on overall content coverage and overlap between databases or other data sources, as well as statistics derived from these databases, to determine the validity of these data sources for bibliometric analysis and research evaluation. The main findings of these studies have been discussed repeatedly in literature reviews of research papers [17 - 22]. However, while these studies provide insight into the essential functions and differences of the major DBs, given their constant expansion and continuous improvement, the conclusions presented in these works, especially those focused on the actual data and performance of DBs, are likely outdated today and therefore cannot be considered fully reliable [23].

Content coverage can be evaluated from different perspectives, such as total coverage of indexed sources, references, disciplines and subject areas, document types, non-English and regional literature, duplication of content, quality, etc. In all cases, the most accurate assessment of DBS content coverage and quality can only be achieved through careful large-scale analysis, which requires enormous effort, adequate competence, and is extremely time-consuming [24]. Accordingly, even recent studies published in the last five years have mainly focused on one or a few specific aspects, mostly related to content coverage. At the same time, many other features of DBs, such as data quality or additional features of DBs and their practical use, which can also affect the suitability of DBs for a specific task, have usually been mentioned only briefly.

An empirical comparison was made of the total coverage of WoS journal titles and Scopus DBs [25]. The authors compared the coverage of Scopus and WoS CC journal titles with the Ulrich periodicals database, also analyzing them in terms of disciplines, countries, and languages. Another study compared journal coverage and relationships in Scopus and WoS (only indexes included in the JCR) using a network of aggregated citation relationships between journals [26]. However, both of these studies looked only at journal coverage, while coverage of other important source types, such as books and conference proceedings, were not included.

More recently, several large-scale empirical comparisons of the coverage of WoS and Scopus DBs have been made at the publication level. One of them compared the WoS and Scopus coverage of all papers published in 2018 by language and discipline [27]. In addition, differences in the distribution of publications in non-English languages by discipline were also assessed separately. Another study conducted a criteria-based assessment of WoS and Scopus content coverage, comparing coverage by a number of publications. Coverage was assessed in terms of areas of research, types of publications, and representation of selected institutions. In addition, WoS coverage was analyzed separately for all the major indexes that make up the WoS CC. However, the study was limited to evaluating the coverage of Norwegian scientific production in the studied DBs[28].

Two other studies also focused on the differences in the coverage of regional literature in WoS and Scopus. One of them analyzed the coverage of Mexican journals and the differences in their rankings in four impact indicators of journals [29]. Meanwhile, another study compared the coverage of scientific production in WoS and Scopus [30]. Both of these studies also assessed changes in coverage over time.

As the number of available sources of bibliographic data continues to increase, bibliographic databases continue to be actively compared. Accordingly, along with WoS, Scopus, and Google Scholar, one or more additional data sources have often been investigated. However, due to the increasing volume of data from multiple sources, even the most recent large-scale comparisons have also focused more on specific characteristics only. One involved a detailed bibliographic comparison between WoS, Scopus, and MA at the institutional level with a manual analysis of 15 universities [30]. Although the study included all types of documents, publications were compared with Digital Object Identifiers (DOIs), which may have affected the accuracy of determining differences in coverage. Another study looked at correlations and differences in scientific metrics between WoS, Scopus, GS, and ResearchGate [31]. However, the study was limited to the field of pharmacy. Another study examined six bibliographic data sources (Scopus, WoS, GS, Dimensions, Crossref, and MA), comparing them to publications and citations. Although comparisons were made from two different perspectives, evaluating the records of one academic and six leading business and economics journals; also highlights the limited scope of the study[32]. Meanwhile, the same data sources (except GS) were also analyzed in a large-scale study, where each source was compared in pairs to Scopus. However, the ESCI and BKCI WoS CC indexes were not included in the study, which may have resulted in inaccurate estimates of coverage by discipline, language, and document type.

