




Article

Scholarly Communication over a Decade of *Publications*

Tamara Heck ^{1,*} , Dirk Tunger ^{2,3}  and Marc Rittberger ^{1,4} ¹ DIPF | Leibniz Institute for Research and Information in Education, 60323 Frankfurt am Main, Germany² Faculty of Information Science and Communication Studies, Institute of Information Management, TH Köln—University of Applied Sciences, 50678 Cologne, Germany³ Forschungszentrum Jülich GmbH, Project Management Jülich, Center of Excellence “Analyses, Studies, Strategy”, 52428 Jülich, Germany⁴ Faculty of Media, Darmstadt University of Applied Sciences, 64807 Dieburg, Germany

* Correspondence: heck@dipf.de

Abstract: Ten years after the journal’s first publication, we are taking a closer look at the knowledge flows of the output of the journal *Publications*. We analyzed the papers, topics, their authors and countries to assess the development of scholarly communication within *Publications*. Our bibliometric analyses show the research journal’s community, where the knowledge of this community is coming from, where it is going, and how diverse the community is based on its internationality and multidisciplinary. We compare these findings with the scopes and topical goals the journal specifies. We aim at informing the editors and editorial board about the journal’s development to advance the journal’s role in scholarly communication. The results show that regarding topical diversity and internationality, the journal has remarkably developed. Moreover, the journal tends towards the field of library and information science, but strengthens its multidisciplinary status via its topics and author backgrounds.

Keywords: bibliometric analysis; scholarly communication; co-authorship network; internationality; multidisciplinary

**Citation:** Heck, T.; Tunger, D.;

Rittberger, M. Scholarly

Communication over a Decade of

Publications. *Publications* **2023**, *11*, 16.<https://doi.org/10.3390/publications11010016>Academic Editors: Gemma Derrick
and Bart Penders

Received: 17 January 2023

Revised: 23 February 2023

Accepted: 1 March 2023

Published: 6 March 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Academic journals are the core medium of scholarly communication in many disciplines [1]. By definition, an “academic journal or scholarly journal is a periodical publication in which scholarship relating to a particular academic discipline is published. [They] serve as permanent and transparent forums for the presentation, scrutiny, and discussion of research” [2,3]. Academic journals show the output of a research community and support the dissemination and transfer of core themes and questions being discussed. As such, taking a closer look at a journal’s content, its contributors and topics allow us to gain insights into the dynamics of a research community. This is even more interesting for newer journals, such as *Publications*, as we can learn about their role in an emerging community.

Over its first ten years beginning in 2013, *Publications* has published 322 articles in ten volumes (June 2013–July 2022). *Publications* focuses on all aspects of scholarly publication, its culture and evaluation. Moreover, scholarly publication and culture has been rapidly driven by the open science movement in recent years. The journal aims to be a platform for different stakeholders concerned with topics, such as “digitization in scholarly publishing technologies”, “public access to research”, “open science”, and “assessment of research and its impact” [4]. In addition to its topical scope, the journal aims to provide a broad international and multidisciplinary perspective. The current types of publications are “article”, “case report”, and “review”, which are distinguished by length and format [4].

Ten years after the journal’s first publication, we are taking a closer look at the journal’s development and its contribution to the intended scope and goals. We analyzed the publications, their authors, and themes to assess the impact of *Publications* over the last ten

years. Our bibliometric analyses show the research community of the journal, where the knowledge of this community is coming from, and where it is going, and how diverse the community is given its internationality and multidisciplinary. These analyses are driven by the main questions:

- Do the outputs of *Publications* match the journal's set scope and goals?
- What role does *Publications* take in scholarly communication?

In the following, we will introduce bibliometric analyses, including their potentials and barriers, before we report on our concrete measurements in the Methods section. Section 3 reports on the results of our analyses, before we discuss them in Section 4, and finally conclude our paper.

The Role of Bibliometric Studies

Bibliometric analyses provide information on publication performance (measure of quantity), the perception and impact of publications in the scientific community (measure of resonance), the integration into the scientific landscape, and the international perception of institutions in comparison with others (ranking).

Bibliometric analyses have been of increasing importance for science for years, and not only with the number of publications in the core journals of the scientific discipline, as the number of scientific publications in which bibliometrics are used as an application is increasing [2]. Bibliometric analyses are applied, for example, to the description of trend developments in science, in benchmarking processes in scientific institutions, in the allocation of external funding, and in scientist appointment procedures. Many possible indicators exist which describe the publication behavior and the reception of publications of individual scientists, institutions, countries, publishers, or journals [5].

Bibliometrics was boosted when publication data became available in larger quantities, around the year 2000. At that time, the Web of Science, which had previously only been available as a CD-ROM edition (but which was already a significant improvement to the book version from the period before), became available as a flat rate licensable internet version. This led to an exponential development of publications in which bibliometrics were used as a method from 2000 onwards, while the purely scientific publications in the core journals of the bibliometric community recorded only a slight linear increase, it was approximately proportional to the development of the total volume of publications in the Web of Science [6].

A lasting discussion evolved in the community, which focused on the framework conditions for bibliometric analyses, which restrictions should be observed, and how to deal with indicators [5]. Bibliometric analyses are a tool for investigating scientific output and science communication, as well as for depicting relations between publications, journals, and authors [7]. Findings from such analyses help to understand scientific work and its effects better and they can be used in research evaluation, as well as in disciplinary reflection. Around the same time as Derek de Solla Price described the exponential growth of scientific journals, Eugene Garfield developed his model of a science index, through which it was possible for the first time, not only to search for literature bibliographically or thematically, but also to find relevant publications by following the ones that cite one's own work.

