

Publication Patterns of Academic Librarians from Norwegian Higher Education Institutions 2016–2020

Aneta Laskowska

To cite this article: Aneta Laskowska (2022): Publication Patterns of Academic Librarians from Norwegian Higher Education Institutions 2016–2020, *New Review of Academic Librarianship*, DOI: [10.1080/13614533.2022.2138478](https://doi.org/10.1080/13614533.2022.2138478)

To link to this article: <https://doi.org/10.1080/13614533.2022.2138478>



© 2022 The Author(s). Published with license by Taylor and Francis Group, LLC



Published online: 11 Nov 2022.



Submit your article to this journal [↗](#)



Article views: 443




View related articles [↗](#)



View Crossmark data [↗](#)

Publication Patterns of Academic Librarians from Norwegian Higher Education Institutions 2016–2020

Aneta Laskowska 

University Library, NTNU – Norwegian University of Science and Technology, Gjøvik, Norway

ABSTRACT

This article uses bibliometric tools to analyze the peer-reviewed publications of academic librarians from 32 accredited higher education institutions in Norway—10 university libraries and 22 college libraries—associate members of Universities Norway (UHR). The period 2016–2020 was chosen to enable us to better understand publication patterns among this academic group over a meaningful timeframe. Research outputs were examined in terms of productivity by institution, document types, publication years, subject categories, open access status, and collaboration patterns. The findings indicate that publishing amongst this community is growing; librarians choose the most highly regarded publication channels in the same way as other faculty members, and they publish in partnership with other researchers. The analysis found that academic librarians frequently select Open Access publication pathways.

KEYWORDS

Academic librarians;
publishing patterns;
research productivity

Introduction

Research and scientific publishing are part of the core activities at universities and colleges and a central part of the basis for departments' finances and priorities in Norway. In 2005, the Norwegian Publication Indicator, popularly named “tellekantsystemet,” was introduced in Norway—a system for counting and measuring research that forms the basis for allocating research funds. To count in this model, publications must meet several criteria. The definition of a scientific publication specifies that a scientific publication must present new insight, be in a form that makes the results verifiable or applicable in new research, be in a language, and have a distribution that makes it accessible for all who may be interested in it. Furthermore, the publication must be published in an authorized publication channel with routines for peer review. The Norwegian Publication

CONTACT Aneta Laskowska  aneta.laskowska@ntnu.no  University Library, NTNU – Norwegian University of Science and Technology, Teknologiveien 22, 2815 Gjøvik, Norway.

© 2022 The Author(s). Published with license by Taylor and Francis Group, LLC

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Indicator incorporates an expert-based rating of publication channels regarded as scientific. These channels are divided into two levels, with the highest level, level 2, representing the most prestigious publishing channels. Works published in a publication channel from this register can be awarded publication points, provided they satisfy the specific criteria mentioned above (Sivertsen, 2018).

All these requirements must be met to satisfy the authorities' expectations of what is reported as scientific publications to the Ministry of Education and Research via a joint national Research Information System, Cristin. Data about reported scientific publications for Norwegian universities and colleges accessible in Database for Statistics on Higher Education (DBH) say hence something about the extent to which scientific results are published in scientific channels, primarily international scientific journals, and thus reflect the institution's contribution to the national and international knowledge development.

The academic libraries are part of the scientific infrastructure. All Norwegian universities and colleges have an associated library that has been established to provide services and support to students, teachers, or researchers at the institution of which the library is a part. This is done, among other things, by offering access to relevant, updated, and quality-assured tools, learning resources, and sources of knowledge and by giving guidance in such areas as information and searches for literature, copyright, or open science-related issues. To achieve this goal, it is required that the libraries' employees continuously develop current and practical competence. Fallon writes that

Academic writing can promote the library's visibility within the academy. It offers the opportunity to share and disseminate experience, skills, and practice that do not exist in the same framework elsewhere in the University, including knowledge of collections, copyright, digitization, information sources, and information literacy Fallon, (2009, p. 421).

Although researchers at Norwegian higher education institutions have been pressured to increase their production of scholarly output, especially since The Norwegian Publication Indicator was introduced in 2005, it is not clear that the same has been confirmed for academic librarians. The existing action plan for the members' libraries of UHR (Universities Norway, 2020) does not set any explicit requirements for active publishing for librarians; it is instead expected that librarians offer several services to support the research process to established researchers, doctoral fellows, or students within the various subject areas. In opposition to librarians who are pursuing tenure in certain countries (Charing & Gardiner, 2017; Hart, 1999; Mitchell & Reichel, 1999), academic librarians in Norway are not required to participate in academic life actively and job descriptions hardly

ever embrace the role of having responsibility for research activity. However, their research productivity can be used for performance evaluation, salary increase, career progression, or promotional prospects. Still, while there is increasing interest in the research output of librarians worldwide, the issue of Norwegian academic librarians has not yet been fully explored. Are they only consultants and advisers or do they also carry out academic publishing to support the library's activities?

Purpose of the study

Although research output of academic librarians is amply covered internationally, particularly in the USA and Canada, where librarians are required and expected to research, there is a sparse literature on this topic in Norway. This article aims to gain new knowledge about publishing activity at Norwegian academic libraries from 2016 to 2020 using bibliometric tools. More specifically, the goal is to determine research productivity, collaboration with other institutions and countries, and the status of Open Access publishing. Therefore, the findings of this study could fill the research gap regarding the publication patterns of peer-reviewed publications from Norwegian academic libraries.

Research questions

This study further investigates the publication patterns by answering the following research questions:

How much scholarly peer-reviewed output has been published between 2016 and 2020?

How many of those scholarly peer-reviewed outputs have been published Open Access (OA)?

On what topics do librarians publish those scholarly peer-reviewed outputs in this study?

In which language are those scholarly peer-reviewed outputs published?

How many peer-reviewed outputs have been published in cooperation with another researcher(s) or colleague?

For this study, it has been considered appropriate to use the term 'librarians' to refer to practitioners who use the library's affiliation as an author's address in the final publications. This can be misleading since there are various positions associated with Norwegian higher education institutions' libraries, such as the senior research librarian, research librarian, head librarian, adviser, and different practices in their use. Nevertheless, in this study, it is considered most practical to refer to

everyone employed at Norwegian academic libraries as ‘librarians’ or ‘academic librarians’.

Limitations

This study is not without limitations. First, analysis is limited to the scholarly publications that have undergone peer reviews, such as scientific articles, scientific book chapters, and monographs of librarians at Norwegian universities and colleges. The analysis covers five years, 2016 to 2020, and includes all publications that have at least one author associated with the Norwegian university or college libraries in the analyzed period. The analysis is based on data obtained from the Cristin database.

Secondly, since we in this study were trying to understand qualitatively what has been published, we have neither examined how many librarians have published articles in the analyzed timeframe nor their faculty status—it was not our foremost research question in this study.

Literature review

To the best of the authors’ knowledge, a systematic study that analyses and explores the peer-reviewed publications of academic librarians from higher education institutions in Norway has not been conducted yet. However, in recent years, several international studies have addressed the central area of interest of the present analysis: barriers and challenges for research activities, research collaborations between librarians and faculty, open access publishing or motivating factors and support to stimulate research productivity among academic librarians.

Barriers that hinder librarians to conduct research

Most studies that relate more specifically to this research area examine factors that affect librarians’ research and publishing productivity. Crampsie, Neville, and Henry (2020) show that many academic librarians feel confident in research activities related to their overall work tasks, such as literature searching and writing. Still, statistical analysis and unfamiliarity with the research process and methods are more challenging for them. A low level of research confidence due to a lack of competencies to conduct research is discussed in many papers as the main reason for not submitting a study paper for publication (Kennedy & Brancolini, 2018; O’Brien & Cronin, 2016; Sheikh, Malik, & Mahmood, 2022). Moreover, findings from many studies indicate that librarians are not granted research time. Because of tight work schedules, some of them do library studies and development work outside their working hours (Clapton, 2010; Crampsie et al., 2020). Lack of this dedicated time to perform

and author research and the absence of services to support the research process of library staff are among the most crucial factors hindering the practitioners from conducting research, in both short-term and more in-depth studies (Lehto, Matangira, Shatona, & Kahengua, 2012; O'Brien & Cronin, 2016; Sassen & Wahl, 2014). A common thread through many of the studies concerning motivational factors is the absence of formalized mentoring or collegial support models where close collaboration between new employees and experienced researchers is described as an effective way to ensure that new employees quickly increase their writing and publishing skills (Sullivan, Leong, Yee, Giddens, & Phillips, 2013).

Factors that motivate librarians to conduct research and publish

Hoffmann, Berg, and Koufogiannakis (2017) argued that three factors: an environment that embraces individual qualities, interaction and support from peers and community, and solid institutional support are highly likely to impact and promote research productivity among librarians.

