Chapter in the Book: Developing and Administering University Libraries

**Open Access and Academic Libraries**

Prof. Snunith Shoham & Dr. Liat Klain Gabbay

Department of Information Science, Bar Ilan University, Ramat Gan, Israel

Snunith.shoham@biu.ac.il; liatk3011976@gmail.com

**Abstract**

This chapter reviews the development of open access (OA) approaches and institutional ‎repositories, examines the implications of open access for academic ‎libraries, and presents a qualitative study of how humanities and social sciences faculty members and librarians at Israeli ‎academic institutions view open access publishing and institutional repositories.‎

It appears that Israeli academics have a similar attitude to OA as their peers in other countries. Faculty members profess to understand the importance of OA and claim to support it. In reality, however, they are reluctant to publish in OA journals because of the high cost and allegedly lower quality of these journals. Some researchers are concerned about plagiarism. Others fear that the university will not recognize the prestige and quality of OA journals, which could affect their chances of promotion. Awareness of institutional repositories and their importance remains low among faculty members.

Librarians’ responses show that this group is aware of developments in the academic world and understands the importance of OA and the advantages OA brings as a form of academic publishing. Librarians also attach significant importance to institutional repositories‎. In addition, they understand the indirect role that academic libraries can play in promoting these developments. On the other hand, librarians admit that OA publishing is slow to develop in Israel.

**Keywords:** Open Access,Institutional Archives/Repositories,Academic Libraries, Librarians,Faculty members, Publishing

# Introduction

Academic libraries today must deal with changes in the world of ‎information and higher education, the vast majority of which relate to significant technological developments.‎ The Information Age of the past two decades has stimulated numerous, dramatic changes in the academic world including, to name but a few, the development of novel information technologies, changes in teaching and learning methodologies, the development of interdisciplinary departments, a growing trend toward multidisciplinary collaborations, the emergence of social networks, and users’ expectation that the library will adapt to the digital era and the Google interface.

Publishing, which is supposed to serve academia, ‎has also undergone changes in recent years, the result of an extended process in which large companies came to dominate the ‎market. These companies are primarily motivated by a desire to earn profits for their shareholders. Thus, the publishing market is experiencing two ‎major processes: ‎concentration and economization. Economization means that the industry now views books and journals from an economic perspective, as commodities or goods that are sold to libraries. Concentration began in the 1990s, with multiple mergers of publishing houses that led to the formation of large companies steered by financial investors. These large companies could and did raise the prices of scientific journals (Taubert andWeingart, 2017).

In response to these processes, an open approach to science ‎and publishing has emerged in the last two decades, paralleled by the growth of institutional ‎university repositories. These phenomena have consequences for the position and function of academic ‎libraries in the process of scholarly communications. This chapter focuses on three aspects of this issue:‎

1. Review of how the open access approach and institutional ‎repositories developed.‎
2. Examining the implications of open access for academic ‎libraries.‎
3. Qualitative study of the perspectives of faculty members and librarians at Israeli ‎academic institutions towards open access publishing and institutional repositories.‎

# The Development of Open Access and Institutional Archives

The literature defines “open access” (OA) as “digital, online, free of charge, and free of most copyright and licensing restrictions” (Suber, 2012, p. 4). Open access journals are defined by Dalton, Tenopir, and Björk (2020) as journals that make the full text of articles freely available on the Internet immediately upon publication, without restrictions and often with permissive licenses that allow for broad reuse. The Budapest Open Access Initiative defined OA as immediate, free availability of publications on the open Internet, with any user permitted to read, download, copy, distribute, print, search, or link to the full text and use it for any lawful purpose, unencumbered by financial, legal, or technical barriers.

 This approach requires the consent of the authors or the ‎copyright owner; publications undergo a peer-review ‎process and meet all conditions applicable to the publication ‎of research literature (Suber, 2004). Open access (OA) publishing grants scholars ‎and other academics direct access to academic and research journals, ‎books, theses and doctorates, and multimedia materials. Authors must sign a statement that they consent to having the paper ‎published via OA and being accessible to the public ‎according to the criteria set by the publisher (National Institutes ‎of Health Public Access [NIH], 2008).‎

The global Scholarly Publishing and Academic Resources Coalition (SPARC, see <https://sparcopen.org/>) promotes the open sharing of research reports and educational materials. The SPARC Coalition is driven by a commitment to democratizing knowledge by making it more accessible, and opening pathways to discovery with the goal of improving the return on investments made in scholarship. In its role as a catalyst, SPARC collaborates with all parties in the process: from authors and publishers to students, libraries, policymakers, funders, and even the public. Partnering with a global network of l600 libraries and research institutions around the world (as of 2019), the coalition begins with the opportunities created by the Internet, and promotes the infrastructure and cultural changes needed for open access to become the default mode for scholarship and education. Their strategy focuses on lowering the barriers that hamper accessing, sharing, and using knowledge (Bergman, 2006).