Consequently, bibliometrics and the science citation index emerged as predecessors of the Web of Science, which is still used today, and is a template of similar databases, such as Scopus or Dimensions, which adopted this principle. Such a citation index "is an ordered list of cited articles, each of which is accompanied by a list of citing articles" [8] (p. 528). Not only is the pure bibliographic information recorded in a citation index, but additionally the footnotes referenced in an article. This is the basis for validating the links between individual scientific articles: "Any source citation may subsequently become a reference citation" [8]. This means that we should not think of scientific journal publications as standing next to each other, as in a library catalog, but as a network: all are connected through the footnotes. Each publication refers back to previous publications, i.e., to existing

knowledge, and is referenced in turn in other publications at a later point in time. A citation is therefore also an indication of knowledge flow, which is one of the most important reasons why scientists' citations include presentations of the current scientific state-of-the-art theories, paying tribute to the work of other scientists, and, of course, referring to their own previous work (cf. [8], p. 532).

An important question in this context is where does the knowledge that is used by a journal or a person come from and where does it flow to? Here, the context is important: Does the knowledge come from the same context, for example the same journal, or does it come from a different context, is it perhaps multidisciplinary? To find out how knowledge from the journal *Publications* is used, where the knowledge comes from and where it flows to, we provide several networks based on the journal's metadata.

Having stressed the potentials of bibliometrics, we also need to mention that such quantitative measurements should be applied with care and acknowledge the differences in research and disciplines [9,10]. Application of bibliometric indicators should consider the discipline specificities and be transparent [11]. In the following study, we aim at obtaining more insights into the flows of knowledge within one journal. These insights are intended to inform the editors and editorial board about the journal's development with regard to related journals, authors, and topics. Moreover, the results provide more information for potential authors who seek to publish their research in the journal. Our analyses cannot provide details on the paper's contributions or any research quality. Moreover, comparing the bibliometric data to other journals should be carried out with care, as each journal, similar to a research discipline, has its own scope it targets in scholarly communication. Nonetheless, we think that our analyses contribute to a better understanding of the journal's role, and can be the basis to further develop *Publications*.

2. Method

2.1. Metrics Applied

Our bibliometric study focuses on seven analyses to inform our research questions (Table 1). We analyzed all data across all years. For sub-questions 1, 5, 6, and 7, we additionally compared the earlier 5-year period 2013–2017 to the later years 2018–2022 to be able to observe any evolution of the journal.

Table 1. Bibliometric analysis to inform our research questions.

#	Sub-Question	Analysis
1	What was published?	Dataset descriptives; scant data cleaning, data by MPDI;
2	Where does knowledge come from?	Reference analysis of journals cited; data by MDPI; scope based on Ulrichsweb
3	Where does the knowledge go to?	Citation analysis of journals citing <i>Publications</i> ; data by OC API data;
4	How multidisciplinary is <i>Publications</i> ?	Comparison of cited and citing journals and their network, based in WoS data;
5	How international is <i>Publications</i> ?	Author country analysis;
6	To which topics does <i>Publications</i> contribute?	Keyword analysis with VOSViewer and MaxQDA;
7	What does the author network look like?	Authorship network with VOSViewer.

2.2. Data and Data Cleaning

The bibliographic data on the journal's publications, as well as data in the publication's references were taken from the journals' managing editor via MDPI (8 July 2022). We downloaded the publication's citations and the metadata via unifying REST API by OpenCitations (23 September 2022). We downloaded the journal data for sub-question 4 from the Web of Science (21 December 2022).

We added references from one missing publication using the unifying REST API by OpenCitations. Moreover, we checked the 'author country' field of the journals' publications and added three missing countries based on the existing data in the field 'affiliation'.

We manually checked the ‘author name’ field for author disambiguation. All entries except one had full first names and surnames. We added the first name for one entry and corrected one name where a diacritic was missing. We did not detect any further errors or ambiguities in the ‘author name’ field. For journal reference and citations analysis, we carried out a rough check for journal name disambiguation for the journals most cited and most citing. However, we did not have the capacity to check all journal name entries. Cleaning all of the data would not lead to major changes in the top results of cited and citing journal analyses, yet analysis of the complete data in this field should be considered with care. Moreover, we did not prove any other fields in the dataset. Our dataset, including our corrections as well as the network Figures are published at Zenodo (10.5281/zenodo.7666548).

3. Results

3.1. What Was Published?

From 2013 until July 2022, the journal published 322 papers in 10 volumes consisting of 1 to 4 issues per year. Table 2 gives an overview for all ten years. Table 3 shows the numbers for both five-year periods. The number of publications per year grew almost steadily (Figure 1). Please note that the dataset applied for the further analyses included issue 1 and 2 from 2022 (27 contributions), and two contributions from issue 3, as of July 2022. Figure 1 includes the status in December 2022 with 12 contributions in issue 3 and 20 in issue 4 for 2022, which makes 61 contributions for 2022. Overall, 606 authors contributed to the journal.

Table 2. General descriptives of *Publications*.

Year	Nr. of Papers	Nr. of Authors	Nr. of References	Nr. of Citations	Nr. of Unique Countries
2013	11	21	483	77	7
2014	8	15	308	47	4
2015	19	32	570	170	8
2016	29	69	1127	222	22
2017	25	64	844	189	26
2018	43	108	1792	219	23
2019	62	162	3107	399	25
2020	50	139	2438	175	26
2021	56	142	3520	178	29
2022	19	39	982	11	17

Table 3. Descriptives of the 5-year periods 2013–2017 and 2018–2022 of *Publications*.