Since both WoS, Scopus, and Google Scholar include citations for each publication they cover, another approach often used to assess content coverage is to compare the number of citations obtained from DBs based on the fact that DBs only collect citations from indexed documents. Thus, better coverage should result in higher citation counts. Several recent large-scale studies have evaluated citation coverage (document citations) for a selected sample of publications indexed by all data sources studied. The authors conducted three analyses based on a sample of 2,515 source documents from classic Google Scholar articles published in 2006. In the first study, the authors compared the coverage, overlap, and a number of citations of highly cited documents between GS, WoS, and Scopus, seeking to determine the extent to which the choice of data source might influence bibliometric performance based on highly cited documents [14]. Two subsequent studies mainly compared coverage and citation matching between data sources [33, 34]. In the latter study, the scope of the analysis was expanded by adding three additional data sources (MA, Coci OpenCitations, and Dimensions) and by including the ESCI backfile in the WoS CC evaluation. A similar approach has been used in several other studies to evaluate content [35]. Meanwhile, other articles that used citations were more focused on the number of citations and differences in citation-based rankings from WoS and Scopus[36-38].

However, while it cannot be argued that completeness of coverage is necessary for any task, data quality is also very important, especially when performing bibliometric analysis. Therefore, the general frequencies and types of errors occurring in both DBs have also been intensively studied [38, 39]. Meanwhile, some authors have discussed more specific flaws in DBs, such as inconsistencies in journal coverage [40], accuracy of subject classification schemes, missing citation information or citation references, incorrect and missing DOI numbers, repeated entries, and inconsistent publication dates.

As publication and citation data have become increasingly important for accessing the results of individual authors and institutions, several studies have focused on the accuracy and applicability of author and institution information provided in WoS, Scopus, and Google Scholar.

The aim of the study is to analyze the capabilities of Web of Science (WOS), Scopus, Google Scholar, and to characterize the application of international scientometric databases in the training of competitive science educators.

3. METHODS

A sample method of research was used in the work. The sample consists of 146 assistant

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professors and full professors at Taras Shevchenko National University of Kyiv, Ukraine. Limiting the sample to one university allows us to control for extrinsic variability and thus focus on the differences between the three databases. Moreover, Taras Shevchenko National University of Kyiv demonstrates outstanding achievements in most of the disciplines examined in this paper. This raises the possibility that any interdisciplinary differences identified in the study are due to differences in database coverage rather than differences in academic performance. The ability to provide reliable comparisons between disciplines is exacerbated by the fact that this university has very formalized, standardized, and centralized internal promotion procedures. Two-thirds of the faculty in the sample has undergone at least two internal promotions, while only 18% have been assigned to their current level from outside the university.

Two associate professors and two professors were selected from all 37 disciplines represented at the Taras Shevchenko National University of Kyiv. Although the university represents a very wide range of disciplines, it has a relatively strong focus on the natural sciences and is also traditionally strong in economics and business. Consequently, these disciplines may have a greater presence in the sample than, for example, the social and political sciences, which combine sociology, anthropology, geography, and political science. The grouping of disciplines into major disciplinary areas is ambiguous. However, the study included a wide variety of disciplines within each major disciplinary branch, which increased confidence in the results.

Subsequently, the 37 disciplines were grouped into five major disciplinary areas:

1. Humanities: Architecture, Construction, and Planning; Culture and Communication; History; Languages and Linguistics, Law (19 observations),

2. Social sciences: accounting and money; economics; education; management and marketing; psychology; social and political sciences (24 observations),

3. Engineering: Chemical and Biomolecular Engineering; Computer and Information Systems; Electrical and Electronics Engineering, Infrastructure Engineering, Mechanical Engineering (20 observations),

4. Natural Sciences: Botany; Chemistry, Earth Sciences; Genetics; Earth and Environment; Mathematics; Optometry; Physics; Veterinary Medicine; Zoology (44 observations),

5. Life sciences: anatomy and neurology; audiology; biochemistry and molecular biology; dentistry; obstetrics and gynecology; ophthalmology; microbiology; pathology; physiology; public health (39 observations).

A total of 56.2% of the sample were men. Table 1 presents descriptions of our sample. On average, scholars published for 22 years at the associate professor level and for 29 years at the full professor level. The number of publications and citations in the sample varied greatly, as did the h-index and hla Index, and included scholars who did not have citations in Web of Science or Scopus (all scholars had citations in Google Scholar).