Other reasons motivate librarians to publish. Charing and Gardiner (2017) divide these factors into two main groups: work-related, which benefits the profession, and personal, while Kennedy and Brancolini (2018) categorized those contributing motivators into extrinsic and intrinsic factors. Many studies emphasize that publishing, as in other professions associated with academia, can affect employment, promotion, tenure, and extended career opportunities (Crampsie et al., 2020; Mitchell & Reichel, 1999). Some institutions, particularly in the USA, require library staff to be active as researchers throughout the employment period (Hart, 1999). Other findings indicate that conducting research can strengthen intellectual curiosity and personal satisfaction (Crampsie et al., 2020; Kennedy & Brancolini, 2018). Writing also creates good learning arenas for professional development and contributes to competence building (O'Brien & Cronin, 2016). Despite all the benefits associated with professional advancement and personal growth, Hoffmann, Berg, and Koufogiannakis (2015) argue that librarians are service-minded and practice-oriented. They also discussed a lack of an established research culture for librarians. Weng and Murray (2020) also believe that service-related responsibilities, as a priority in academic librarianship, often displace other apparent goods, such as contributing to professional literature.

Cooperation with other researchers

There is extensive literature that examines the role of librarians as active partners in the scholarly research process. The results show that librarians

are engaged in a complete range of functions throughout the research cycle: from planning, through implementation, to dissemination and participation in data curation (Borrego & Pinfield, 2020). The librarians are most often coauthors of systematic review articles, and they are included early in the process to assist with such tasks as the use of reference management software, selection of databases, and definition of search strategies or data collection and coding (Swinkels, Briddon, & Hall, 2006). They often take responsibility for the methodology section, where the search strategies are clearly and transparently presented. Coauthorship is usually due to a long-term collaborative relationship between librarians and researchers that has resulted in more than one joint publication (Borrego & Pinfield, 2020). Although librarians rarely receive financial compensation when they participate in research projects across an organizational structure, coauthorship can provide many benefits—it creates job satisfaction and strengthens the reputation of the individual librarian—and the library as a whole (Gore & Jones, 2015). Research and publication in collaboration with researchers also provide a unique opportunity to gain knowledge of how the research process takes place within different disciplines and therefore contribute to developing relevant library services that support researchers in their academic work (Pickton, 2016). Pham and Tanner (2015) argue that the collaboration between academics and library staff is a complex concept, representing a superior level of human relationship. Many potential barriers can impact this partnership even though the importance of collaboration between these groups is widely accepted.

Open access publishing

Various aspects of librarians' contributions to OA journals have been studied. Some study focussed on librarian authors of article openly available in the field library and information science. However, inconsistent findings have been presented. Dalton (2013) examined factors that typically influence the journal selection decision in the case of library and information science articles. The results showed that OA publishing options still need to be promoted within the profession for researchers and librarians alike because library and information science professionals still remain unsure about OA. Chang (2016) came to opposite conclusion and reported that half of the authors (55.6%) of examined articles worked in libraries and a substantial proportion (53.7%) of all contributions were coauthored and primarily resulted from collaborations among librarians. This finding highlighted that librarians not only strongly support OA publishing, but also promoting of OA publishing has been incorporated into library practice. This is corroborated by the findings of O'Brien and Cronin (2016), who

discovered the real growth of OA publications among papers published by library staff in Ireland.

Characteristics of studies that assess research output of academic librarians

Studies that analyzed characteristics of the scholarly output of academic librarians put the spotlight on the actual publishing pattern in research either at single institutions (Dees, 2015; Hart, 1999), country (Blecic et al., 2017; O'Brien & Cronin, 2016) or geographical regions (Ramos-Eclevia, Janio, Vinzon, Eclevia, & Apolinario, 2018) across a wide array of contexts. Some researchers explored articles published only in the field of library and information science (O'Brien & Cronin, 2016; Ramos-Eclevia et al., 2018) in a sample of journals (Blecic et al., 2017; Chang, 2016), while other studies map the entire breadth of the research portfolio without subject limitations performed by librarians' authors at a specific unit (Sitienei & Ocholla, 2010).

Researchers who have looked at issues related to library and information science researchers have used both quantitative and qualitative approaches to answer their research questions. In most studies, the analysis of scientific contributions is based on various bibliographic data sources. The primary data sources for those who study publications within the field of library and information science are Web of Science, Scopus, and Google Scholar (Borrego & Pinfield, 2020). Other researchers who wanted to capture as many scientific contributions as possible published by librarians obtained data directly via questionnaires sent out to potential authors (Hart, 1999) or via publication lists available on the websites of some institutions (Dees, 2015). Most studies that were intended to provide insight into the characteristics, behaviors, motivations, institutional support, and educational opportunities of academic librarians used the quantitative approach as a survey method (primarily questionnaires) to describe the extent or frequency of the phenomenon (Borrego & Pinfield, 2020; O'Brien & Cronin, 2016).

Methodology

We used bibliometric analysis techniques to conduct the present study, where data were extracted from the Cristin database. The data collected in this project took place in two stages.

Stage I: Preparation

The primary data source used in this project is Cristin. Cristin is an acronym for the Current Research Information System in Norway. This is a

database for registering all research activity in the health, institute, and higher education sector and has been used in Norway since 2012. Cristin consists of, among others, the Norwegian Science Index (NVI). That module is used to register bibliographic references for scientific publications in three main categories: academic journal articles (including review articles), academic monographs, and articles in academic anthologies (edited books and proceedings). The Cristin database can be used to register other activities such as dissemination, projects, and presentations to make all the research and development conducted at Norwegian institutions available in a presentable format. Since the publishing results yield publishing points, which lead to economic benefit as a part of assigned funds from the Ministry of Education and Research, all members of UHR are obligated to send an annual report with all scientific publications to the DBH within the given deadline. Thus, all scientific employees having scientific publications are responsible for ensuring that they are entered in Cristin. Although Cristin has limited metadata and lacks references, it is considered as the central and complete data source and is particularly suitable for analyzing research activity in Norway. The data in Cristin is quality assured and curated because institutional supervisors control each reported publication. From previous studies, we also know that Scopus and Web of Science, the large citation databases used for bibliometric analyses, have varying coverage (subject differences, language, type of contribution) - Scopus covers 54%, and Web of Science 42% of all peer-reviewed scientific articles in journals and series in the social sciences and humanities that are registered in Cristin (Sivertsen, 2014) They have therefore not been considered as additional sources in this research study.

The timeframe 2016–2020 was chosen to enable us to obtain a clear picture of patterns and trends of research activity among academic librarians from Norwegian higher education institutions. The analysis is further limited to publications qualified as scientific according to the definition of academic publication, developed with regard to measuring academic production for budget models in Norway. Peer-reviewed articles in series and journals and monographs and contributions to anthologies (chapters in books) should also be published by publishers/in journals classified as scientific in the Norwegian register of scientific publishing channels.

The focus of the research is publishing activity among Norwegian academic librarians. Universities Norway (UHR) is a cooperative body for 10 accredited universities, 13 university colleges, and nine scientific colleges annually reporting their publication data from Cristin to the Norwegian Ministry of Education and Research. Cristin database has a hierarchical structure, and the layout reflects the organization's chart with all subunits such as faculties and departments, and how these relate to each other. All

persons and scientific activities registered in Cristin are linked to one (or more in the case of two or more job positions) unit in the place structure. As mentioned earlier, the goal was to capture all scientific publications where the library's name appears as the author's address in the publication. In the largest institutions, a library is a separate unit in the Cristin hierarchy. In contrast, in the case of smaller institutions, libraries are merged with other units in the organization (often the administration unit). In those cases, a publication from librarians could therefore not be easily separated from the others since the library's employees used a parent author affiliation in the database.

Stage II: Data collection

The NVI results module in Cristin is openly available online to anyone who wants to perform analyses on them. In September 2021, a test search was conducted to identify and locate all libraries associated with 32 higher education institutions. It turned out that only 11 UHR libraries were listed as separate units in Cristin, either straight under the organization's name or under another department or another faculty, depending on the organization of the individual institutions. The other 21 libraries were usually merged with the administration (e.g., the library at the University of Agder), and it was not possible to capture directly from the Cristin database a list of publications from those libraries. An alternative was to compare employee lists available on the library's websites with Cristin lists. Still, we assumed that option was a possible source of bias since some websites are not up to date. For example, it was likely that an employee who had a publication in 2018 terminated his employment in 2019 and was not in the overview. To be as comprehensive as possible, the local Cristin administrators (often library staff) were contacted and asked to examine the author's affiliation to determine if the author worked in the library. For this study, it is assumed that those administrators have accurately extracted all scholarly publications. This wide-ranging scoping was carried out in cooperation with local Cristin administrators in early October 2021 to quantify the published output of library staff from their institutions. Publication from 11 academic libraries having independent units in Cristin were also selected directly from the Cristin base. All were later, using API script, enrolled by authors in an Excel sheet. It was these two primary instruments utilized for data collection for our cohort. Each publication was again carefully examined and manually verified with bibliographical data in the Cristin database to ensure the high standard of the file's contents. It was nevertheless assumed that such quality assurance would strengthen the value of the collected data. Furthermore, each paper was categorized by: Cristin ID,

category code (article, academic review, academic chapter, scholarly monograph), year of publication, open access status (noon, green, gold), original language, scientific field, author(s) affiliation, the total number of authors for each refereed article, publisher, name of the journal, solo, co- or multi-authored, publication level (1 or 2). We have made every effort to ensure that the data in this study are accurate.