5-Year Period	Nr. of Papers	Nr. of Authors	Nr. of References	Nr. of Citations	Nr. of Unique Countries
2013–2017	92	201	3332	705	36
2018–2022	230	593	11,839	982	53

The journal has different document types, which do not seem to follow a structured categorization (Table 4). The current author instructions only name three types of publications. Most contributions are classified as articles. There are two review types, a general review and a systematic review. Other contributions do not focus on empirical studies, but seem to have a more informative and communicative nature. The two letters, for example, raise readers’ awareness of predatory publisher tactics and open access publishing in Ukraine. Not all of those contributions present an opinion or have the form of a commentary. Many of those contributions do list empirical data and report on their generation, the papers as well vary highly in length and detail. Giving more insight into the differences of these forms would need a detailed qualitative analysis.

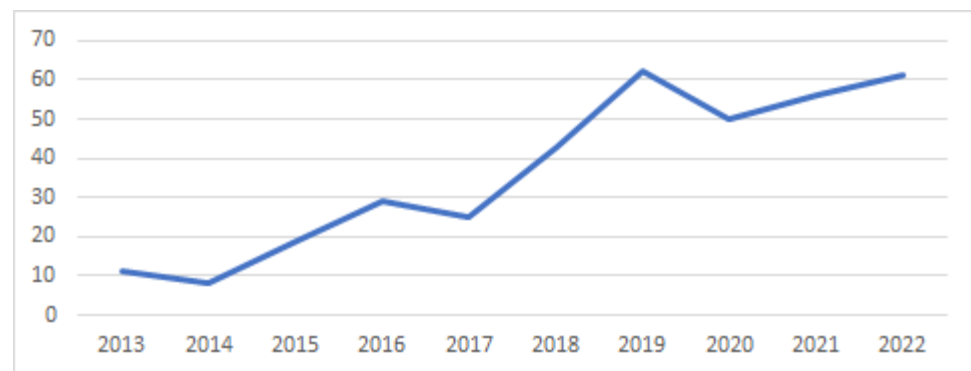


Figure 1. Papers per year, considering all 61 papers in 2022 (as of 21 December 2022).

Table 4. Distributions of the document types in *Publications*.

Document Type	Nr. of Documents	Percentage of Documents
article	255	79.19
case report	15	4.66
review	15	4.66
communication	10	3.11
commentary	6	1.86
essay	5	1.55
opinion	4	1.24
perspective	2	0.62
letter	2	0.62
systematic review	2	0.62
short note	1	0.31
conference report	1	0.31
concept paper	1	0.31
discussion	1	0.31
viewpoint	1	0.31
book review	1	0.31
total	322	100

3.2. Where Does Knowledge Come From?

Overall, the articles in *Publications* contain 15,171 references, out of which 10,756 references can be assigned to 5277 unique sources, mainly journals, but also to books and single reports (gray literature), resulting in an average reference count per source of two (Table 5). Given those cited references, eight journals received citations over 1% of all source-assigned citations, namely *Scientometrics* (511), *Publications* itself (186), *JASIST* (170: merged *Journal of the Association for Information Science and Technology* and the *Journal of the American Society*, respectively), *Nature* (165), *PLOS ONE* (140), *Journal of Informetrics* (129), *Science* (116), and *Learned Publishing* (112). On the basis of single articles, 11 journals were cited by at least 10% of all 322 articles (Table 6). Articles in *Publications* were referenced by 26% of the articles.

Table 5. Descriptives of the knowledge flow based on references.

Descriptives	Nr.
Number of references	15,171
Average number of references per article	47
Number of unique referenced sources	5277
Average reference count per unique source	2

Table 6. Top journals cited by 10% of the 322 articles (single count).

Journal Name ²	Nr. of Single Articles Referencing the Journal	Ulrichsweb Subject	Web of Science Category
<i>Scientometrics</i>	103	Sciences: Comprehensive works	Information Science and Library Science (SSCI)
<i>JASIST</i> ¹	99	Library and Information Sciences Computers–Information Science and Information Theory	Information Science and Library Science (SSCI)
<i>Nature</i>	84	Sciences: Comprehensive works	Multidisciplinary Sciences (SCIE)
<i>Publications</i>	83	Publishing and book trade	Information Science and Library Science (ESCI)
<i>PLOS ONE</i>	75	Medical Sciences Sciences: Comprehensive works	Multidisciplinary Sciences (SCIE)
<i>Science</i>	63	Sciences: Comprehensive works	Multidisciplinary Sciences (SCIE)
<i>Learned Publishing</i>	57	Publishing and book trade	Information Science and Library Science (SSCI)
<i>PNAS US</i>	46	Sciences: Comprehensive works	Multidisciplinary Sciences (SCIE)
<i>Journal of Informetrics</i>	40	Computers–Information Science and Information Theory	Information Science and Library Science (SSCI)
<i>Research Policy</i>	32	Sciences: Comprehensive works	Management (SSCI)
<i>PeerJ</i>	40	Business and economics management No information	Multidisciplinary Sciences (SCIE)

¹ JASIST = *Journal of the Association for Information Science and Technology* and *Journal of the American Society*, merged as name changed. ² References to the arXiv repository were dismissed.

The subject categories of Ulrichsweb show a clear tendency towards multidisciplinary journals, such as *PNAS*, *Nature*, and *PLOS ONE*, as well towards bibliometric and information science journals, fields we consider to be highly disciplinary-related, including *Scientometrics*, *Journal of Informetrics*, and *JASIST*. *Publications* is classified as a “publishing and book trade”, as is *Learned Publishing*. It seems that this subject is of minor relevance, whereas journals classified as “sciences: comprehensive works” might offer relevant publications discussing scholarly communications as a multidisciplinary topic.