Open access publishing is primarily an online method for disseminating research without any restrictions to access. Although most open access journals impose no restrictions on use, some do, such as permitting only non-commercial use. For that reason, open access publishers need a new business model because they receive no revenue from readers. Some publishers sell advertising in journals or find creative ways to offer pay-for-use services associated with their publications. Others generate revenue by charging authors for publication. Another option is to require payment for the most recent articles and release them for free public access only after a set period of time has passed (known as Delayed OA(. (Jomier, 2017, p. 362).

Before setting policies for funders, planning infrastructure, or budgeting subscriptions, it is necessary to understand open access and its growth (Piwowar, Priem & Orr, 2019). The concept of open access first developed among scientists and researchers in the exact sciences and natural sciences, and its status is stronger in those fields than it is in the humanities and social sciences (Patterson, 2013). It is not surprising, therefore, that open access publication is considerably more common in the life sciences and exact sciences. Nevertheless, the social sciences and humanities have also experienced a significant increase in OA publications since 2006. Research has shown that 85% of researchers in these fields recognize the importance of open access publishing and would be willing to submit their articles to an institutional repository, if their institution were to request it (Kurata, 2012, as cited in Faizul & Hilal, 2014). In 2013, scholars in the humanities established the Open Library of Humanities (OLH), an international project to provide a way for researchers from these disciplines to publish peer-reviewed studies via OA. Enabling scholars to publish in this unfamiliar, innovative way contributes to collaboration between researchers. The founders of OHL were also attentive to the financial aspects of the project. By reaching financing and cooperation arrangements with four major publishers, they were able to significantly reduce the prices that researchers had to pay for OA publishing (Edwards, 2014).

There are several definitions of open access that differentiate between various approaches: Suber (2012) distinguishes between “gratis open access” and “libre open access.” The former approach is free-of-charge, but does impose limitations on use. Users are required to request permission from the copyright owner before publishing any section of the work, for example if they want to copy a large selection of the text or distribute it to others. The second approach, libre open access, allows not only free access but also free use of publications with virtually no legal or copyright restrictions (Suber, 2012). Gratis open access better protects copyrights and ensures fairer use than libre open access does. Approaches to open access can be further differentiated based on the payment required for access to scholarly articles: gold open access and green open access.

The **gold approach** has become one of the more common methods of publishing open access research. It makes articles available to be read for no-charge as soon as they are published, but typically requires researchers to pay the publisher a hefty processing fee that can exceed $3,000 per article. The article publication charges are usually ‎borne by the author, the funders of the research, or the ‎academic institution with which the author is affiliated (Lawson, 2015). An international study (Lara, 2015) showed that authors pay for publication in most ‎countries. Some libraries also participate in financing publication expenses and allocate part of their budget according to set criteria. This allocation is sometimes part of the budget for journal subscriptions. Most of these journals allow ‎free access to the full text of articles.‎

**The green approach** relies on researchers archiving published articles in public repositories, for free. However, publishers sometimes prohibit researchers from sharing their final papers, only allowing them to archive earlier drafts, prior to peer review. This approach provides additional exposure for an article that has been accepted ‎for publication (or has already been published) in a research journal, and ‎appears again on the author’s website or in an institutional repository ‎‎(Laakso et al., 2011). Thematic repositories that house OA ‎publications in a particular discipline are another channel for green OA publishing. Repositories‎ are a convenient way for scholars to reach their potential ‎readership and increase the likelihood of their work being read ‎and cited (Björk, 2014). Green OA makes articles ‎accessible to the public free-of-charge, starting from the stage ‎of approval for publication. ‎However, there is some variation in how different disciplines implement the green approach to OA; some do not customarily archive pre-print articles, ‎and some do not have thematic repositories‎ or high ‎quality OA journals.‎

Piwowar, Priem and Orr (2019) define five levels of OA publication: gold, green, hybrid, bronze, and closed.

1. Gold: Journals published entirely as OA
2. Green: Articles published in a journal that requires payment for access, but a full-text copy is available in an OA repository
3. Hybrid: Published in a journal that requires payment, and is available on the publisher’s website, with an OA license.
4. Bronze: Published in a journal that requires payment, and is available on the publisher’s website, without an OA license.
	* Immediate Bronze: Articles are available as bronze OA immediately upon publication.
	* Delayed Bronze: Articles are available as bronze OA after a set “embargo” period
5. Closed: All other options.