Summary

In total, 244 distinctive scientific publications (each publication has its unique Cristin ID) have been identified, where at least one person was associated with one of 32 Norwegian academic libraries. These 245 publications form the data basis for the analysis. However, it should be emphasized that in some cases, publications had between two and four authors with library affiliations, and seven of these had authors from various Norwegian academic libraries. Publications with several authors from the different libraries are counted as one publication in the main overview. In the analysis where data is presented in the form of tables and graphs per institution, each institution is credited for it. Moreover, in some instances, a librarian may want to credit several institutions simultaneously—for example, an academic library and a department by listing several addresses in the publication. This can occur if someone has additional positions or if several units have given a necessary or significant contribution to or basis for an author's contribution to the published work.

Results

This study aims to map research activity at Norwegian universities and college libraries. To answer the research question, we have analyzed scientific publications registered in the Cristin database, and the project covers a timeframe from 2016 to 2020. In this chapter, we will present and partially interpret our findings.

Number of publications

The analysis includes publications with at least one coauthor associated with the Norwegian university or college library. Publications with several authors from academic libraries (sometimes one publication has authors from more than one library) are counted as one publication. As described in the methodology chapter, this study includes publications qualified as scientific according to the Norwegian definition of a scientific publication and are annually reported to the Norwegian Ministry of Education and Research. NVI categories include three primary groups: academic articles,

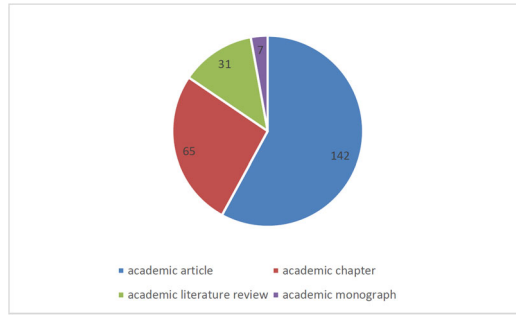


Figure 1. Academic contributions published 2016-2020.

academic chapters, and academic monographs. Serial publications (publications that have both ISBN and ISSN numbers) can be registered in Cristin, either in the category of an academic article with the ISSN title as a publication channel or as an academic book chapter where the book can be linked to an ISSN title. This analysis is nevertheless based on the category listed in Cristin.

The analysis shows that Norwegian academic librarians have contributed to 245 unique titles of academic articles, book chapters, and monographs in the period 2016–2020. In 2016–2018, the annual number was relatively stable between 46 and 40 publications, but the number of publications has been higher in the last two reporting years. Librarians were most productive in 2019 when 62 titles were published and in 2020 with 60 publications.

As shown in [Figure 1](#), data reveal that among 245 scientific contributions, there were 142 academic articles, 31 review articles, 65 academic chapters, and seven monographs.

The peak year for publishing scientific journal articles was 2019, when a total of 42 original articles and 11 academic review articles were reported ([Figure 2](#)). According to the results of this study, seven monographs were published by librarians between the years 2016 and 2020. An academic monograph is a more significant publication that communicates new, research-based knowledge primarily targeting an academic community, and it's apparent that it involves more 'workload' than a journal article. Thus, a monograph is also awarded more publication points than articles or book chapters in the Norwegian model.

This study quantitatively examined scientific output from our population of interest: 32 Norwegian higher education institutions—10 accredited universities, 13 university colleges, and nine scientific colleges. When scholarly output was analyzed by institutions, data revealed that 14 academic libraries have contributed to the total number of 245 NVI records ([Figure 3](#)). Within this dataset, librarians from UiT The Arctic University of Norway were found to be the most productive authors with 63 publications, followed by University of Oslo (46), University of Bergen (40), Oslo

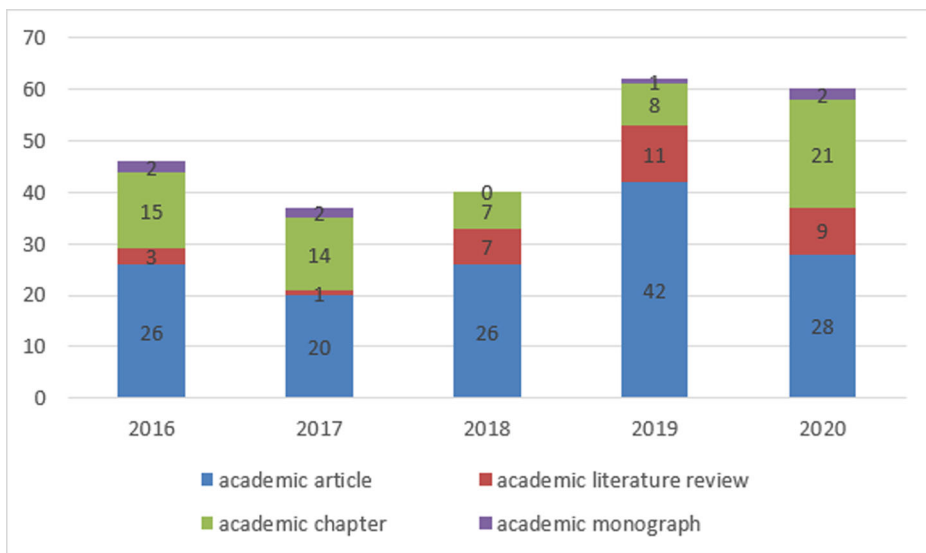


Figure 2. Publications by year 2016-2020.

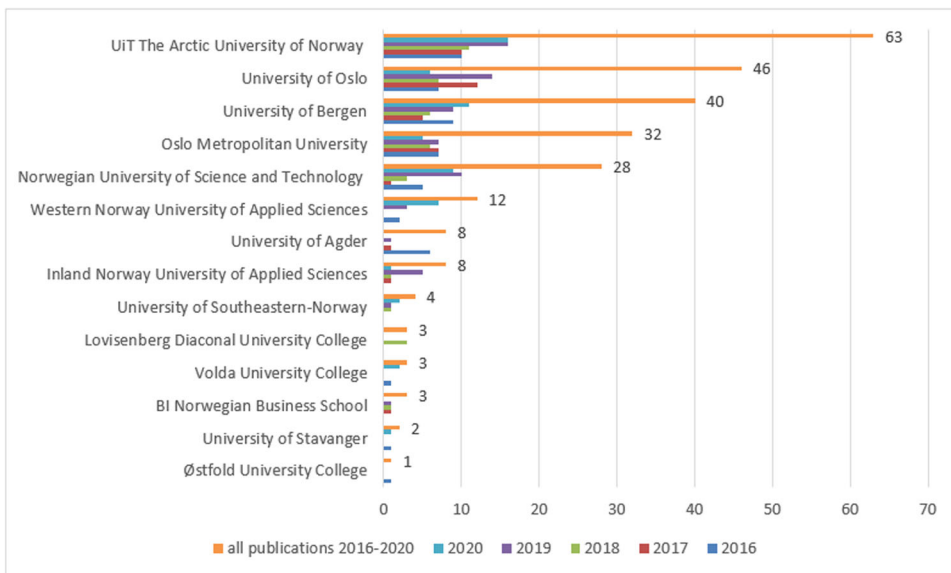


Figure 3. Most productive institutions.

Metropolitan University (32), and Norwegian University of Science and Technology (28). Together, these top five most productive libraries comprise 85% of the total number of scholarly publications of librarians in this study. From 2016 to 2020, two universities libraries did not have NVI records related to their library employees—Nord University and Norwegian University of Life Sciences.

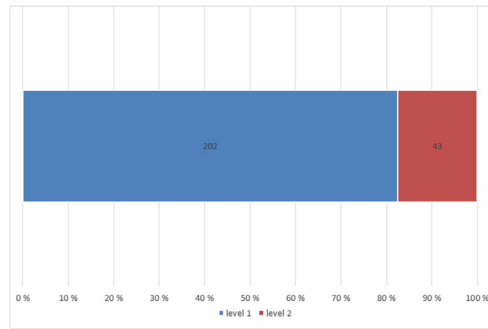


Figure 4. Level 1 and 2.