3.3. Where Does the Knowledge Go To?

Two hundred and fifty-nine articles in *Publications* received 1687 citations from 705 different sources, such as journals or proceedings (Table 7). Sixty-three articles were not cited (yet), and 68% of them were published in the last three years (2020 to 2022). From the top sources that account for 1% of the 1687 citations, five sources are identical with the reference sources cited, and amongst them, the two information science sources (Table 8). Thus, the reference and citations network of *Publications* is quite similar.

Table 7. Descriptives of the knowledge flow based on citations.

Descriptives	Nr.
Number of cited articles	259
Number of citations	1687
Number of unique citations (based on doi)	1392
Average number of citations per article (based on COCI)	6.51
Average number of citations per article (based on MDPI data)	6.84
Number of unique citing sources	705

3.4. How Multidisciplinary Is Publications?

Bibliometric evaluations are regularly used to answer the question of how multidisciplinary a journal is: for example, Chang [12] examines the question: “From which disciplines do the sources cited by LIS researchers of all articles originate?” This question is very similar to the question of knowledge flow examined in this paper. In the following network graph, we analyzed the references of the journals cited by roughly 10% of

all articles ($n = 10$, Table 6). Additionally, we added the journals that have at least 1% (>17) of all citations of *Publications* (Table 8), which adds *Sustainability*, *Accountability*, and F1000Research. The data are based on the Web of Science (all indices). We had to leave out F1000Research as the WoS does not have any data about it.

Table 8. Top journals that each have over 1% of all citations ($n = 1687$).

Journal Name	Nr. of Citations of Articles in <i>Publications</i> '	Ulrichsweb Subject	Web of Science Category
<i>Publications</i>	197	Publishing and book trade	Information Science and Library Science (SSCI)
<i>Scientometrics</i>	91	Sciences: Comprehensive works	Information Science and Library Science (SSCI)
<i>Sustainability</i>	50	Environmental studies	Green and Sustainable Science and Technology Environmental Studies (SSCI)
<i>Learned Publishing</i>	44	Publishing and book trade	Information Science and Library Science (SSCI)
<i>JASIST</i>	19	Library and Information Sciences Computers–Information Science and Information Theory	Information Science and Library Science (SSCI)
<i>PLOS ONE</i>	19	Medical Sciences Sciences: Comprehensive works	Multidisciplinary Sciences (SCIE)
<i>Journal of Informetrics</i>	18	Computers–Information Science and Information Theory	Information Science and Library Science (SSCI)
<i>Accountability in Research</i>	17	Sciences: Comprehensive works	Medical Ethics (SCIE)
F1000Research	17	Biology Medical sciences	no entry

In the network diagram (Figure 2), all journals referenced by other journals are marked with “_ref” and all cited journals with “_cit”. Thus, it is easy to see which journals (without suffix) are the source journals, what knowledge they used and where this knowledge went. Figure 3 shows a close-up of the network in Figure 2.

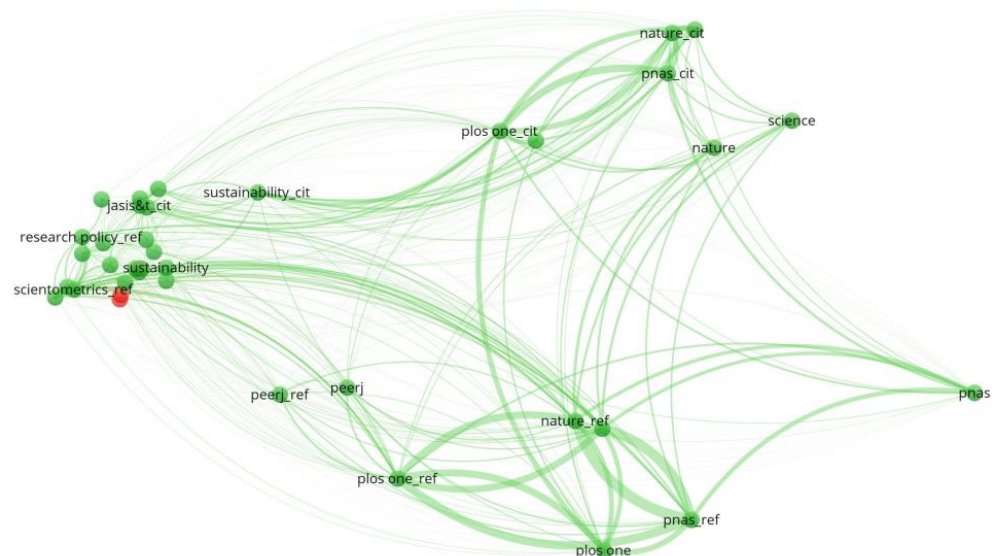


Figure 2. Total network showing the references and citations of *Publications* and related journals. Node size corresponds to the number of publications. Source: VOSViewer.



Node size corresponds to the number of publications. Source: VOSViewer.

3.5. How International Is Publications?

Publications received contributions from authors from 59 different countries. Eleven articles were written by authors from three and more countries, 53 by authors from two countries, and 258 by authors from one country only. Table 9 shows the number of articles involving a country, for the countries with at least 10 contributions, i.e., at least one author is from that country. The top five countries that collaborate with many different countries are Germany (22), UK (21), France (19), USA (18), and Spain (15). Twelve countries do not have any collaboration with other countries. Tables 10 and 11 show the numbers for the periods 2013–2017 and 2018–2022, respectively. In the first 5-year period, 12 countries had at least two contributions in *Publications*. Between 2018 and 2022, 27 countries had at least two contributions. The collaboration rate with unique countries (Column 3, Tables 10 and 11) and the overall collaboration rate (Column 4, Tables 10 and 11) grew as well. Figure 4 visualizes the country contributions over time.