Archambault and colleagues (2013) showed that approximately half of the peer-reviewed studies published in 2011, in many disciplines, could be downloaded freely from the Internet. Their study points to a growing trend towards a situation in which publicly funded articles are accessible to the public free-of-charge. Their analysis included more than 20,000 articles, mainly in the fields of technology, exact sciences, and life sciences, but also in the humanities and social sciences. The preponderance of articles in scientific fields may be explained by the larger number of articles published in these fields than in the humanities and social sciences. Dalton, Tenopir, & Björk found in 2020 that 18% of journals indexed in Scopus are fully open access, although these journals publish slightly less than 18% of all articles. Piwowar, Priem and Orr (2019) reported that in 2019, 31% of all articles published in academic journals were available as OA, and that 52% of all articles viewed were OA articles. Based on current trends, they estimate that by 2025, the proportion of journal articles published via OA will increase to 44% and articles views will reach 70% (see Fig. 1).



The Development of Open Access and Institutional Archives Figure 1: [*The Future of OA: A large-scale analysis projecting Open Access publication and readership*](https://www.biorxiv.org/content/10.1101/795310v1.full.pdf)*. (Piwowar, J Priem, & Orr, 2019).* [*Copyright license*](https://creativecommons.org/licenses/by/4.0/)

It is reasonable to assume that the decreasing relevance of closed access articles will continue to alter scholarly communication in the future. Indeed, the challenge faced by organizations that support OA is making it clear to academic institutions, which grant tenure and promotions to researchers based on their publications, that articles published in OA journals are of sufficient quality and should be scrutinized according to the same standards used to judge articles in expensive journals purchased from publishers (Bosc and Harnad, 2004; Hahn and Wyatt, 2014).

Conservative extrapolations predict that between 20% and 27% of articles will be gold OA by 2025 (Bell, 2017). Bell further claimed that the main obstacle to the development of OA publishing is financial, and only when universities and libraries reallocate funds for journal subscriptions to supporting OA publications will genuine change be evident.

In recent years, some of the well-known publishers (e.g., Elsevier, Wiley, InTech) have also begun to publish scholarly journals using an OA approach. These journals are being developed in all fields, but especially in the life sciences and exact sciences, fields in which journals are very expensive. Rather than charging libraries a high subscription fee for these journals, they estimate the cost of processing each article, until it is published online and included in the relevant repository or database, and charge the author of the article or the sponsor of the research an amount sufficient to cover those costs. These costs are called Article Processing Charges (APCs).

Green OA journals can be accessed through institutional repositories‎. A study published by Pinfield et al. (2014) argued that these repositories‎ are one of the most important developments that the 21st century has introduced into the world of research. A study examining the evolution of OA repositories‎ from 2005 through 2012 shows that they began to emerge in the United States, England, Germany, and Australia, followed by Japan. In 2010, the trend began appearing in other east Asian countries, especially Taiwan, as well as in South America, especially Brazil, and in Eastern Europe, especially Poland. Archives have also been developed in France, Italy and Spain, but their penetration in China and Russia has come very slowly.

According to the Directory of Open Access Repositories compiled by the University of Nottingham, UK, as of April 30, 2016, there were 3,049 repositories around the world, distributed as follows: 1359 in Europe, 609 in Asia, 577 in North America, 267 in South America, and 135 in Africa (OpenDOAR, 2016). By 2019, the trend was accelerating rapidly and there were 3,800 such repositories around the world (Open DOAR, 2019).

Indeed, institutional repositories are gaining momentum at academic institutions around the world, especially in the United States and Europe, where the majority of the repositories are located. In Asia, the repository trend developed more recently, beginning with Japan in 2008. Japan, which is the fourth-ranked country internationally in the development of institutional repositories‎, has developed a mechanism that allows access to each repository‎ separately or to several at the same time ‎ (Loan, 2014).

Repositories‎ are multidisciplinary, most of the publications are in English, but they also include articles in the native languages ​​of the countries where they operate. However, there are still no clear laws governing OA publication, nor are there clear agreements between all countries that have such repositories‎. Although most are institutional, there are some global, national, institutional, and personal repositories‎.

A study by Björk, Laakso, Welling, and Paetau (2013) revealed that, although institutional archives are a good way of publishing with OA green access, only a relatively low percentage of articles are published this way. Moreover, they found that only 12% of research articles are published on free sites, rather than on the author’s site. Authors sometimes upload their journal articles to their personal or department site as soon as they are published, and about 79% do so within roughly a year of publication. This practice is problematic because the articles are not systematically published in orderly formats, and it could be potentially detrimental to copyright. The lack of uniformity and failure to protect copyright may make it difficult to locate the contents in the future.

Scholars can make their work accessible using their academic institution’s website, course sites, blogs, and other technological means, but unlike these platforms where publications are uploaded individually and selectively, repositories are orderly platforms for collecting, pooling, preserving, and accessing many types of research publications (Bartlette, 2015).