As noted above, the Norwegian model introduces a list of national and international publication channels regarded as scientific. This register contains journals, series, and publishers. Level 2 is the leading and most prestigious publication channel in various disciplines. The classification in level 2 is based on the premise that about 20% of the publication in a subject should be at this level. Data, as shown in [Figure 4](#), demonstrates that the research output of academic librarians in the timeframe 2016–2020 in level 1 and level 2 channels is slightly lower than they anticipated, with 82% at level 1 and 18% at level 2. However, there are marginal differences in percentage. It can be concluded that librarians publish in the most prestigious channels to the same degree as other researchers in the university and college sector.

Open access (OA)

The government's goal is that all publicly funded Norwegian research articles should be made openly available by 2024 (Norwegian Ministry of Education & Research, 2017). There are different routes to open publication. Publication in open journals (which sometimes requires an article processing charge) is called 'gold' OA. Access to pre-or post-print of the manuscript via repository is called 'green' OA, also known as self-archiving. Hybrid OA means that individual articles in subscription journals are obtained free of charge by the researcher or the institution (often through so-called transitional agreements that many Norwegian higher education institutions have signed). The survey results show that open access publishing among the Norwegian academic library community is growing. 34% of all publications (all journal publications) could be categorized as 'gold'. Those scientific articles and scholarly reviews were published either in diamond open access journals without article fees or in open/hybrid journals that charge an author's fee that covers costs associated with open publishing ([Figure 5](#)).

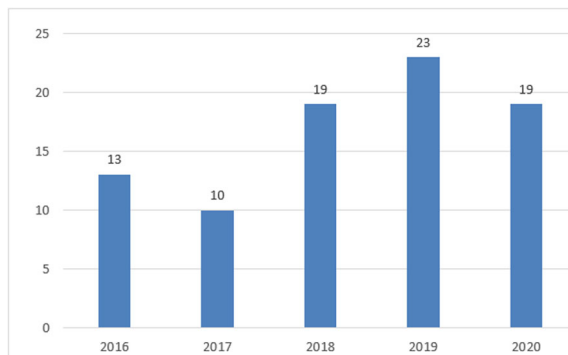


Figure 5. Open access publications, 'gold'.

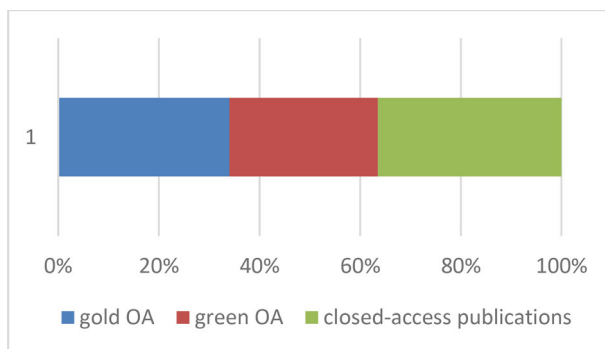


Figure 6. Open access and close-access publications.

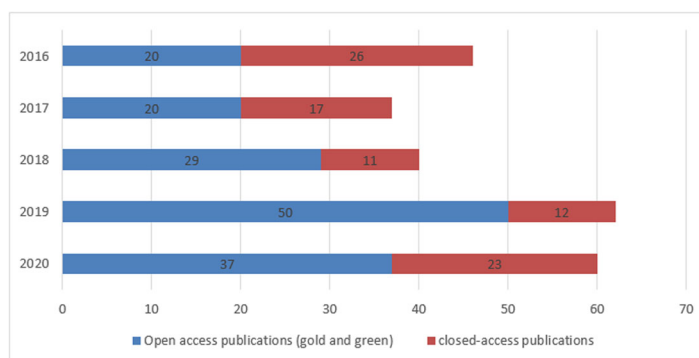


Figure 7. Open access and closed-access publications by years.

Furthermore, 29% of publications had 'green' status with a copy of an earlier version of the author's manuscript in the repository. Figure 6 shows that, in total, over 60% of 245 librarians' scholarly output has reached the goal of OA in the timeframe 2016–2020.

According to Figure 7, which explored OA and non-OA trends based on the percentages for all years, it is a noticeable increase for OA publications in the timeframe 2016–2020. An interesting trend in Figure 8 shows that

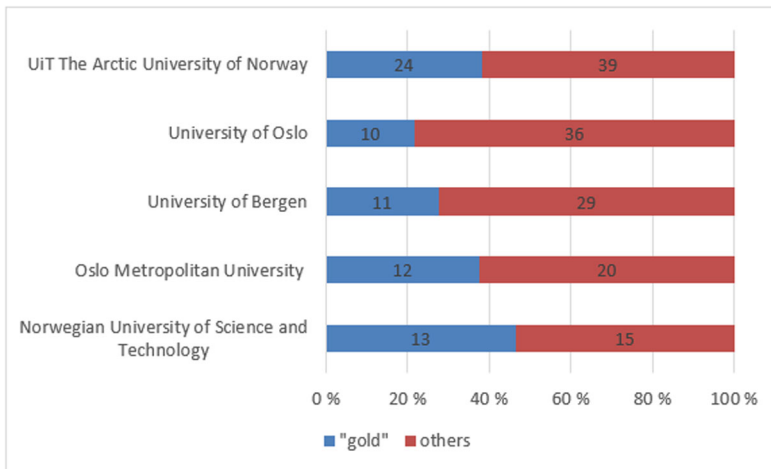


Figure 8. Open access publishing and institutions.

OA publications ('gold' and 'green') trended upward from 2016 with 20 (43%), 2017 with 20 (54%) to 2018 with 29 (72%). OA output reached its peaks in 2019 at 50 publications (80%), but this drops to 37 (61%) in 2020.

When OA gold scholarly outputs in this study were analyzed by institutions (Figure 8), data revealed that the university library at UiT The Arctic University of Norway has the highest number of open publications (23 publications) in the timeframe 2016–2020, followed by Norwegian University of Science and Technology (12 publications) and Oslo Metropolitan University (12 publications). However, according to our analysis, the ratio between gold publications and the total number of publications per library shows that the university library at Norwegian University of Science and Technology has the largest share of open publications among the main libraries, over 46%.

Subject area

All journals and series in the Norwegian register of scientific publishing channels are divided into four main subject areas (humanities, social sciences, health sciences, natural science, and engineering) and 76 related disciplines (Norwegian Directorate for Higher Education and Skills, 2022). Book publications (monographs and chapters) are classified according to the same system, but disciplines, in contrast to ISSN channels, must be chosen during registration in Cristin. Figure 9 shows a broad scope and variety of themes covered by the library's scientific output. Most of the publications deal with library and information science within excess of 21% (52 publications) of all 245 publications. Unsurprisingly pedagogy and education, with

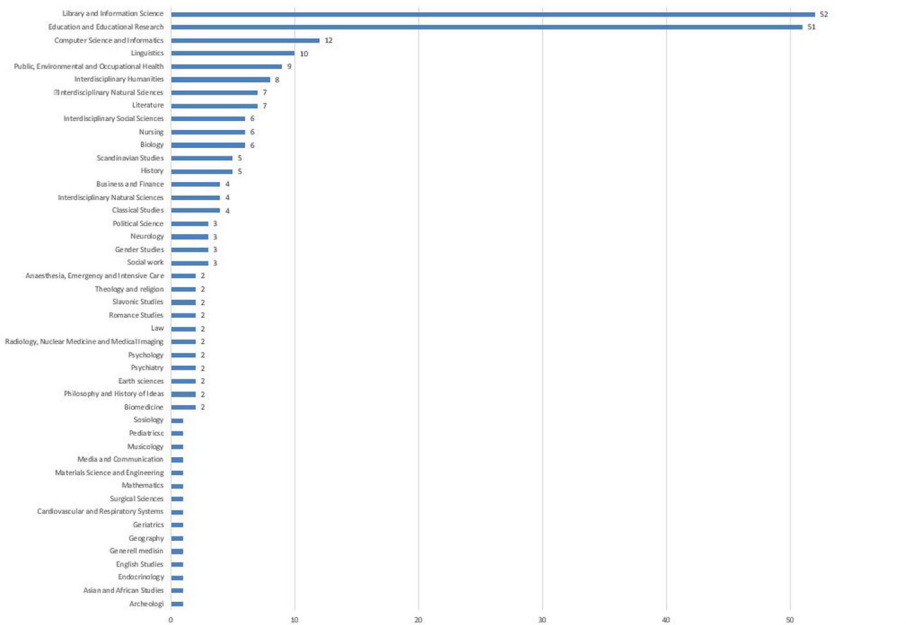


Figure 9. Studied subject areas.

20% of all publications (51), are the next most written about the topic. Other themes are frequently written about, including almost all disciplines: informatics and computer technology, linguistics, social medicine, literary studies, interdisciplinary humanities research, natural sciences, and social research. The analysis shows that all four subject areas are represented among the top ten subject areas.

