

*Original Article*

# Citation coverage by Dimensions and Scopus of articles published in *European Science Editing*

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## Citation

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## Abstract

**Background:** The two main bibliometric databases, namely Web of Science and Scopus, are not available for free, whereas the Dimensions is one of the new freely available bibliometric databases and is considered to be an alternative to Scopus in particular.

**Objectives:** To compare the information on citations to articles published in *European Science Editing* as available in the Dimensions to that available in Scopus.

**Methods:** Information on articles published in *European Science Editing* that were cited in sources published between 2020 and 2022 was analysed to compare the relevant data as given by Dimensions and Scopus.

**Results:** Both databases were similar in terms of the number of cited articles, the number of citing articles, and the number of citations. Of the total of 35 cited articles, 3 were unique to each of the 2 databases. Of the total of 93 citing articles, 74 were found in Scopus and 75 in the Dimensions.

**Conclusions:** Scopus and Dimensions shared an overlap of 84% in articles cited but of only 60% in the citing articles. Information on individual citing articles strongly suggests that Dimensions takes data on citing articles from CrossRef. Unfortunately, these metadata contain errors. Data on citations in the Dimension database could be made more accurate if the references appended to the citing articles listed in the Crossref database were under an open license.

## Keywords:

Citation coverage, comparison of scholarly databases, metadata on citations

## Introduction

The bibliometric databases Web of Science and Scopus are widely recognized as primary sources of bibliometric data.<sup>1</sup> However, these databases neither cover the entire spectrum of the world's output of scientific publications<sup>2</sup> nor allow free access. In recent years, several bibliometric services have emerged that offer free access to data and also allow several options to analyse the data. One such database service, introduced in 2018, is the Dimensions platform.<sup>3</sup> The database aims to link several databases related to research, including publications, grants, patents, clinical trials, data sets, policy documents, and technical reports. Such linking provides the opportunity to explore and analyse the links between these types of documents and to understand the whole research ecosystem.

Thelwall<sup>4</sup> claimed that Dimensions and Scopus are largely interchangeable in terms of coverage and number of citations. Harzing<sup>5</sup> also considers Dimensions to be a viable alternative to both Scopus and the Web of Science for literature reviews and citation analysis. Martín-Martín et al.<sup>6</sup> argue that citation coverage of Dimensions is less comprehensive than that of Scopus but better than that of Web of Science in most subjects. Orduña-Malea and Delgado-López-Cózar<sup>7</sup> concluded that Dimensions is a competitive alternative to Scopus for citation studies because Dimensions offers wider coverage and is free, and also has better data processing and exporting features than Google Scholar. Kulkanjanapiban and Silwattananusarn<sup>8</sup> suggest Dimensions as a potential alternative to Scopus for citation evaluation based on a comparison of citation rates of papers published by faculty members of Prince of Songkla University. Singh et al.<sup>9</sup> reported that Dimensions has the most comprehensive journal coverage, with 82.2% more journals than Web of Science and 48.2% more journals than

Scopus. Stahlschmidt and Stephen<sup>10</sup> argue that Scopus, Web of Science, and Dimensions offer structurally different perspectives on bibliometric evaluation, although Scopus and Dimensions are more similar to each other in their focus on applied research, whereas Web of Science is more focused on basic research.

In fact, each of the three services formulates its objectives differently: Dimensions is focused on linking different types of research for comprehensive analyses; Web of Science, on covering the most important scientific publications; and Scopus, on providing access to great number of scientific publications and journals in various fields while maintaining quality through careful selection of journals, books, and conference proceedings. At the beginning of 2023, Dimensions covered 134 million publications; Scopus, more than 87 million documents; and Web of Science, about 86 million records in its so-called 'core collection' and more than 200 million records in all its databases taken together.

This study compared citations appended to articles published in *European Science Editing*, a journal indexed in both Scopus and Dimensions. Scopus is available only on subscription whereas Dimensions allows open access. Both databases generally show considerable overlap in their coverage,<sup>8,10</sup> and it remains unclear how interchangeable they are for analysing citations given in articles published in a given journal. *European Science Editing* is an open-access journal dedicated to scientific and scholarly publishing and is part of a small group of similarly oriented journals that include, for example, *Learned Publishing*, *Journal of Scholarly Publishing*, *Publishing Research Quarterly*, *Publications*, and *Science Editing*.