The creation of institutional electronic repositories has been made possible by information and communication technologies that facilitate information preservation, storage, and accessibility (Björk, 2014). Once established, their development is influenced by many factors, including the language of publication, policy, cultural perception, and awareness of the topic. Although software that makes it easier to create thematic repositories‎ does exist, the process still requires extensive collaboration at the beginning, and significant effort and funding for maintenance. Therefore, it is preferable to establish institutional repositories, operated and maintained by the library staff, for studies conducted at that institution. A study by Björk et al. (2013) showed that 82% of the world’s reputable research institutions have an institutional repository‎ that contains about 85% of the research conducted there.

However, there are certain problematic aspects inherent in the widespread phenomenon of institutional repositories. The possibility of depositing articles in repositories, a result of digitization, also leads to the expansion of communications systems. Whereas the operators of repositories emphasize that self-archiving is primarily about creating accessibility to high-quality, reviewed publications, many repositories are used as an original place of publication for grey literature and research reports. Moreover, publication in a repository can result in the dissemination of two or more digital versions of the same article, for a variety of reasons. Authors may archive their publications not only in repositories but also on social networks, such as ResearchGate or Academia.edu, and co-authors may deposit the same article in different repositories (Taubert and Weingart, 2017).

Open access and institutional repositories are developing and growing in significance, parallel to the evolution of the information world in general and the research world in particular. Nevertheless, these two developments must be distinguished. Open access is a platform for publishing research in journals with a different pricing method than the traditional method of journal publishing, which requires academic libraries to purchase subscriptions. Conversely, institutional repositories do not deal with publishing at all; rather, they preserve existing publications, and make them accessible to the various users by centralizing the institution’s research publications in a way that allows users easy access. These two issues are important because as researchers collaborate and develop multidisciplinary fields of research, the amount of research communication between scholars –conducted through collaboration at conferences, in professional societies, and research groups – is growing as is the quantity of papers published. The goal of OA is to change, at least in part, the current situation in which scholars who are seeking promotion must publish their research in journals produced by the major publishers who dominate the market, and academic libraries are required to pay increasingly large sums of money for subscriptions to databases and scientific journals operated by these publishers (Genoni & Liauw, 2017; Nagra, 2012).

Some universities have also become involved in the publishing business by republishing previously published books by their faculty, in print and/or online. In the US, Emory University, Indiana University, and the University of Michigan currently reissue previously published works by select senior faculty members in OA formats (Watson, 2018).

Although the OA publication approach is considered an effective solution for responding to the existing situation, various drawbacks impede its development. Many OA journals published by major publishers include only quality, peer-reviewed articles, yet institutions of higher education nevertheless do not regard them as highly-ranked enough to be considered for academic ranking. This, in turn, causes researchers to avoid submitting articles for publication in those journals. In the early years of OA, the paid journals were higher quality than those publishing without a fee. While over the years the free journals have improved, they still are received with concern and criticism. It seems that, despite the changes in the world of academic publications, the standing of OA journals has not been reconsidered by the institutions of higher education and by their academic promotion and ranking committees. Therefore, change is slow in coming (Abrizah, 2017).

# Implications of Open Access for Academic Libraries

Taubert and Weingart (2017) explain:

Libraries traditionally provide access to research literature by acquiring, collecting, organizing and indexing publications. They are the most important units on the demand side with respect to academic publications, and they acquire them through public funding. Libraries thus ensure continuous funding of the publishing companies and are a central element in the financing of the publication infrastructure (pp. 6-7).

Open Access has had substantial impact on the role of libraries and librarians, shifting their focus away from being gatekeepers of information towards becoming active players who support the scientific and scholarly information being produced at their institutions and aiding its dissemination. It has been essential for them to acquire new skills and reinforce their abilities for these tasks while establishing publication and archival infrastructure, and reallocating financial resources to providing access, rather than just paying for it (Sanjeeva & Powdwal, 2017).

This transformation in scholarly communication has affected academic libraries in many ways, particularly in terms of how they provide access to scholarly communication (Sultan & Rafiq, 2021). Abundant free access to OA resources have significantly altered how libraries handle traditional information resources.

The increasing adoption of an economic, profit-oriented model by large academic publishing houses and other changes in scientific publishing since the 1980s have led to an explosion of costs for libraries. However, libraries’ budgets did not grow, preventing them from absorbing the increase in price. As a consequence, libraries were and are forced to restrict their activities in acquisition and collecting (Taubert & Weingart, 2017).

This reality, alongside digitization processes, have made it possible for new approaches to emerge in the field:

Since very recently, however, libraries also act as operators of publication media. This is done, first of all, via repositories in which copies of publications (that otherwise have limited accessibility) can be deposited in order to ensure free access (Taubert & Weingart, 2017, pp.6–7).