Academic institutions in the sector have various subject profiles and contribute to different proportions of publications within the subject areas. We have examined in detail two disciplines that have the most significant publication volume: education and educational research and library and information science.

Figure 10 implies that the university library from UiT The Arctic University of Norway is the most productive institution among academic libraries concerning the subject education and educational research. Of the 51 papers considered (articles, chapters, and monographs), 24 were written by authors with UiT The Arctic University of Norway affiliation. This may be because a professional unit working with quality work in teaching and learning (Result/Resource for teaching, learning & technology) is positioned under the library.

A total of 51 titles of journal articles (38), reviews (1), book chapters (10), and monographs (2) written by librarians were categorized within pedagogy and education. As shown in Figure 11, data reveals that librarians frequently published in different journals within this subject area. The

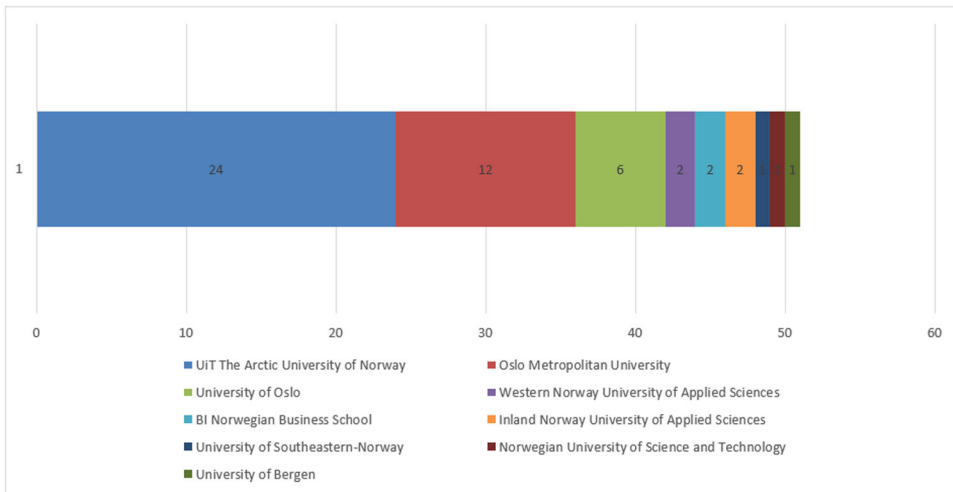


Figure 10. Education and educational research, by institutions.

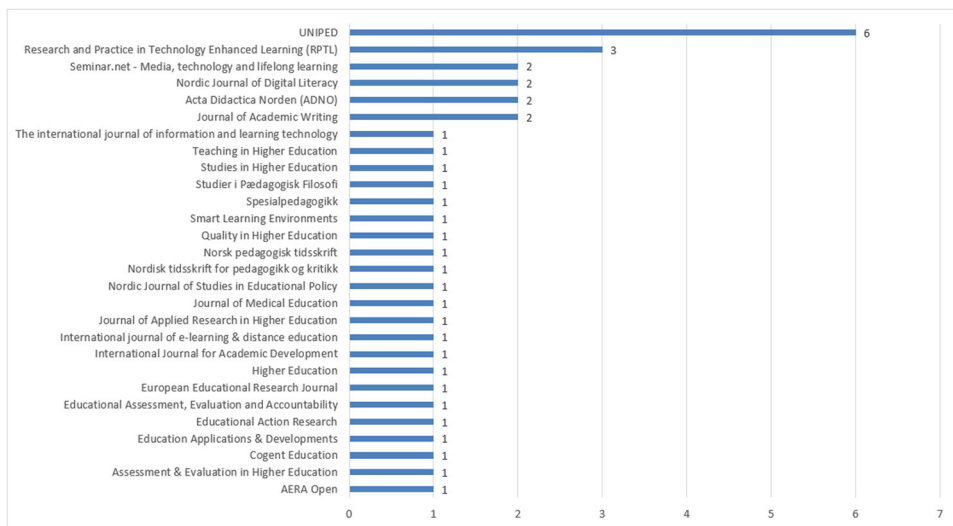


Figure 11. Journal titles by the highest number of published articles in education and educational research.

journal most heavily represented in this category is *Uniped*, with six articles published between 2016 and 2020. Three articles, the second-highest total for an individual journal title, were reported in the *Research and Practice in Technology Enhanced Learning (RPTL)*. *SEMINAR.NET*, *Nordic Journal of Digital Literacy*, *Journal of Academic Writing*, and *Acta Didactica Norden* had two articles. Four top journals (apart from Springer's journal *RPTL*) are published in Norway, have the OA status 'gold', and are available either via the idunn.no - Norwegian commercial digital platform for science and research, or via institutional publishing services (e.g., *Acta Didactica Norden*). All the remaining 29 articles are otherwise spread between a

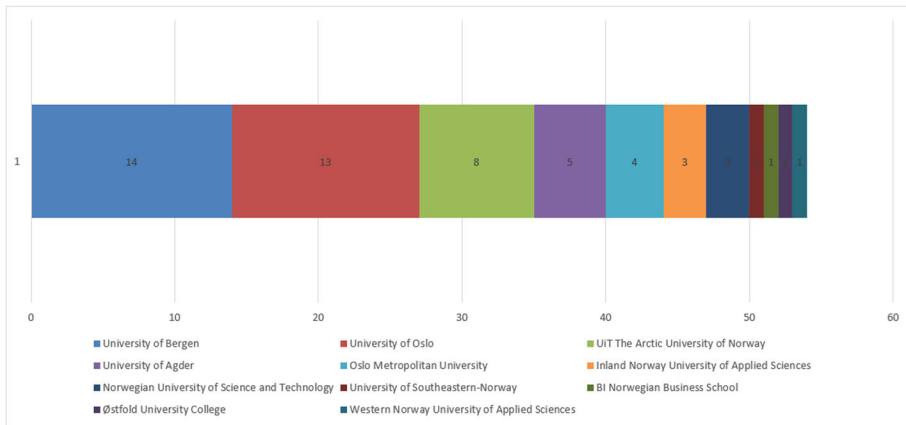


Figure 12. Library and information science, by institutions.

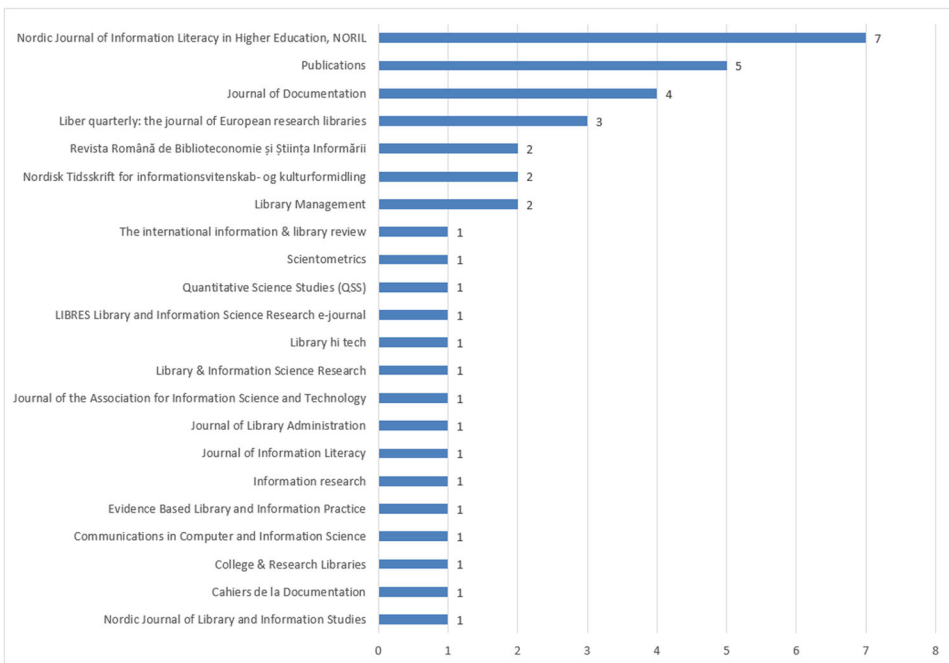


Figure 13. Journal titles by the highest number of published articles in library and information science.

broad mix of different journals. Six papers in pedagogy and education have been published in journals at level 2 (e.g., *Studies in Higher Education and Assessment & Evaluation in Higher Education*).

Figure 12 shows that almost 70% of the output within that subject area of library and information science comes from three institutions: university libraries at University of Bergen, University of Oslo, and UiT The Arctic University of Norway, some of them have authors from various Norwegian academic libraries.