Journals dealing with research related to scientific publishing represent a small group of scientific journals that are not usually given separate attention when comparing different

bibliometric databases. *European Science Editing* is the only journal in the above group that is not indexed in the Web of Science database. At the same time, it publishes relatively few articles each year and is, therefore, representative of a journal of somewhat local importance, making it a good representative of journals outside the main core of scientific journals; the results of this study may therefore be of interest to publishers of similar journals.

More specifically, the study sought to answer two questions.

- How does information relating to citations of articles published in *European Science Editing* as given in Dimensions differ from that given in Scopus?
- What citation sources are unique to Dimensions and to Scopus; that is, what sources are covered by one but not by the other?

## Methods

*European Science Editing* has been indexed in Scopus since 2006. However, as Ansorge<sup>11</sup> has pointed out, new bibliometric services such as Dimensions are limited to indexing articles that carry a Digital Object Identifier (DOI). As *European Science Editing* began assigning DOIs only from 2016, Dimensions includes no articles published in the journal before 2016. The number of articles indexed by both databases varied from year to year (Table 1). The Dimensions database contains fewer articles published before 2020 than does Scopus but only because only some articles in *European Science Editing* were assigned a DOI before 2020. This is why I selected the period 2020–2022 for a more valid comparison of the two databases.

For that period, both Scopus and Dimensions record 67 articles published in *European*

**Table 1. Number of articles published in *European Science Editing* and recorded in Scopus and Dimensions (data collected on 21 February 2023)**

Year	Scopus	Dimensions
2023	1	1
2022	23	23
2021	21	21
2020	23	23
2019	29	18
2018	24	19
2017	30	16
2016	41	11
2006–2015	416	0
Total	608	132

*Science Editing*. The data were collected from both databases on 21 February 2023 and were exported to MS Excel (Dimensions) and CSV (Scopus) formats.

The following query was used for the Scopus database:

SOURCE-ID (4700153507) AND (LIMIT-TO [PUBYEAR , 2022] OR LIMIT-TO [PUBYEAR , 2021] OR LIMIT-TO [PUBYEAR , 2020]). The Dimensions database was searched for the source title *European Science Editing*: the search was limited only to this journal and to the years 2020, 2021, and 2022 as follows: (and\_facet\_source\_title=jour.1131188&or\_facet\_year=2022&or\_facet\_year=2021&or\_facet\_year=2020). Furthermore, all the articles citing those published in *European Science Editing* during the 3 years were selected and exported for further analysis. In the Scopus database, I used the function 'View cited by' available on the web interface. For Dimensions, the following publication identifier was used for retrieving the corresponding articles: \_subset\_publication\_citations=pub.XXXXXXXXXX (where XXXXXXXXXXXX is the identifier of publications found and exported in the first step). No other criteria were used for selecting either the cited articles or the citing articles.

## Results

Both Dimensions and Scopus showed 35 articles published in *European Science Editing*; however, whereas Dimensions showed that the 35 articles had been cited a total of 79 times in 75 citing articles, the corresponding

numbers for Scopus were 81 and 74. Of the 35 articles published in *European Science Editing*, 3 each were unique to Scopus and 3 were unique to Dimensions. Therefore, citations for 38 articles published in *European Science Editing* can be found in each database (Table 2). The total of 32 articles that showed

**Table 2.** Number of citations to articles published in *European Science Editing* during 2020–2022 (data from Scopus and Dimensions collected on 21 February 2023)