Table 9. Top countries that are involved in at least 10 articles in *Publications*, and their different shares in co-authored papers with other countries (graduation in green color).

Country	Nr. of Articles	% of Articles without Collaboration	% of Articles with One Other Country	% of Articles with Two and More Countries
USA	64	73%	22%	5%
Spain	51	73%	24%	4%
Germany	38	55%	32%	13%
UK	37	73%	14%	14%
Italy	18	61%	22%	17%
France	13	31%	46%	23%
Australia	12	83%	8%	8%
Canada	12	67%	25%	8%
Portugal	12	50%	42%	8%
Brazil	10	70%	30%	0%

Table 10. Top countries (Nr. of documents > 2) in the period 2013–2017.

Country	Nr. of Documents	Collaborations with Unique Countries ¹	Nr. of Collaborations With other Countries ²
USA	19	4	4
UK	16	14	17
Germany	7	11	13
Canada	6	1	1
Italy	5	11	13
France	4	11	12
Turkey	3	10	10
Romania	3	3	3
Belgium	2	6	6
Portugal	2	3	3
Vietnam	2	3	3
New Zealand	2	1	1

¹ in VOSViewer: weight >links>; ² in VOSViewer: weight <total link strength>.

Table 11. Top countries (Nr. of documents > 5) in the period 2018–2022.

Country	Nr. of Documents	Collaborations with Unique Countries ¹	Nr. of Collaborations with Other Countries ²
USA	45	17	26
Spain	45	14	24
Germany	31	13	25
UK	21	11	15
Italy	13	3	4
Portugal	10	2	5
France	9	13	16
Norway	8	11	13
The Netherlands	7	11	17
Austria	7	14	14
Canada	6	12	13
Australia	6	3	3

¹ in VOSViewer: weight >links>; ² in VOSViewer: weight <total link strength>.

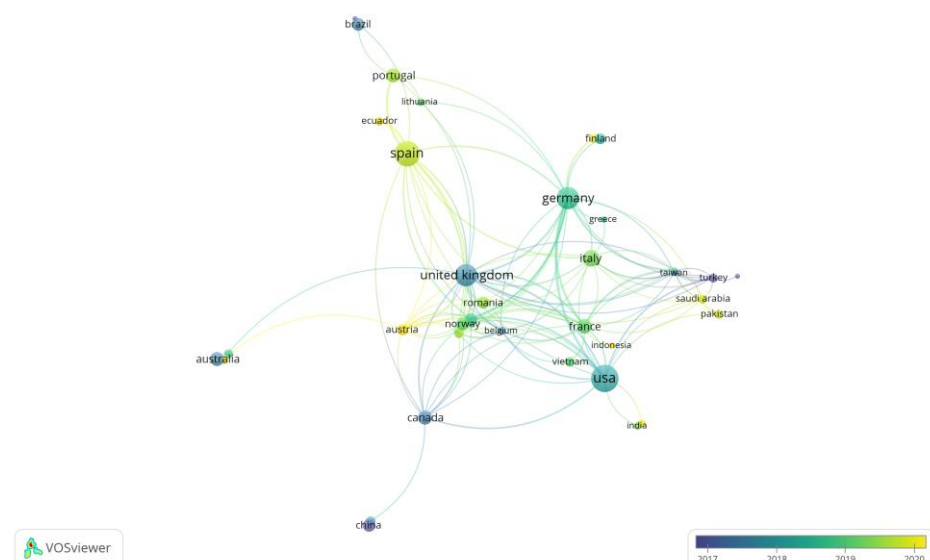


Figure 4. Country contributions per article over time showing n = 39 countries within the densest co-authored papers network. Node size indicates the total link strength, the edges show co-authored papers. Source: VOSViewer.

3.6. To Which Topics Does Publications Contribute?

The keywords most often occurring are shown in Table 12 for both 5-year periods. Open access is by far the most discussed topic, followed by bibliometrics and scholarly publishing in the first five years of the journal. Since then, the topics in *Publications* seem to become more diverse. The number of different keywords that appear at least two times raised from 31 to 141. New terms appear, such as open science, open data, and fake news. The numbers only give a rough impression of the keyword distribution as concepts occur within different terms, for example, variants of open access, such as gold open access, open access publishing, or variants of bibliometrics, such as bibliometric analysis or bibliometric indicators.

Table 12. Top keywords in both 5-year periods.

Keywords 2013–2017	Nr. of Occurrence > 2	Keywords 2018–2022	Nr. of Occurrence > 7
open access	20	open access	41
bibliometrics	7	open science	26
scholarly publishing	7	research	11
publishing	5	scholarly communication	11
journals	4	social media	11
article processing charges	3	higher education	10
citation analysis	3	publishing	10
journal	3	bibliometrics	8
peer review	3	fake news	8
plagiarism	3		
scientific fraud	3		

Green: terms not occurring in the keyword lists (occurrence > 2) of the other time period.

VOSViewer clusters the 31 keywords that occur at least two times in the period 2013–2017 (Figure 5). The main cluster in light blue covers the topic of open access, which relates to the red cluster concerned with bibliometrics and evaluation. The timely distribution of the keywords shows two phenomena. First, the number of different keywords grows, i.e., there are more and more articles with different topical foci. Second, new topics more widely related to the scope of scholarly publication seem to become relevant and be published within the journal, expanding the journal's scope. New topics are, for example, open science from 2018 on, fake news and disinformation (relevant in 2021), data science, science communication, open and fair data, and open peer review. Keywords, including plagiarism and scientific fraud do not occur under the top keywords in 2018–2022. Open access stays a core topic, as does scholarly publishing and article processing charges. However, the variety of different topical contributions has grown over the ten years, which is visible in the distinguishable larger keyword network for the period 2018–2022 (Figure 6).