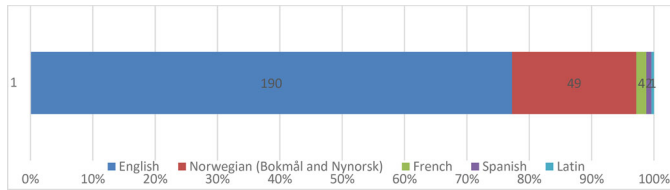


Figure 14. The languages of publications.

Based on figures for 2016–2020 (Figure 13), we can see that the journal portfolio within the library and information science is quite complex. Seven articles have been published in the open journal *Nordic Journal of Information Literacy in Higher Education* (NORIL), published by the university library in Bergen. This title is followed by MDPI's journal *Publications* with five articles and a level 2 *Journal of Documentation* published by Emerald (4 articles). The publications are as well distributed among various Nordic and international journals within the library and information science subject area, as shown in Figure 13.

Language

The use of English in scientific articles is constantly increasing at Norwegian institutions, and for some bodies, there is cause for concern (Sivertsen, 2021). Not surprisingly, English is, to a significant extent, used as a professional language by librarians in the higher education sector (Figure 14). The analysis of scientific publications from 2016 to 2020 shows that almost 78% of the 245 publications registered in Cristin from Norwegian academic libraries were published in English, while 20% in Norwegian, both Bokmål and Nynorsk—two official written standards for the Norwegian language. After all, the proportion of scientific publications published in Norwegian is much higher than elsewhere in the sector, where, for example, the figures from 2019 fell to 9% (Sivertsen, 2014).

Most of the research output of Norwegian academic librarians deals with social science, and this subject area has traditionally had a relatively high proportion of native-language contributions (Sivertsen, 2016). However, for publications from our cohort, the average for the five years is 28% social sciences publications in Norwegian. The highest proportion of English-language contributions is found among review articles. Only one of 31 articles in this category is published in Norwegian (Nynorsk).

Cooperation

In Cristin, all authors having NVI publication must register the same address they provided to the publication to ensure that both author(s) and

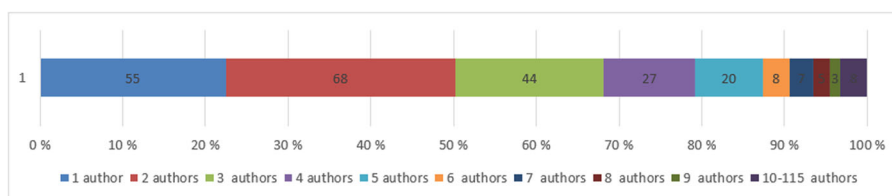


Figure 15. Number of coauthors on the papers.

institution(s) get the credit each is due. Only the top level, the overarching institution, is registered for foreign organizations. Based on this information, one can look at the percentage of sole and multiple authorship and the extent of collaboration. As stated in the Indicator Report (Aksnes & Wenaas, 2021) Norwegian research increasingly involves national and international cooperation. Due to the technological development in recent decades, research is conducted today differently than before—where projects across institutions and national borders have become the new standard and way of working in complex and dynamic environments. Figure 15 shows the number of authors per publication in the timeframe 2016–2020.

22% (55) of all scientific contributions from academic librarians are single-authored papers, while the others have between two and 115 coauthors. This means that 78% (190) of 245 publications were written in collaboration with authors from either the same institution, an external Norwegian institution or with researchers from abroad. In 152 of those 190 publications, only one of all coauthors was from the library. Of the remaining 38 publications, between two and four of the authors were from the library. In studying the frequency of coauthorship, the data revealed that the number of coauthored articles increased from 62% in 2016 to 88% in 2019. However, it fell a little bit to 80% in 2020.

The findings indicate that over 31% (78) of the librarians' publications were written with a researcher from different Norwegian universities, colleges, institutes, and health trusts. The national collaboration includes however many different variants; according to our analysis, 32 publications had both authors from the same and an external Norwegian institution.

Surprising results were obtained regarding librarians' co-writing. The analysis implies that only 38 publications were written collaboratively with other librarians, where the number of coauthors with libraries' affiliations varied between two and five. Of the 245 papers considered, seven publications had two or more participants from different libraries, which indicates a low level of research collaboration between Norwegian academic librarians. As expected, library and information science and computer science were the most written about disciplines among these seven papers.

In addition to the national collaboration, there is also a significant collaboration with researchers at foreign institutions. 33% of 190 multi-author

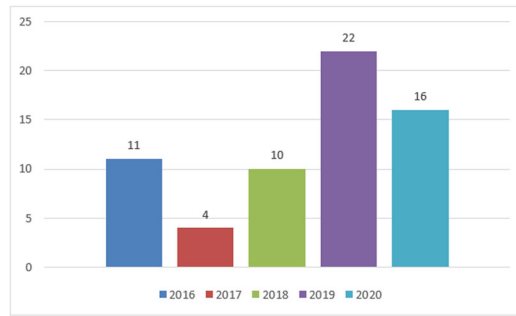


Figure 16. International cooperation.

publications have at least one author affiliated with institutions abroad (Figure 16). The share has varied somewhat in the period 2016–2020 but shows an increasing trend. Among the partners are researchers from several countries such as Sweden, Egypt, New Zealand, and Australia representing almost all continents.

Discussion

The focus of this study has been on exploring the distinctive features of the publishing pattern among librarians from 32 Norwegian college and university libraries in the period 2016–2020. We made every effort to obtain as much quality data as possible and ensure its accuracy and correctness. Despite some challenges related to data collection, Cristin can be considered a reliable source for bibliometric studies of Norwegian scientific publications since this database contains verified, structured, and complete data. A bibliometric analysis of the 245 scientific publications, with at least one coauthor associated with the Norwegian academic library, examined in this study has given an insight into the academic activity carried out by academic librarians. We have also tried to shed light on developmental features of the publishing pattern by, among other things, identifying forms of publication, channels, disciplines, publishing languages, and coauthorship.

Number of publications

In the timeframe 2016–2018, academic librarians published about 40 publications each year, but in the last two years of the analysis, this number increased to about 60 publications in 2019 and 2020. There has been an apparent growth in publication volume toward the end of the period, indicating that Norwegian librarians are becoming more active in scholarly communication. Likewise, data about reported scientific publications for Norwegian universities and colleges accessible in Database for Statistics on

Higher Education (DBH) shows that the total number of scientific publications increases yearly in every institution and department. Based on the analysis, it appears that articles (in scientific journals and series) were the most widely used form of publishing. This is again like other units (institutions) that report their data to the Ministry of Education and Research. It is challenging to compare publishing activity among librarians employed at Norwegian universities and colleges with librarians from other countries since we have not found new and relevant studies that relate more specifically to our research area. Some studies, such as Ramos-Eclevia et al. (2018), make a similar comparison. Hence, they address both different periods, retrieve data from diverse sources, and limit the analysis to publications within the field of library and information science. They cannot be used in this project. Therefore, it isn't easy to assess whether 245 peer-reviewed publications are much or little in that context.

On the other hand, the findings of this study revealed how the scientific publication is distributed among institutions and that there is a different degree of research activity in various libraries. The data also shows that the overall contribution to the scientific output came from a small percentage of Norwegian academic libraries—only 14 of 32 libraries were represented in our five-year data. Unsurprisingly, a sizable majority of publications—88% have come from universities. These results are consistent with those provided by O'Brien and Cronin (2016), who observed similar publication patterns among Irish academic librarians. They noted the majority of publications came from librarians working in universities. Similar findings were also noted in Blečić's studies (2017) on librarians' research productivity in the USA. They argued that the faculty status of librarians is associated with high publishing activity among American librarians. Norwegian university libraries have as well usually scientific staff (including university librarians and research librarians) who often have protected time for their research and development work. Galbraith, Smart, Smith, and Reed (2014) argued that academic librarians holding faculty status tend to publish more than those without; however, this study neither investigates if the authors of those papers retain faculty status nor if they had the professional background or research-level qualifications.

The other six colleges contribute relatively little to the scientific output, with 12%. One reason for this may be that colleges seldom have librarians employed in professional roles positions with formal time allocation for research. There is also no cultural tradition for librarians at colleges to conduct research. There are two universities libraries that, in the period 2016–2020, did not at all have NVI records related to their library employees. However, it is difficult to draw any firm conclusions, based on the quantitative sample in this study, about what exactly can affect librarians'

publication inactivity in those two universities and other college libraries not represented in the sample. The analysis further shows that librarians publish in the most prestigious channels (level 2) to the same degree as other researchers in the academic sector. Level 2 channels pay off more in the Norwegian system and include the leading publishing channels. It is expected that 20% of all output in every scientific discipline should be published at level 2. A total of 43 of the library's publications (17%) were published in publication channels at level 2, both journals (articles) and publishers (book chapters and a monograph) on various subjects, mainly in pedagogy and education, library and information science, but also musicology and psychiatry.