DOI	Dimensions	Scopus
10.3897/ese.2020.e51987	16	13
10.3897/ese.2020.e52063	5	6
10.3897/ese.2020.e53230	5	6
10.3897/ese.2020.e53477	2	5
10.3897/ese.2020.e51839	3	4
10.3897/ese.2020.e53192	7	4
10.3897/ese.2020.e55817	1	3
10.3897/ese.2020.e51002	1	3
10.3897/ese.2022.e83864	2	2
10.3897/ese.2021.e72187	2	2
10.3897/ese.2021.e75625	1	2
10.3897/ese.2021.e63780	2	2
10.3897/ese.2021.e63663	2	2
10.3897/ese.2021.e62065	3	2
10.3897/ese.2021.e52348	2	2
10.3897/ese.2021.e54417	1	2
10.3897/ese.2020.e54523	2	2
10.3897/ese.2020.e57377	1	2
10.3897/ese.2022.e87545	1	1
10.3897/ese.2022.e83943	1	1
10.3897/ese.2022.e71240	1	1
10.3897/ese.2022.e84992	1	1
10.3897/ese.2022.e79945	0	1
10.3897/ese.2021.e76284	1	1
10.3897/ese.2021.e75834	1	1
10.3897/ese.2021.e75635	1	1
10.3897/ese.2021.e67829	1	1
10.3897/ese.2021.e59032	2	1
10.3897/ese.2021.e51999	1	1
10.3897/ese.2021.e61658	0	1
10.3897/ese.2021.e60203	1	1
10.3897/ese.2020.e56541	2	1
10.3897/ese.2020.e51112	0	1
10.3897/ese.2020.e52201	1	1
10.3897/ese.2020.e50566	1	1
10.3897/ese.2022.e86910	3	0
10.3897/ese.2022.e81677	1	0
10.3897/ese.2021.e69596	1	0

citations in both databases represent 84% of the 38 articles that had been cited. Of the 38, 18 showed the same number of citations in both databases; for 12 articles, Scopus showed more citations than Dimensions did; for 8, the opposite was true. Pooling the information from both databases, I located a total of 93 citing articles; of these, 56 articles, or 60%, were common to both databases; 18 were unique to Scopus database (Table 3); and 19, to Dimensions (Table 4).

### Discussion

Although the total number of citations to the 38 articles published in *European Science Editing* during 2020–2022 was about the same in both (79 in Dimensions and 81 in Scopus), it is in the total number of citing articles (93 articles) and the number of such articles unique to each database (18 and 19,

respectively) that the two databases differ significantly.

It is not surprising that Scopus, unlike Dimensions, includes citations from sources that do not carry a DOI. This observation confirms that Dimensions primarily uses data from CrossRef, as described by Hook et al.<sup>3</sup> Although the number of citing articles without a DOI is small (2), it is noteworthy given the increasing number of cited items with DOI across all disciplines.<sup>12</sup> However, the sample in this research covers only 3 years (2020, 2021, and 2022). This makes Dimensions currently impractical for citation analyses of journals that do not use DOIs. Additionally, the use of Dimensions is limited for earlier periods when DOIs were not widely used.

A noteworthy finding is that Dimensions does not record cases where an article published in

**Table 3. Articles citing articles in *European Science Editing* and indexed in Scopus but not in Dimensions (data collected on 21 February 2023)**

DOI	Scopus EID	Citing source
10.3897/ese.2020.e55817	2-s2.0-85092890427	<i>European Science Editing</i>
10.3897/ese.2020.e51051	2-s2.0-85092900116	<i>European Science Editing</i>
10.3897/ese.2020.e57377	2-s2.0-85092902994	<i>European Science Editing</i>
10.3897/ese.2020.e52063	2-s2.0-85092936111	<i>European Science Editing</i>
10.3897/ese.2020.e60083	2-s2.0-85099642263	<i>European Science Editing</i>
10.3897/ese.2020.e57899	2-s2.0-85099657835	<i>European Science Editing</i>
10.3897/ese.2021.e63663	2-s2.0-85107602284	<i>European Science Editing</i>
N/A	2-s2.0-85108513572	<i>Library Philosophy and Practice</i>
10.3897/ese.2021.e75635	2-s2.0-85117257366	<i>European Science Editing</i>
10.17239/jowr-2021.13.02.03	2-s2.0-85118695462	<i>Journal of Writing Research</i>
10.3897/ese.2021.e69596	2-s2.0-85120940705	<i>European Science Editing</i>
10.3897/ese.2022.e83943	2-s2.0-85131116712	<i>European Science Editing</i>
10.1633/JISTaP.2022.10.2.5	2-s2.0-85133419074	<i>Journal of Information Science Theory and Practice</i>
10.3138/jsp-2021-0021	2-s2.0-85135538961	<i>Journal of Scholarly Publishing</i>
10.6087/kcse.279	2-s2.0-85136581858	<i>Science Editing</i>
N/A	2-s2.0-85139102321	<i>Journal of University Teaching and Learning Practice</i>
10.3897/ese.2022.e89445	2-s2.0-85139942622	<i>European Science Editing</i>
10.4324/9781003049609-10	2-s2.0-85142569287	<i>The Past, Present, and Future of Higher Education in the Arabian Gulf Region: Critical Comparative Perspectives in a Neoliberal Era (pp. 118-142)</i>