Figure 5. Top keyword network (n = 31, occurrence > 2) in the period 2013–2017. Source: VOSViewer.

3.7. What Does the Author Network of Publications Look Like?

About two thirds of the articles (n = 211) are co-authored, mostly by two to three contributors—the average is 2.46 (Table 13). Six hundred and thirty-eight authors have only one contribution, 55 have two contributions. Author Yongyan Li from China has five papers, followed by Quan-Hoang Vuong (Vietnam), Carlo Galli (Italy), Guangwei Hu (Singapore, now China), and Stefano Guizzardi (Italy) with four papers each.

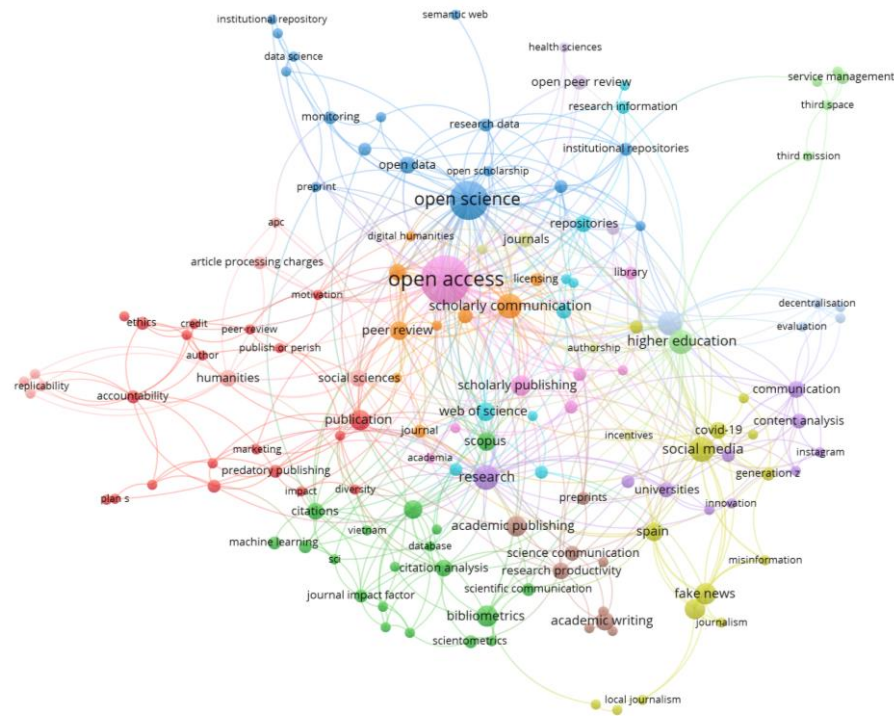


Figure 6. Top keyword network (n = 141, occurrence > 2) in the period 2018–2022. Source: VOSViewer.

Table 13. Left: number of co-authors and documents. Right: authors with a total link strength ≥ 10 .

Nr. of Authors	Nr. of Documents	Author Name	Nr. of Documents	Total Link Strength
1	111	Quan-Hoang Vuong	4	16
2	84	Nobes et al. *	1	15
3	62	Astrid Orth	2	14
4	38	Birgit Schmidt	2	14
5	10	Manh-Toan Ho	2	11
6	8	Lisa Matthias	2	11
7	5	Najko Jahn	2	11
8–10	1	Andrea Bertino	2	10
11–15	0	Thu-Trang Vuong	2	10
16	1			

* Summarizing all 16 authors of "Ten Hot Topics around Scholarly Publishing".

The author networks for both 5-year periods (Figure 7) show that the number of authors and collaborations grew. Overall, Quan-Hoang Vuong has the highest total link strength (16), followed by the 16 authors of the review article “Ten Hot Topics around Scholarly Publishing” published 2019.

The analysis of the affiliation field showed that in 40 papers, a library or librarian is involved, one of the journal's target groups. Thirty-nine papers are from contributors from outside universities, including funders and commercial service providers, which are also named by the journal's scope. According to the affiliations, the education and library and information science disciplines are often represented, but many others, including health and life sciences, engineering, and several disciplines from the arts and humanities as well. We do not give any figures here, as these should be taken with care—many affiliation fields lack data or only name the university or main department, and an inference to the authors' explicit field of research can lead to biased results (see published data). However, the data

show that the journal attracts researchers from different fields, who are all engaged in multidisciplinary topics named in the journal's scope.