Subject area

Regarding the subject distribution of publications coauthored by librarians, the analysis shows that social science (with pedagogy and education and library and information science at the forefront) is the most significant subject area and accounts for 52% of the publication (126 publications) from 2016 to 2020. There are many librarians with teaching and supervision tasks in academic libraries, and there is a growing need for strengthened knowledge and competence about learning theories and teaching methods. Therefore, it is not surprising that a considerable number of publications fall under the field of pedagogy and teaching. Expectedly librarians also research and write about their profession—to improve problem-solving and provide a better basis for decision making in the workplace (Sheikh et al., 2022). Figures in this analysis imply that most of the scientific output from librarians deals with social science (52%, 126) and humanities (21%, 52), followed by health sciences (16%, 40) and natural science and engineering (11%, 27). These results reflect the academic profile of libraries (social sciences). Still, since such a substantial proportion of articles have been published in medicine and technology, it can be interpreted in the sense that academic librarians have different academic backgrounds or are involved in various projects as members of research groups.

Open access (OA)

As mentioned earlier, the government's goal is that all publicly funded Norwegian research articles should be made openly available by 2024. The number of channels with OA has grown significantly in recent years, and institutions facilitate open publication through agreements with several large academic publishers by covering article processing charges. However, the various disciplines are to varying degrees covered by open channels or

channels that are part of ‘publish and read agreements’. This analysis shows that 84 publications—scientific articles and review articles (34%), were published openly ‘gold’—either in channels with publication fees or in journals that do not require additional costs. OA publishing has increased in scope in recent years, and the findings also indicate that the trend is growing in the library sector. As is well-known, libraries at large institutions are often responsible for promoting open publishing by assisting in choosing the proper channels, managing publishing funds, or guiding the self-archiving of articles in institutional archives. It isn’t easy to prove any connection, but we could hypothesize that librarians have a greater awareness of open publishing than other researchers. Therefore, they choose to publish in open channels to follow this principle. It is also expected that to be seen as credible, they must have the role of open access advocates and demonstrate that free access is essential in the choice of publishing channel (Dalton, 2013).

Language

Norwegian-language scientific publications have been reduced from 15 to 9% from 2011 to 2019 (Sivertsen, 2021). Several reasons influence this trend. English has become the leading language of communication in many disciplines, there is a broader range of publishing channels, and international publishing promotes the reuse of research. By writing in English, scientists reach a larger audience, and other researchers can benefit from—and build on—the published knowledge to a more significant extent. Based on the data analysis, it appears that almost 80% of scientific contributions from Norwegian academic librarians have been written in English. A few publications, seven in total, are written in French, Latin, Spanish and the others in Norwegian. When looking at subject areas and Norwegian-language contributions, two disciplines dominate: library and information science, and pedagogy and education (both in the social sciences). It is not possible from this data to conclude that the choice of local publication language in those cases was influenced by social conditions, access to relevant publication channels, or whether the research was not pertinent to be presented to an international audience.

Cooperation

Based on the analysis, it appears that librarians both conduct their research and are participants in projects across units within organizations and publish in collaboration with researchers from various institutions and countries. A considerable proportion of reported publications are review articles

prepared to summarize and conclude all research on a specific issue. The results of this study are consistent with those provided by Borrego and Pinfield (2020). They studied the librarian's role in the research process and identified that many articles retrieved for their sample were also literature and systematic reviews. Those type of research requires a specific methodology (among other things, it is essential to build up, accurately document, and describe search strategies). Since librarians often master the knowledge of designing and conducting literature search, they are usually included as project participants. Most review articles in this analysis have been published in medicine. However, based on the dataset, it now appears that summarizing research in a systematic overview has become a well-used method in several subjects—such as social sciences, pedagogy and education, and library and information science. Some academic libraries have created guidelines for coauthorship for research groups that use the librarians' expertise (e.g., the University Library in Bergen). However, there are different practices for coauthorship between other disciplines. Many academics, particularly in medical and health research in Norway, follow Vancouver (formerly International Committee of Medical Journal Editors) recommendations—a set of simultaneous criteria required to be an author of a paper. Based on the figures, data suggest that publication patterns are changing ever since there has been an increasing number of review articles in the last years. Consequently, it can be essential for other Norwegian libraries to create valid suggestions which precise standards for what distinguishes supporting research as a nonauthor and what activity constitutes authorship. It can be anticipated that librarians engaged increasingly in discrete steps in research projects will be frequently acknowledged for their contribution as coauthors.

Of the 245 papers considered, 190 were co-written by either author from the same institution, an external Norwegian institution, and researchers from abroad. There is a positive tendency for collaboration with an excess of 78% outputs, and a prominent part of this extends beyond individual institutions. The findings of this study are consistent with those of Blečić et al. (2017), who found an increase in coauthorship rates over the five years of their research. Moreover, the result of this study verified that librarians are considered research partners, often in more complex projects that require more authors to be involved. Furthermore, joining authorship among this group is apparent (Borrego & Pinfield, 2020). In their 2015 study, Pham and Tanner (2015) noted that if librarians want to enhance the effectiveness of writing partnerships with academic staff, they must recognize that collaboration is an advanced form of social structure that takes time to develop. However, there is a surprisingly tiny inter-library cooperation and writing between academic librarians across the sector since fewer

than 3% of papers were multiple authored and written collaboratively with librarians from an external organization. O'Brien and Cronin (2016) reported similar findings where a low degree of external collaboration among academic librarians was also observed in Ireland. We could assume that practical considerations like working internally with a colleague within the same academic institution are more accessible to obtain than collaboration with other library researchers. Another likely reason for the low degree of cooperation between librarians can be time management planning or difficulty in finding suitable partners due to the specificity of research interest. According to Campbell, Ellis, and Adebajo (2012), the formation of academic writing groups with clear goals and objectives could encourage libraries' staff to develop productive working relationships across the various institutions.

Conclusion

Research and scientific publishing are among the essential activities that employees in scientific positions perform at universities and colleges. The scientific publication helps to spread new knowledge, and in Norway, it also forms the basis for the annual reallocation of funds between institutions. But do Norwegian academic librarians contribute to the institutional mission? According to O'Brien and Cronin, 'finding a balance between service-oriented librarianship and scholarship that contributes to the growth of knowledge is challenging' (2016, p. 221).

The present study has taken a first step toward gaining new knowledge about publishing activity among academic librarians from Norwegian higher education institutions. Based on the analysis, we can see those librarians both research and publish, and that they are also often participants in large research groups across units, institutions, and national borders. They publish to the greatest extent in the social sciences. Still, the other publications are distributed to varying degrees on topics and disciplines ranging from gender research to mathematics. Like other researchers, librarians publish primarily in English—and they often choose open publishing channels.

Even though many librarians have been actively engaged in scholarly communication, their role is still generally seen as limited to providing support to the academic community with diverse needs (Zakaria, 2015). Moreover, writing and publishing are not a part of the job description for most academic librarians in Norway. In further research studies, we see an opportunity to explore various factors influencing publishing activity among academic librarians and what motivates or what discourages them from publishing. Since there are no corresponding research expectations

and pressure to publish does not appear to be growing at many Norwegian academic libraries, this investigation could help to shed light on motives and reasons that may encourage or limit that process. These questions could be answered through qualitative research.

As mentioned previously, a conscious decision was made to focus on the publication pattern of peer-review output. The author recognizes that it could be noteworthy to address the question of the characteristics of librarians that produce these publications and compare these results to the total number of librarians working in various positions at Norwegian academic libraries. In this respect, it is important to examine their academic status or research-level qualifications to better understand the traits of the most productive libraries.

Moreover, as this study was exploratory and lacks similar research and results to which it could be compared, it isn't easy to prove whether 245 publications are much or little for this cohort. In this context, similar studies of different academic libraries, especially from the Nordic countries, should be considered to determine if the findings from this study are unique or if the libraries show similar patterns and compare the results to get a broader perspective.

A fundamental issue for the present study was determining publishing activity among Norwegian academic librarians. However, analysis was limited to the scholarly publications that have undergone a peer-review process as this is a standard measure of productivity in the Norwegian Publication Indicator. Are librarians sharing their diverse types of research output in other ways, such as articles in business and industry journals, reports, or academic presentations? This concern raises questions that deserve further investigation.

Gaining more insights on these topics could help library management identify if any action can be taken to support research activity further and may also be a key to successful publishing by Norwegian academic librarians.

Disclosure Statement

The authors report there are no competing interests to declare.