According to Ogungbeni, Obiamalu, Ssemambo, and Bazibu (2018) libraries and their parent institutions are in the forefront in the campaign for open source, open access ,and open science. Libraries and researchers work hand-in-hand, with researchers looking to libraries to publicize their work and also to protect it through copyright law. Libraries are expected to create awareness of researchers’ work, and disseminate the information contained therein. They do this through institutional repositories, which are made public both internally and externally. The huge volume of information available for research, which has led to more metadata-related activities, offers new opportunities for librarians to communicate with new domains, including publishing, recording, and content development and other allied areas concerned with digital object creation and management (Ghosh, 2009). According to Bankier and Perciali (2008), academic libraries became alternative publishers by uploading the research output of their local community into their institutional repositories.

Arunachalam (2004) stated that information professionals can take the leading role in promoting the open access movement. Allard et al. (2005) identified six roles of librarians in the institutional repository environment: understanding software, project planning and management, collection definition, metadata guidance, submission review, and author training.

Sanjeeva and Powdwal (2017) outline many ways that librarians can support OA. These include improving the accessibility of OA publications by including them in the library catalogue, federated searches, article alerts and SDI services. Moreover, libraries can publish OA articles, encourage in-house journals to adopt an OA approach and be hosted on the Open Journal platform. Alternately, the library itself could initiate publication and identify possible channels on campus for publishing journals, students’ works and special collections. Libraries could provide digital OA editions of works for which the copyright has expired. Librarians ought to raise faculty members’ awareness of OA resources, and explain that research published on OA platforms is no less worthy than other peer-reviewed sources, thereby refuting some of the prevailing misconceptions. Likewise, they should educate administrators about the changes in scholarly communication practices and advocate for changes in budgeting for journal fees and institutional memberships, which could reduce the cost to individual researchers.

Academic libraries are taking up a new role, academic publishing. According to Xia (2009), research conducted by the Association of Research Libraries (ARL) revealed that many libraries provide publishing services. The author found that there are 371 peer-reviewed journals published by large research libraries in the U.S. Smaller libraries at institutions not affiliated with ARL have also participated in publishing ventures. These libraries use a combination of publication tools such as Open Journal System (OJS) and the Berkeley Electronic Press. Chadwell and Sutton (2014) place even greater stress on the role of libraries. They note that since the 1990s, the development of institutional repositories throughout the world have been monopolized by academic libraries.

Institutional repositories can be seen as a species of digital library, and they, too, are an aspect of a trend where librarians are moving into publishing to offset what is perceived as their shrinking conventional role (Adolphus, 2014). Institutional repositories are a strategic move for libraries to support educators in searching, sharing, reusing existing content, and creating additional resources through collaboration with other institutions in a structured way (Leng, Ali & Hoo, 2016).

OA has several additional dimensions: In many countries, academic libraries traditionally serve the larger community, not only for reasons of public relations and community engagement but also to fulfill institutional missions that call for providing access to knowledge and scholarship to promote the greater good (Hang, 2013). However, increased demand, together with decreased budgets, expansion of the internet, and the restrictions that commercial publishers place on electronic licenses, led libraries in the late twentieth century to introduce various levels of more limited access for external users, partially “closing their doors” to the public (Courtney, 2001). Access to electronic articles not published as OA is now found in institutional repositories, or behind paywalls erected by commercial publishers who allow access only through libraries that purchase subscriptions. Formerly, print journals were found on library shelves where anyone could read them, but their electronic replacements can often only be accessed by people with formal affiliations: faculty, students or staff. Physical access to a library building no longer ensures access to the collection, because of the restrictions that publishers place on who can have electronic access to online databases, to the full text of e-journals and to e-books even when libraries have purchased subscriptions. Often access is limited to the core population of library users. The changes from physical to digital collections also means modifying acquisition policies and finding a new balance in budgeting (Mehtonen, 2016; Wilson, Neylon, Montgomery, & Huang, 2019).

# Attitudes of Faculty Members and Librarians towards Open Access

According to various studies, authors choose specific publication venues based on (in decreasing order of importance) whether a journal is a good fit for their research, the quality of a journal’s review process and how quickly it can publish articles, and a journal’s perceived reputation (Dalton, et al.,2020). Recent studies on attitudes toward OA in Spain and other countries indicate that researchers publishing today generally feel positive about OA, and they perceive OA’s greatest advantage to be the opportunity it offers to disseminate their work to wider audiences. Conversely, the misgivings most frequently expressed by researchers concern the quality of journals employing OA systems and the credibility of OA publications, as well as the transfer of publishing costs to authors (Segado-Boj, Martín-Quevedo, & Prieto-Gutiérrez, 2018). In their study of responses from 295 authors recruited by sampling 1279 articles published in fifteen Spanish scholarly journals during 2015 and 2016, they found that although the overwhelming majority of survey participants (92%) knew about OA, far fewer were familiar with open peer review (65%), and even fewer had a working understanding of altmetrics that measure the impact of scholarly research from fresh perspectives such as the number of times an article has been mentioned in blogs or shared via social media (41%).