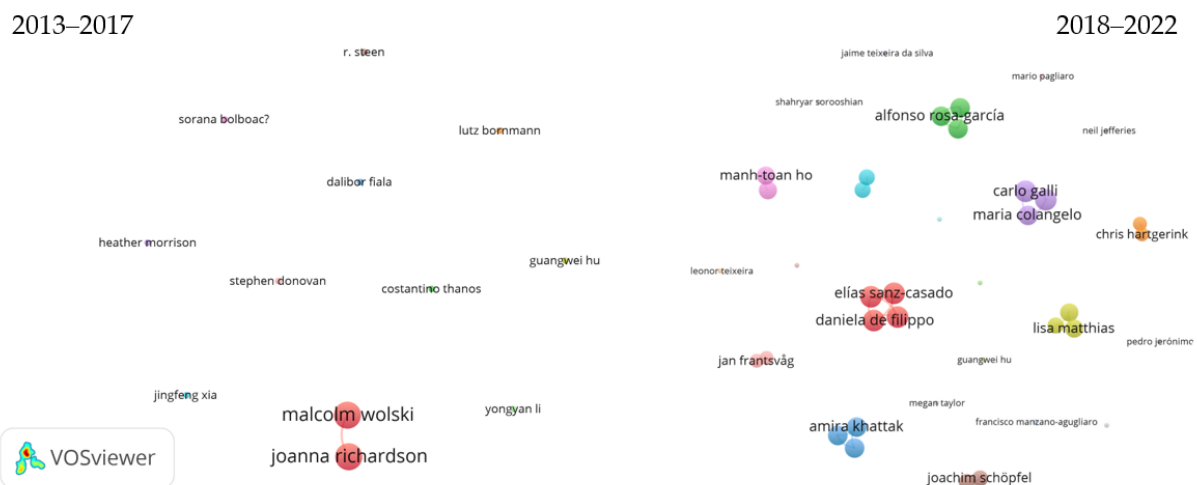


Figure 7. Author networks for both 5-year periods ($n = 12$ and $n = 39$, at least 2 documents). Node size indicates the total link strength. Source: VOSViewer.

4. Discussion

In the following, we discuss our findings regarding our main research questions.

4.1. Do the Outputs of Publications Fit the Journal's Set Scope and Goals?

Regarding the number of contributions, *Publications* steadily grew within its ten years of existence. It seems to consolidate at about 50 to 60 papers per year. Comparing the first five-year period of the journal to the last five years, the numbers grew extensively. Moreover, the numbers of contributing authors and their countries grew and became more diverse. Between 2013 and 2017, 36 unique countries contributed to the journal, and between 2018 and 2022, we have 53 unique countries, and 27 countries had at least two contributions, which is more than double the number in the earlier 5-year period.

Overall, the contributions came from 59 different countries. The current core network lies in Europe, but countries from all continents are represented. Countries that regularly contribute are Australia, Germany, Spain, the UK, and the USA. It is striking that Asian countries are less represented in the top countries. China, which does not have any recent contributions, has nine papers, Japan has five—neither country is well linked to other countries. The collaborations between European countries seems high. Moreover, we see emerging countries, such as India, Pakistan, and Saudi Arabia with recent papers. Countries with contributions from 2019 onwards ($n > 1$) are Austria, Denmark, Ecuador, and Indonesia. We think the journal has succeeded in reaching more researchers from different countries, thus strengthening its internationality.

The number of unique authors has grown, as have the numbers of authors with at least two contributions. However, most authors have only one contribution. Here, journals or communities with a narrower topical focus seem to have a more persistent and linked author community (cp. the analysis of [13]). Despite the sparse author network, about two thirds of the papers are co-authored, and the total link strength has grown (Figure 7), a trend we have already mentioned regarding the country analysis.

The document types indicate the journal's intention to foster communication and the sharing of ideas and insights into relevant topics, as well as current activities and developments within the research community: The journal's scope is to “address current issues and inform best practice” [4]. To be more transparent for readers and to motivate potential contributors to submit to the journal, the categorization of contributions would need to be more comprehensive and distinctive. New developments in research methodologies, such

as transparent documentation and rigor in systematic reviews could be considered to give authors support in submitting their research.

The keyword analysis shows that the journal has expanded its scope over the years and has accepted contributions discussing a wide range of topics more broadly related to the core of scholarly communication. The keyword network from 2013–2017 (Figure 5) only includes 31 keywords occurring two times or more, where in the later period, we see a greater variety of keywords and linked topics (Figure 6). Open access and bibliometric analyses are still dominant, but newer topics, such as open science, open data, and disinformation seem to become more and more relevant, and topical clusters include keywords, such as humanities, journalism, and higher education. Other topics, including plagiarism and scientific fraud, do not occur anymore, however predatory publishing still is.

4.2. What Role Does Publications Take in Scholarly Communication?

The journal is clearly set in the fields of information and library science, with a tendency to focus on bibliometric analysis, a common method to quantitatively analyze scholarly publication and its culture, which is within the scope *Publications*. *Publications*' journal network shows the close relation to library and information science journals, specifically bibliometrics and scientometrics. *Publications* has looser ties to the larger more comprehensive journals, such as *PLOS ONE* and *PNAS*. On the one hand, this aspect might hinder the journal's potential intention to position itself within a specific research community. On the other hand, the journal's position emphasizes the perspective of scholarly communication, publishing, and research about research studies as multidisciplinary fields. Moreover, references and citations show a similar network of journal sources. Thus, *Publications* itself is cited by those sources that it declares relevant via its references.

Regarding bibliometrics, one might ask why researchers would rather publish in *Publications* than in the more traditional journals, such as *Scientometrics* or the *Journal of Informetrics*. The keyword analyses show a quite strong focus on bibliometrics. However, bibliometric analyses in *Publications* are rather used as a method, analyzing publication phenomena as open access. Whereas the other bibliometrics and scientometric journals focus on the development of their metric indicators and methodological aspects. Thus, *Publications* seems to function as a forum to apply bibliometrics on the core topic of the journal, which is obviously measuring scholarly publishing and its output. As such, *Publications* can find its place between the larger bibliometric journals. Having said this, the high volume of papers applying bibliometric analyses means that other relevant methodologies for investigating scholarly publishing and its related aspects are undermined. However, the journal's topical variety has grown over the years, and this possibly leads to a greater variety of applied research designs and methodologies.

The focus on scholarly publishing is also visible in the authors' data, where we see librarian backgrounds and contributors from university information services or external research services. The affiliations confirm that the topic is represented in different disciplines. As such, *Publications* lives up to its role as a multidisciplinary forum.