ORCID

Aneta Laskowska  <http://orcid.org/0000-0002-2010-2923>

References

Aksnes, D. W., & Wenaas, L. (2021). Vitenskapelig publisering: Samarbeid om vitenskapelig publisering. In E. Solberg & E. Wendt (Eds.), *Indikatorrapporten 2021: det norske*

- forsknings - og innovasjonssystemet - statistikk og indikatorer (pp. 354–363). Oslo: The Research Council of Norway. <https://www.forskningsradet.no/indikatorrapporten/indikatorrapporten-dokument/vitenskapelig-publisering/>.
- Bleic, D. D., Wiberley, S. E., De Groot, S., Cullars, J., Shultz, M., & Chan, V. (2017). Publication patterns of US academic librarians and libraries from 2003 to 2012. *College & Research Libraries*, 78(4), 442–458. doi:10.5860/crl.78.4.442
- Borrego, Á., & Pinfield, S. (2020). Librarians publishing in partnership with other researchers: Roles, motivations, benefits, and challenges. *Portal: Libraries and the Academy*, 20(4), 655–675. doi:10.1353/pla.2020.0031
- Campbell, K., Ellis, M., & Adebajo, L. (2012). Developing a writing group for librarians: The benefits of successful collaboration. *Library Management*, 33(1/2), 14–21. doi:10.1108/01435121211203284
- Chang, Y.-W. (2016). Characteristics of articles coauthored by researchers and practitioners in library and information science journals. *The Journal of Academic Librarianship*, 42(5), 535–541. doi:10.1016/j.acalib.2016.06.021
- Charing, S., & Gardiner, B. (2017). The push to publish: What is the impetus for Australian academic librarians? *Journal of the Australian Library and Information Association*, 66(4), 382–392. doi:10.1080/24750158.2017.1395130
- Clapton, J. (2010). Library and information science practitioners writing for publication: Motivations, barriers, and supports. *Library and Information Research*, 34(106), 7–21. doi:10.29173/lirg217
- Crampsie, C., Neville, T., & Henry, D. (2020). Academic librarian publishing productivity: An analysis of skills and behaviors leading to success. *College & Research Libraries*, 81(2), 248. doi:10.5860/crl.81.2.248
- Dalton, M. (2013). A dissemination divide? The factors that influence the journal selection decision of Library & Information Studies (LIS) researchers and practitioners. *Library and Information Research*, 37(115), 33–57. doi:10.29173/lirg553
- Dees, A. S. (2015). A bibliometric analysis of the scholarly publications of Librarians at the University of Mississippi, 2008–2013. *The Journal of Academic Librarianship*, 41(3), 241–245. doi:10.1016/j.acalib.2015.03.019
- Fallon, H. (2009). A writing support program for Irish academic librarians. *Library Review*, 58(6), 414–422. doi:10.1108/00242530910969776
- Galbraith, Q., Smart, E., Smith, S. D., & Reed, M. (2014). Who publishes in top-tier Library Science journals? *College & Research Libraries*, 75(5), 724–735. doi:10.5860/crl.75.5.724
- Gore, G. C., & Jones, J. (2015). Systematic reviews and librarians: A primer for managers. *Partnership: The Canadian Journal of Library and Information Practice and Research*, 10(1), 1–16. doi:10.21083/partnership.v10i1.3343
- Hart, R. L. (1999). Scholarly publication by university librarians: A study at Penn State. *College & Research Libraries*, 60(5), 454–462. doi:10.5860/crl.60.5.454
- Hoffmann, K., Berg, S. A., & Koufogiannakis, D. (2015). Examining success: Identifying factors that contribute to research productivity across librarianship and other disciplines. *Library and Information Research*, 38(119), 13–28. doi:10.29173/lirg639
- Hoffmann, K., Berg, S., & Koufogiannakis, D. (2017). Understanding factors that encourage research productivity in academic librarians. *Evidence Based Library and Information Practice*, 12(4), 102–128. doi:10.18438/B8G66F
- Kennedy, M. R., & Brancolini, K. R. (2018). Academic librarian research: An update to a survey of attitudes, involvement, and perceived capabilities. *College & Research Libraries*, 79(6), 822–851. doi:10.5860/crl.79.6.822

- Lehto, A., Matangira, V., Shatona, M., & Kahengua, K. (2012). Obstacles to scholarly publishing by academic librarians. In M. Iivonen, P. Helminen, J. Ndinoshiho & O. Sisättö (Eds.), *Empowering people: Collaboration between Finnish and Namibian University Libraries* (pp. 270–291). Tampere: Tampere University Press.
- Mitchell, W. B., & Reichel, M. (1999). Publish or perish: A dilemma for academic librarians? *College & Research Libraries*, 60(3), 232–243. doi:10.5860/crl.60.3.232
- Norwegian Directorate for Higher Education and Skills. (2022). Norwegian publication indicator. <https://npi.hkdir.no/fagfeltoversikt>.
- Norwegian Ministry of Education and Research (2017, August 22). National goals and guidelines for open access to research articles. <https://www.regjeringen.no/no/dokumenter/nasjonale-mal-og-retningslinjer-for-apen-tilgang-til-vitenskapelige-artikler/id2567591/>.
- O'Brien, T., & Cronin, K. (2016). The research output of academic librarians from Irish Higher Education Institutions 2000–2015: Findings from a review, analysis, and survey. *New Review of Academic Librarianship*, 22(2–3), 203–224. doi:10.1080/13614533.2016.1181666
- Pham, H. T., & Tanner, K. (2015). Collaboration between academics and library staff: A structuration perspective. *Australian Academic & Research Libraries*, 46(1), 2–18. doi:10.1080/00048623.2014.989661
- Pickton, M. (2016). Facilitating a research culture in an academic library: Top down and bottom up approaches. *New Library World*, 117(1/2), 105–127. doi:10.1108/NLW-10-2015-0075
- Ramos-Eclevia, M., Janio, R. V., Vinzon, M. R., Eclevia, C. L., Jr, & Apolinario, R. R. U. (2018). Researching together: Exploring research productivity and collaboration of librarians in ASEAN Countries. *Journal of the Australian Library and Information Association*, 67(3), 307–320. doi:10.1080/24750158.2018.1501868
- Sassen, C., & Wahl, D. (2014). Fostering research and publication in academic libraries. *College & Research Libraries*, 75(4), 458–491. doi:10.5860/crl.75.4.458
- Sheikh, A., Malik, A., & Mahmood, K. (2022). Research practices of LIS professionals in Pakistan: A study of attitudes, involvement, and competencies. *Journal of Information Science*, 48(5), 587–599. doi:10.1177/0165551520972033
- Sitienei, G., & Ocholla, D. N. (2010). A comparison of the research and publication patterns and output of academic librarians in eastern and southern Africa from 1990–2006: A preliminary study. *South African Journal of Libraries and Information Science*, 76(1), 36–48. doi:10.10520/EJC61334
- Sivertsen, G. (2014). Scholarly publication patterns in the social sciences and humanities and their coverage in Scopus and Web of Science. In E. Noyons (Ed.), *Proceedings of the science and technology indicators conference, 3 - 5 September 2014 in Leiden; Context Counts: Pathways to Master Big and Little Data* (pp. 598–604). Leiden: Universiteit Leiden.
- Sivertsen, G. (2016). Patterns of internationalization and criteria for research assessment in the social sciences and humanities. *Scientometrics*, 107(2), 357–368. doi:10.1007/s11192-016-1845-1.
- Sivertsen, G. (2018). The Norwegian Model in Norway. *Journal of Data and Information Science*, 3(4), 3–19. doi:10.2478/jdis-2018-0017
- Sivertsen, G. (2021, October 26). Indikatorrapporten: Språk og vitenskapelig publisering. <https://www.forskningsradet.no/indikatorrapporten/fokusartikler-og-dydykk/sprak-og-vitenskapelig-publisering2/>.

- Sullivan, D., Leong, J., Yee, A., Giddens, D., & Phillips, R. (2013). Getting published: Group support for academic librarians. *Library Management*, 34(8/9), 690–704. doi:10.1108/LM-03-2013-0026
- Swinkels, A., Briddon, J., & Hall, J. (2006). Two physiotherapists, one librarian, and a systematic literature review: Collaboration in action. *Health Information and Libraries Journal*, 23(4), 248–256. doi:10.1111/j.1471-1842.2006.00689.x.
- Universities Norway (2020, June 26). Handlingsplan for UHR-Bibliotek – 2020-2022. https://www.uhr.no/innsyn.aspx?response=journalpost_detaljer&journalpostid=2020000537&MIId1=165.
- Weng, C., & Murray, D. C. (2020). Faculty perceptions of librarians and library services: Exploring the impact of librarian faculty status and beyond. *The Journal of Academic Librarianship*, 46(5), 102200. doi:10.1016/j.acalib.2020.102200
- Zakaria, M. S. (2015). Scholarly productivity of Arab librarians in Library and Information Science journals from 1981 to 2010: An analytical study. *IFLA Journal*, 41(1), 70–79. doi:10.1177/0340035215570556