The data sources used in this article are Web of Science, Scopus, and Google Scholar. Web of Science has long been considered the “gold standard” for citation analysis and, until 2004, was the only data source available. Scopus and Google Scholar are now well established, are an alternative to Web of Science, and are used in many international rankings of universities.

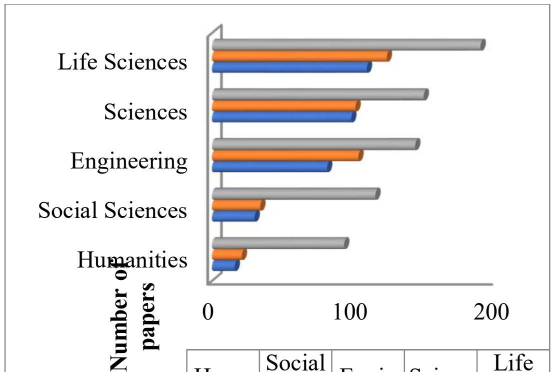
Table 1: Descriptive statistics: years active, of papers and citations, h-index and hIa index for 146 academics

	Minimum	Maximum	Mean	Std. Deviation
WoS Years active	3	47	23.84	9.016
Scopus Years active	5	46	23.69	8.969
GS Years active	8	46	25.64	8.086
WoS Total of papers	3	309	77.25	64.346
Scopus Total of papers	3	309	86.37	68.304
GS Total # of papers	22	519	147.46	97.799
WoS Total of citations	0	11287	1871.68	2238.092
Scopus Total of citations	0	11740	1978.27	2179.222
GS Total # of citations	58	16507	3290.88	3122.853
WoS h-index	0	54	18.91	13.188
Scopus h-index	0	48	16.92	10.920
GS h-index	3	65	26.06	13.185
WoS hIa index	.00	1.07	.3623	.18991
Scopus hIa index	.00	1.11	.4075	.19075
GS hIa index	.05	1.75	.5757	.26238

4. RESULTS

The paper compares three databases (Google Scholar, Scopus, and Web of Science) with five major research disciplines: humanities, social sciences, engineering, natural sciences, and life sciences. The data used for comparison, i.e., 2020 data. A comparison of the average number of articles per academic per discipline (Figure 1) shows that Scopus has a higher number of articles than Web of Science for all disciplines, but the difference is greatest for engineering. The number of articles in Google Scholar is significantly higher than in Web of Science and Scopus for each discipline. However, the differences are especially large for the social sciences and humanities, where Google Scholar reports 3-4 times as many articles as the other two databases.

A significant number of additional articles found by Google Scholar are what are commonly referred to as “accidental citations,” where minor differences in citations result in duplicate entries for the same article. This is especially true in disciplines with publications that do not have the traditional format of journal articles, such as books, software, and conference proceedings. Citation norms are less clear for these types of publications, often resulting in multiple entries for the same publication. Consequently, unless individual academy records are manually cleaned up and random citations are combined, you should not place too much value on the actual number of articles in Google Scholar, since many of these “articles” may be duplicate entries with one or two citations.



	Humanities	Social Sciences	Engineering	Sciences	Life Sciences
Google Scholar	93	115	143	149	189
«Scopus	21	34	103	101	123
Web of Science	16	30	81	98	109

Figure 1. The average number of papers per academic across five disciplines and three data-bases, 2020

Therefore, a more meaningful comparison is a comparison of the average number of citations per academic per discipline (Fig. 2). In terms of citations, Scopus reports higher levels than Web of Science in all disciplines, except the natural sciences, where its citation levels are somewhat lower. Its publication and citation coverage by 1996 is still lower than that of Web of Science, but, as noted above, Scopus has begun a large-scale expansion program in this regard. Google Scholar outperforms Scopus and Web of Science: Google Scholar has 4.5 and 14 times more citations than Web of Science for the social sciences and humanities. In engineering, the use of Google Scholar roughly doubles the number of citations, while even in the sciences and life sciences, the use of Google Scholar still increases the number of citations by 50% on average.