**Table 4. Articles citing articles in *European Science Editing* and indexed in Dimensions but not in Scopus (data collected on 21 February 2023)**

DOI	Publication ID	Citing source
10.1007/978-981-19-7097-9	pub.1154379415	<i>Health Research in Nigeria</i> [a book]
10.1007/s00431-023-04851-2	pub.1155350933	<i>European Journal of Pediatrics</i> <sup>a</sup>
10.1016/j.buildenv.2023.110097	pub.1155353579	<i>Building and Environment</i> <sup>a</sup>
10.1101/2022.01.23.477400	pub.1144981687	<i>bioRxiv</i>
10.1111/jnu.12802	pub.1149360531	<i>Journal of Nursing Scholarship</i> <sup>b</sup>
10.1590/2317-6369nt122pt2022v47e21	pub.1153328039	<i>Revista Brasileira de Saúde Ocupacional</i>
10.17721/1728-2195/2021/1.116-5	pub.1136868761	<i>Bulletin of Taras Shevchenko National University of Kyiv - Legal Studies</i>
10.21203/rs.3.rs-153573/v1	pub.1134851910	<i>Research Square</i>
10.21203/rs.3.rs-1979499/v1	pub.1150610070	<i>Research Square</i>
10.2196/preprints.26030	pub.1133227068	<i>JMIR Preprints</i> <sup>b</sup>
10.24069/sep-22-43	pub.1154014733	<i>Science Editor and Publisher</i>
10.2478/csep-2021-0005	pub.1141908117	<i>Culture Society Economy Politics</i>
10.29000/rumelide.1193070	pub.1153149541	<i>RumeliDE Dil ve Edebiyat Araştırmaları Dergisi</i>
10.29141/2218-5003-2022-13-4-7	pub.1150838689	<i>Upravlenets</i>
10.30987/2658-4026-2021-3-219-232	pub.1141070492	<i>Ergodesign</i>
10.30987/2658-4026-2021-4-235-249	pub.1143504883	<i>Ergodesign</i>
10.3389/frma.2022.850333	pub.1146702480	<i>Frontiers in Research Metrics and Analytics</i>
10.48550/arxiv.2201.07643	pub.1144818216	<i>arXiv</i>
10.5469/neuroint.2022.00493	pub.1155020384	<i>Neurointervention</i> <sup>a</sup>

<sup>a</sup>Source indexed in Scopus but not the particular article.

<sup>b</sup>Citing article recorded in Dimensions but citation not found in the original article.

*European Science Editing* cites another article in the same journal; Scopus, on the other hand, recorded 11 such articles. At first glance, it might seem that the difference is due to a filter setting that excludes self-citations, but a far more probable reason is that either CrossRef metadata do not contain information on sources cited by articles published in *European Science Editing* or this information is not freely available. This conclusion can be reached by checking the metadata for the citing articles through OpenCitation Corpus,<sup>13,14</sup> which provides standardized metadata on citations to scientific publications. The OpenCitation Corpus returned empty values for the articles published in *European Science Editing* as well as for four other articles that, as seen in Scopus, cite an article in *European Science Editing* and have a DOI but are not listed in Dimensions.