A study conducted in the US of nearly 11,000 faculty members from a wide range of fields found that they are increasingly interested in OA publication. In 2015, 57% participants responded that they would be pleased if traditional subscription-based publications were replaced by an open access system compared to 64% in 2018. Although a majority of faculty members in all age cohorts are interested in change, younger faculty members expressed more interest than their older peers. Asked about their agreement with the statement: “I would be happy to see the traditional subscription-based publication model replaced entirely by an open access publication system in which all scholarly research outputs would be freely available to the public” approximately 75% of the participant aged 22 to 34 agreed, compared to fewer than 60% of those aged 65 and older (Schonfeld, 2019).

In a study of 822 faculty members and graduate students from a broad range of subject disciplines at five North American Universities, 72% were defined as pro-OA and 23% as anti-OA (based on questionnaires and focus group discussions). The pro-OA cluster showed higher agreement on the following two points: (1) APCs are a reasonable alternative to subscription fees, and (2) OA will expand readership of their own research and perhaps increase media coverage of research in general (Dalton, Tenopir, & Björk, 2020).

Today, researchers’ careers – the grants they receive and their promotions – rise or fall based on the number of publications they have in high-profile (or high-impact) journals. As long as those incentives exist, and scholars continue to accept that status quo, OA journals will not be able to compete. Many academics still do not publish in OA, mostly because they are seen as less prestigious and lower quality, or because the researcher needs to cover the cost of publication (Zhu, 2017). Conversely, Governments provide monetary grants to support research many times recognize that research is a public good that must be accessible to the population, and provide medical, scientific, professional, public and governmental information. Thus, funding bodies in the United Kingdom are increasingly requiring that the results of research they support be made freely accessible.

The results of a survey of 1,800 researchers at 12 public research universities published in *Scientometrics* yield contradictory results (Zhu, 2017). For example, while most British scientists claim to agree that academic research ought to be freely accessible, fewer than half have actually published OA articles, and some expect that they never will. Of the respondents, 93% felt open-access science was important, and 55% agreed that it would bring citation advantages, but only 41% had published articles in an OA journal. Researchers under the age of 35 as well as PhD candidates, master’s students, and research assistants had the least experience with OA publishing. For many early-career researchers keen to climb the academic ladder through publication in high-impact journals, OA is often overlooked, says Zhu (2017).

This gap is a result of the belief that publishing in a journal with a good reputation can help an academic secure a job. But these are traditional ideas and change is not inevitable. The researchers surveyed by Zhu (2017) were more likely to view gold open access as having citation benefit than green, but were deterred by the high cost of the former. This can place young researchers and PhD students in a difficult position. Many lack the support to cover the costs that accompany gold publishing. Yet they feel pressure to publish in a journal with a high impact factor and to advance their careers.

We conducted a qualitative survey in order to examine how faculty members and librarians in academic ‎institutions in Israel perceive the idea of open access to academic publications and institutional repositories, and ‎their awareness of the possibilities inherent therein.‎

# The Study

The research population consisted of faculty members in the humanities and social sciences who teach and research at three academic institutions in Israel, as well as librarians working in the humanities and social sciences libraries of those institutions.

The research was qualitative and based on interviews. Interviewees were selected using both convenience sampling and snowball sampling. The sample included 20 faculty members and 15 librarians. The age range of faculty members was 25 to 76 years, and their seniority at the institution ranged from one year to 43 years. The age range of the librarians was 27 to 66 years, and their seniority in the profession ranged from three years to 40 years.

Research process: In-depth, semi-structured interviews were conducted with the librarians and faculty members sampled as mentioned. The 40-60 minute interviews were held in a relaxed atmosphere, in the participants’ workplaces. All interviews were recorded and transcribed. In the data analysis phase, the interview transcripts were sorted and categories constructed.

## Findings

The findings suggest that the attitude of Israeli academics is similar to that of their peers in other countries. In other words, they understand the importance of OA, and claim to support it, but in reality, show reluctance to publish in OA journals because of the high cost and such journals’ allegedly lower quality. Some researchers are concerned about plagiarism; others fear that the university will not recognize the prestige and quality of the journals, such that publishing in OA journals will not necessarily be beneficial for advancing the researcher’s rank.

## Open Access and Institutional Repositories‎ from the Faculty Perspective

### Publishing OA Articles: Problematic for Academic Recognition and Promotion

The responses of faculty members indicate that they do not publish in OA journals. Only a minority realize the importance of OA publishing, and all respondents reiterated that their promotions depend on publication in prestigious journals, because the Council for Higher Education and promotion committees do not consider open access journals sufficiently prestigious and high-quality.

A senior lecturer at one of the universities said:

"I have heard about open access... sounds good to me. The thing is, we are committed to the ranking of journals. We need to publish according to the university’s list, publish in A-grade journals to get promotion. The university requires us to have our work accepted by certain journals." (Interviewee no. 2).