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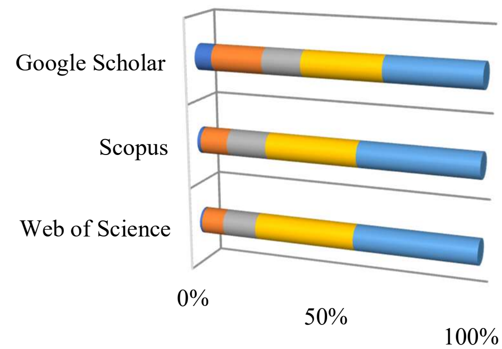
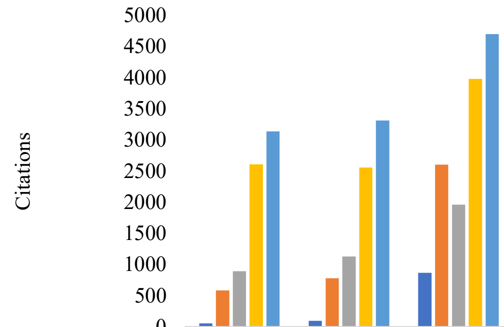


	Web of Science	Scopus	Google Scholar
Humanities	61	100	871
Social Sciences	591	782	2604
Engineering	897	1132	1964
Sciences	2612	2558	3984
Life Sciences	3139	3313	4699

Citations

Figure 2. The average number of citations per academic across five disciplines and three databases, 2020

Figure 3 shows citation levels from a different perspective and shows how the choice of database affects disciplinary comparisons. The disciplinary patterns at Web of Science and Scopus are very similar, with the natural sciences and life sciences rising above the other three disciplinary fields. On the Web of Science, the average scientist in the natural sciences has more than 50 times as many citations as the average humanities scientist and 3.5-5 times as many citations as the average scientist in engineering and social sciences.



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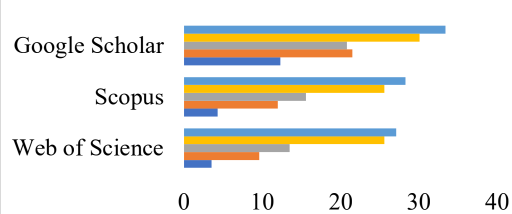
Life Sciences	3139	3313	4699

Figure 3. The average number of citations per academic for five different disciplines in three different databases, 2020

In Google Scholar, however, disciplinary differences in citation levels are much less pronounced. The average scientist in the natural sciences has only 5 times as many citations as the average scientist in the humanities and 1.8-2.4 times as many citations as the average scientist in the social sciences or engineering. A similar pattern emerges when looking at the h index (Figure 4) instead of the total number of citations.



	Web of Science	Scopus	Google Scholar
Life Sciences	27.1	28.3	33.4
Sciences	25.6	25.6	30.1
Engineering	13.5	15.6	20.8
Social Sciences	9.6	12	21.5
Humanities	3.5	4.3	12.3

h-index

Figure 4. Average h-index per academic for five different disciplines in three different databases, 2020

In Web of Science, the h index of the average natural science academic is almost 8 times higher than that of the average humanities academic, and almost 3 times higher than that of the average sociologist. In Google Scholar, these differences decrease to 2.7 times for the humanities and only 1.5 times for the social sciences or engineering.

5. DISCUSSION

Based on a sample of 146 senior researchers, an interdisciplinary comparison of the three major bibliometric databases: Google Scholar, Scopus, and Web of Science was conducted. The complicated assumes depended on with research samples and selection. The statistic maybe showed only general results, but, in our opinion, it demonstrated true reality.

First, we presented a longitudinal comparison of publication and citation growth rates in the three databases and showed consistent growth in all three databases. Second, we made an interdisciplinary comparison by key research indicators: publications, citations, index h, annual, individual index h in annual terms.