A drawback of this scope might be the more loosely connected community. The author network analyses show that the authors of *Publications* are not highly connected. This suggests a high variation of research communities. Journals that are situated in specific research communities show higher link strengths. On the one hand, this means that *Publications* does not primarily service a specific research community and has not yet established a core community that regularly contributes to the journal. On the other hand, the fact reflects the journal's aim to attract a larger community to "provide an interdisciplinary forum for scholars" [4]. If the journal wants to establish a growing but more coherent research community that probably contributes to a common understanding of scholarly publishing as a field, the editorial board might consider fostering community and capacity building strategies in the future.

5. Conclusions

We carried out a bibliometric study of *Publications* and questioned the output and role of the journal. We analyzed topics, countries, authors, references, and citations of the journal. Based on our findings, we can summarize that not only have the numbers of published papers and authors grown, but *Publications* has become more diverse, which was determined by the comparison of the numbers of both 5-year periods. The keywords show a more topical diversity, taking up emerging topics related to open science and disinformation. The growing numbers of unique countries show that the journal has expanded its international character. Moreover, the authors' affiliation backgrounds show that *Publications* reaches its target group named in its scope.

The analyses of the reference and citation sources show that *Publications* has a strong connection to the information and library science field, which is also obvious by the keywords through which the bibliometric analyses have determined to be prevalent in many contributions. However, multidisciplinary journals are cited by and do cite *Publications* as well. This development and the author networks show that the journal does not serve any disciplinary community, but that its core topics on scholarly communication, publishing, and research concerning research studies are explored in multidisciplinary fields. Within this alignment, the journal can confirm its status as a multidisciplinary publishing source that tries to connect several stakeholders and research communities.

Author Contributions: Conceptualization, T.H., D.T. and M.R.; methodology, T.H. and D.T.; investigation, T.H. and D.T.; data curation, T.H. and D.T.; writing—original draft preparation, T.H. and D.T.; validation, T.H. and D.T.; writing—review and editing, T.H., D.T. and M.R.; visualization, T.H. and D.T. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Data Availability Statement: Data are available in a publicly accessible repository. The data presented in this study are openly available at [Zenodo.org](https://zenodo.org); DOI 10.5281/zenodo.7666549 (accessed on 10 January 2023).

Acknowledgments: We would like to thank the Editorial Office of MDPI Publications for providing us the bibliographic data of *Publications*, and Gwen Schulte from DIPF | Leibniz Institute for Research and Information in Education, 60323 Frankfurt am Main, Germany for proof-reading the manuscript.

Conflicts of Interest: The first author is current member of the editorial board of *Publications*. Beyond this personal circumstance, the authors declare no conflict of interest.

References

1. Heinze, T.; Tunger, D.; Fuchs, J.E.; Jappe, A.; Eberhardt, P. *Research and Teaching Profiles of Public Universities in Germany. A Mapping of Selected Fields*; University of Wuppertal: Wuppertal, Germany, 2019.
2. Wikipedia (n/a) Entry on “Academic Journals”. Available online: https://en.wikipedia.org/wiki/Academic_journal (accessed on 10 January 2023).
3. Monavarian, M. Basics of scientific and technical writing. *MRS Bull.* **2021**, *46*, 284–286. [[CrossRef](#)]
4. Publications (n/a) about Publications: Aims and Scope. Available online: <https://www.mdpi.com/journal/publications/about> (accessed on 15 December 2022).
5. Tunger, D. On the Need for Accessibility, Standardization, Regulation, and Verification in Bibliometrics: The Leiden Manifesto and Beyond. In *Handbook Bibliometrics*; Ball, R., Ed.; De Gruyter Saur: Berlin, Germany, 2020; pp. 329–334.
6. Tunger, D.; Wilhelm, J. The bibliometric community as reflected by its own methodology. *J. Sci. Res.* **2013**, *2*, 92. [[CrossRef](#)]
7. Haustein, S.; Tunger, D. Sziento- und bibliometrische Verfahren. In *Grundlagen der Praktischen Information und Dokumentation: Handbuch zur Einführung in die Informationswissenschaft und -Praxis*, 6. Vollst. Neu Bearb.; Kuhlen, R., Semar, W., Strauch, D., Eds.; De Gruyter: Berlin, Germany, 2013; pp. 479–494.
8. Garfield, E. “Science Citation Index”—A New Dimension in Indexing. In *Essays of an Information Scientist*; Reprinted from Science; AAAS: Washington, DC, USA, 1964; Volume 144, pp. 649–654.
9. Hicks, D.; Wouters, P.; Waltman, L.; de Rijcke, S.; Rafols, I. Bibliometrics: The Leiden Manifesto for research metrics. *Nature* **2015**, *520*, 429–431. [[CrossRef](#)] [[PubMed](#)]
10. Wilsdon, J.; Bar-Ilan, J.; Frodeman, R.; Lex, E.; Peters, I.; Wouters, P. *Next-Generation Metrics: Responsible Metrics and Evaluation for Open Science*; European Commission: Geneva, Switzerland, 2017.

11. Ràfols, I. S&T indicators in the wild: Contextualization and participation for responsible metrics. *Res. Eval.* **2019**, *28*, 7–22. [[CrossRef](#)]
12. Chang, Y.-W.; Huang, M.-H. A study of the evolution of interdisciplinarity in library and information science: Using three bibliometric methods. *J. Am. Soc. Inf. Sci.* **2012**, *63*, 22–33. [[CrossRef](#)]
13. Karimi, F.; Mayr, P.; Momeni, F. Analyzing the network structure and gender differences among the members of the Networked Knowledge Organization Systems (NKOS) community. *Int. J. Digit. Libr.* **2019**, *20*, 231–239. [[CrossRef](#)]

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.