A young lecturer at one of the universities made it clear that she has no interest in publishing in OA journals as long as she needs academic promotions:

"I will not publish open access journals because they are less prestigious, maybe in the future things will change. The researcher pays for her articles to be open access. It’s a process, but you never want to be a guinea pig, meaning you invest so much in an article and you can’t publish it twice, so obviously I’d better submit it to best [journal] I can. For the exact same reason I publish in established journals rather than new ones... The more veteran and familiar the journal, the more exposure and the more my articles will be cited. This is very important" (Interviewee no. 9).

Other faculty members exhibited a similar approach. On the one hand, they noted the benefits of OA but, on the other, cited their concern about the quality of OA journals and the attitude of those responsible for the promotion process, as obstacles to implementation:

"In principle, I am in favor of an open approach, but we live in a world that runs on profit, so it isn’t gaining momentum. I think it isn’t feasible. Some universities are starting to create open access, for example for theses and doctoral dissertations, but I don’t think it will succeed beyond than that, although there is a serious problem with journal prices, but I don’t think it can be overcome. It’s not that I prefer to publish using a closed approach, but we want to move forward in life and academic rankings, so, need to publish in high-ranking journals. The ranking is due to economic motives and competition between publishers. It is part of the market culture. There may be an advantage to the open approach in the long-term, but practically anyone who wants to rise in rank now cannot take the risk" (Interviewee no. 17).

"In general, open access will not develop if the Council for Higher Education does not change the ranking method. There are problems with such journals, they are undervalued and not considered prestigious. It hurts promotions and I can’t afford to [publish in them]. If the movement develops, the library always has [some] access to information and presentation, material collection and sorting, that’s what libraries do anyway" (Interviewee no. 20).

It might be hypothesized that there would be differences between younger and older faculty members, on the assumption that young people are more aware of developments in the digital world, and the various possibilities for finding information on the internet. However, all of the faculty members had similar attitudes towards open access, despite their age differences and regardless of their institutional affiliation, because the Higher Education Council’s regulations regarding professional advancement apply to all.

### Publishing Open Access Articles: Advantages and Disadvantages

A young lecturer at one of the universities explained that the open approach could contribute to scholarly communication, and that he would like his publications to reach as many readers as possible. Despite this, he argues that the issue of copyright and financial difficulties prevent the idea from developing in the current academic reality:

"I haven’t written a book and I don’t have a patent. If I did, then I would have financial interests. I would want to profit from them, so I certainly wouldn’t want to give up my copyright. My situation is different because I only write articles and once an article has been accepted and published, from my perspective, let the whole world read it. Besides, when you publish an article, you give up your copyright anyway, the rights go to the publisher of the journal. The disadvantage of not publishing an OA journal is, for example, sometime ago I submitted an article to a journal to which we don’t subscribe, so I couldn’t even see my article. Of course, if it had been an OA journal it would have been easier. The thing is, we still think that OA journals are of lower quality and are cited less frequently. There are a lot of difficulties here because subscriptions are very expensive, and the likelihood that the publishers of the prestigious journals would agree to give up the money they receive is nil. So, the most highly regarded journals will continue to be expensive and prestigious, and researchers will continue to try to publish in them. There is also the so-called “herd” phenomenon here, people tend to follow the crowd, making it difficult for such movements to make progress. The libraries can try to unsubscribe, but that does not seem to help, it will take time" (Interviewee no. 8).

### Publishing OA Articles: Library Involvement

Another senior lecturer ‎at one of the universities presented a position that the library could be integrated into this effort:

"It is excellent, it is good for the library to be part of this issue, to draw attention to open access projects, and increase awareness of these databases. I don’t think librarians can get more involved with that, by which I mean not involving the library in [the question of] where to publish. As a faculty member, an expert in my field, I can find out and advise others. I don’t think it’s an issue for the library to be involved in or advise about. There are so many sub-issues that you need to be an expert in, librarians aren’t" (Interviewee no. 7).

### Institutional Repositories‎: Faculty Members Lack Awareness and Understanding of Their Importance

Some faculty members are unaware of institutional repositories‎, the benefits they offer ‎ and developments relating to them. Indeed, faculty members define them as an additional marketing tool for the institution, a means to present its researchers and their fields, but not a practical means that could assist them in their work. For example, a young lecturer at one of the universities said:

"As for the institutional repository‎, I don’t see an advantage in publishing my articles in another archive, because everything I publish is electronic and everyone can get to it.... If the university subscribes to this journal and decides to put it in a repository‎, that’s its decision" (Interviewee no. 9).