The sample included 37 different disciplines, divided into five main disciplines: humanities, social sciences, engineering, natural sciences, and life sciences. It is found that the source of the data and the specific indicators used to change the conclusions that can be drawn from interdisciplinary comparisons. More specifically, it was found that when using the h index as an indicator and Web of Science as a data source, the average academic score in the natural and life sciences was nearly eight times higher than their counterparts in the humanities and two to three times higher as their counterparts in engineering and social sciences, respectively. However, when using hI, Google Scholar or Scopus as a data source, the average academic in the life sciences, natural sciences, engineering, and social sciences shows very similar research results; while the average academic in the humanities has hI half to two-thirds higher than in other disciplines.

To compare the research performance of the three databases, we found that Google Scholar provided a wider coverage and therefore higher research performance than Web of Science for all scientists in the sample. For Scopus, the same was true for more than 90% of scientists in terms of publications and more than three-quarters of scientists in terms of citations. Most of the missing publications and citations were for material before 1996. As the pre-1996 Scopus expansion program continues, its coverage is expected to match that of the Web of Science for most scientists in the near future. As a result, both Google Scholar and Scopus have, in our opinion, become reliable alternatives to Web of Science.

6. CONCLUSION

Although the last decade has seen a significant increase in available sources of bibliographic data and indicators, the Web of Science (WoS), Scopus and Google Scholar (DBs) databases remain the main and most comprehensive sources of publication metadata and impact indicators. As such, they serve as essential tools for a multitude of tasks, from journal and literature selection or personal career tracking to large-scale bibliometric analysis and research evaluation methods at every possible level. However, because databases are expensive subscription-based data sources, institutions often have to choose between them.

The WoS, Scopus, and Google Scholar databases have been actively compared for more than 15 years, but the scientometric community has not yet reached a verdict “which one is better”. On the other hand, these databases are constantly being improved due to fierce competition and the notable migration of academic activities to the digital Internet environment. Consequently, they now cover so many functions and functionalities that it is impossible to draw such a general conclusion, since one database may be a better choice for one purpose, but less so for another. Thus, if an institution has access to the databases understudy, each member of the institution should be able to make a personal and informed decision as to which one is more appropriate for a particular purpose.

Despite the serious biases and limitations that separate WoS, Scopus, and Google Scholar, we proved the benefits of using the Scopus. In our opinion, which we displayed with arguments, it is shown that Scopus is better suited for both research evaluation and day-to-day tasks for several reasons. First, Scopus provides a broader and more comprehensive coverage of content. Second, the availability of individual profiles for all authors, institutions, and serial sources, as well as the interconnected DB interface, make Scopus more user-friendly for practical use. In addition, third, the implemented impact indicators work equally well and even better than those provided by the WoS, are less prone to manipulation, and are available to all serial sources in all disciplines. Most importantly, however, Scopus subscribes as a single database, with no confusion or additional restrictions on content availability. Moreover, Scopus is more open to the public because it provides free access to author and source information, including metrics. On the other hand, WoS also has its advantages. For example, it may be more suitable for searching and analyzing open access resources at the publication level.

As a general rule, the suitability of a database depends largely on the goals and context of a particular application, including consideration of the degree of selectivity and level of aggregation required. Nevertheless, academic institutions will have to subscribe to the WoS, Scopus, and Google Scholar databases, or at least one of them, as long as the indicators they provide remain key elements in research evaluation and career assessment practices. Accordingly, an institution's choice of DB subscriptions is primarily determined by the indicators that have been applied in national and institutional research evaluation policies. On the other hand, since publication and evaluation trends and the databases themselves are not constant, a new understanding of the suitability of databases for specific evaluations may, in turn, suggest some changes in these policies. In any case, changes in assessment policy are needed, since the widespread requirement to publish research results only in journals indexed in WoS, Scopus, and Google Scholar, and the fact that researchers' careers and salaries often depend on the number of such publications inevitably affects their behavior, diverting their attention from quality to quantity, posing threats to the overall quality of science.

Thus, a comparative study of publications, citations, and the h-index among 146 scientists from five major disciplines showed consistent and fairly stable growth in both publications and citations in Web of Science, Scopus, and Google Scholar. This suggests that all three databases provide sufficient stability of coverage to be used for more detailed interdisciplinary comparisons.

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