An interesting situation arises for the article with DOI 10.6087/kcse.279, which is listed in the Scopus but not in Dimensions. On the other hand, two other articles published in *Science Editing* with DOI 10.6087/kcse.203 and 10.6087/kcse.241 are present in both databases. Notably, the OpenCitation Corpus provides the cited source data for the article in question, but citation for the *European Science Editing* article is absent.<sup>15</sup>

Because Dimensions takes data from CrossRef and from OpenCitation Corpus, it contains the same errors. For example, the article with DOI 10.1111/jnu.12802 does not include a reference to an article published in *European Science Editing* in the reference list at all and yet, Dimensions records it. Again, this information can be traced to the OpenCitation Corpus.<sup>16</sup> In this case, two identical articles

have been published in different journals. Whereas the original article (DOI 10.1111/jnu.12802) refers to an article with DOI 10.36591/SE-D-4502-42, the OpenCitation Corpus entry refers to an article with DOI 10.3897/ese.2022.e81677.

Another error can be found in the preprint with DOI 10.2196/preprints.26030, which is listed by Dimensions as citing an article published in *European Science Editing*. However, upon checking this preprint, no such citation was found, nor was any citation found in the final version of the article (DOI 10.2196/26030). Nevertheless, OpenCitation Corpus does record such a citation.<sup>17</sup>

These errors highlight the inference that Dimensions does not recognize citations independently but instead relies on citation data from CrossRef or OpenCitation Corpus. Therefore, any inaccuracies or omissions in citation data provided by these sources will also be present in Dimensions. Additionally, if citation data are not made available under open license, the data cannot be accessed by Dimensions.

On the other hand, the use of Open Citation Corpus and CrossRef data means that Dimensions is better than Scopus at capturing the impact – in the form of citations – of papers published in sources such as preprints, books, local or national journals, and conferences at the periphery of mainstream scientific publishing – and therefore unlikely to be covered by the main bibliometric databases such as Scopus or Web of Science.

Recently published articles make up a specific group of citing articles comprising those included in Dimensions but not found in Scopus. Although such articles have already been assigned a DOI, Scopus indexes them after some delay. Of the 19 articles listed in Table 4, 3 fell into this category. Two articles (publications with DOIs 10.10

07/s00431-023-04851-2 and 10.1016/j.buildenv.2023.110097) were not listed in Scopus on the date of data collection (21 February 2023) but appeared a few days later (seen on 26 February). These results suggest that Dimensions processes data faster than Scopus; in other words, the data retrieved on a given date are also impacted by the date of retrieval.

This study has a few limitations. First, it focused only on one journal, namely *European Science Editing*; other journals, particularly those that freely share data on references in their published articles, are likely to show greater overlap between the two databases.

Secondly, the study was limited to only 3 years (2020–2022), during which the number of articles indexed in either database remained the same. Extending the time window to encompass a period over which the two databases differ in terms of the number of articles published in *European Science Editing* indexed by them could potentially lower the overlap between the two databases.

It is worth noting that the results of this study are specific to *European Science Editing* and may not be generalizable to other journals or other fields of research. Additionally, the study focused on only two databases, although to evaluate the accuracy and comprehensiveness of citation indexing in greater detail, a few other bibliometric databases need to be included. Future research could consider expanding the scope of the study to encompass multiple journals and multiple databases to provide a more comprehensive picture of citation overlap across different disciplines and publication outlets.

## Conclusions

This study has brought to light several important considerations in using

Dimensions for bibliometric studies and citation analyses. It is worth noting that Dimensions and Scopus rely on distinct sources for their citation data: Dimensions relies solely on open data, particularly CrossRef, which enables wider coverage of local or national journals, books, and preprints compared to Scopus. However, Dimensions is totally dependent on the citation data reported to CrossRef, and any inaccuracies or omissions in this source will also be present in Dimensions. On the other hand, Scopus has its own mechanism for retrieving citation information, including a system for reporting errors and inclusion of sources that do not carry a DOI.

Of the total number of 56 citing articles published in *European Science Editing*, only 60% were found in both databases. The overlap was relatively low for *European Science Editing*, a figure that increased only marginally, to 63%, after the three articles that showed up in Scopus after a delay were included. Open access to data on references for articles in CrossRef can increase the overlap between the two databases significantly (to 80%) and citation coverage in Dimensions.

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