Two senior lecturers ‎ presented a similar position:

"Regarding institutional repositories‎, I hadn’t heard of them and now that I understand what they are, I still don’t see a big advantage. It won’t help me with my research. After all, for research I search particular databases according to my subject. How is this repository supposed to help me do research? It’s suitable for public relations. If the department publishes a list of the researchers’ names, and presents our studies or links to them, that would be fine" (Interviewee no. 14).

"[Regarding the] institutional repository, if it were free and it weren’t necessary to invest anything at all, I would consider it a very welcome thing, but it’s not free, neither purchasing the software nor maintaining it. In addition, perhaps the publisher who first published the article won’t agree to archive my article or requests payment for it. Of course, it can add something for marketing and public relations, but as a faculty member it improves nothing for me. I have my page, and those who want to access my articles go there" (Interviewee no. 16).

Faculty members at all the institutions consider repositories‎‎ marketing tools, rather than resources that contribute to their research, not to mention the expense inherent in their establishment and operation.

### Institutional Archives: Positive Attitudes

Two senior university faculty members presented a positive and interesting stance on institutional repositories, explaining that searching for research papers in an institutional repository can be helpful. Moreover, universities are able to deal with the major publishers more successfully than an individual researcher:

"[Regarding the] institutional repository, I see it as a great benefit. If the institution collects all of its faculty publications, then when I look for someone’s article, I can go to the university’s website and get it. I see it going beyond marketing needs; there are also work needs. Contrary to the few lecturers who oppose the system but cannot really do anything against the rules that have been made, universities do have the ability to impose things on publishers, and I’m sure they could force them to approve publishing articles in institutional repositories‎ (Interviewee no. 17).

As for an institutional repository, I think it’s an institutional thing. It could be great. It’s sad that the institution was forced to buy a journal in which I published an article, because they had to pay twice, once because they funded the study and again when they paid for the journal. It would be great if they had developed a repository site. That is, a few months after I officially published in a journal, it could be published on a university repository site, this would be important and helpful. But it also needs a budget... The library could integrate this into managing and organizing information, and could be an important player, but that is not a solo role, rather [it should be] in collaboration with the Information Technology Division" (Interview no. 20).

## OA and Institutional Repositories‎: Librarians’ Perspective

From the librarians’ responses it is clear that they are aware of developments in the academic world and understand the importance of OA and its advantages when it comes to publishing research, alongside the importance they attribute to institutional repositories‎. In addition, they understand the indirect role that academic libraries play in promoting these developments. It was evident in the interviews that all of the librarians have positive attitudes towards both issues, but they admit that these approaches are not really developing in Israel, and there is little responsiveness in the field.

### OA: Positive Attitudes of Academic Librarians

Four librarians working in two different universities expressed very positive attitudes towards these issues and explained their importance well, even though they understand that most of people involved do not see things as positively as they do.

"This is exactly the direction one should go, and the libraries must be there to support these moves. The agreements that exist today are very problematic and mainly, expensive. The quality journals cost a lot of money, and sometimes there’s a situation in which a researcher at an institution publishes a journal article, and the university has no money to buy the journal. I know that there are university libraries in the world that have instructed their faculty not to publish in journals from certain publishers because of their high prices, and pressure them to publish in OA journals, while promising that the deliberations and decisions of the promotions committee will take this into account" (Interviewee no. 6).

A librarian in a divisional library, responsible for two departments, explains the importance of promoting open access and the interest that academic institutions have in its implementation.

"This is very important. It would be appropriate to have a lot of things open electronically, it could save time and open up research possibilities. Lecturers expect publications to be digital. If there were some sort of world catalog to which everyone would contribute, it would be useful for everyone. The university pays researchers, and gives them research money. Then it pays again when it purchases the journal in which the research is published; it pays twice and that makes it very hard on the budget, while the prestigious publishers earn a lot with no justification for it" (Interviewee no. 15).

### Institutional Repositories‎: Positive Attitudes of Academic Librarians

Several points were raised regarding the importance of institutional archives:

"Regarding the institutional repository, I see far beyond marketing needs. The libraries should participate in this, it contributes to the visibility of the institution" (Interviewee no. 6).

"Establishing such a repository is a central activity for a library. The libraries should have been involved in the establishment of institutional repositories‎ that bring together the research of an academic institution, so that searches will find articles coming from the institution. We do not have the resources to build such repositories. I think it’s necessary to train people for these research consultant positions, information scientists who are involved in research, this could be a very interesting job in this era, for information scientists who are involved in content to make knowledge more accessible to researchers who would be more involved. As of now, this [the librarian’s work] is more involved in teaching" (Interviewee no. 10).

"I’m very much in favor. There are many differences of opinion. We have to make everything that can possibly be open in full text available, to make information accessible. We won’t feel that we are losing our prestige as locators of information if we make it accessible to everyone; it’s our job that changes. We can sort, organize, make everything as accessible as possible to users. Today, many good, peer-reviewed journals belong to publishers who make money from them. This is closed material that depends on subscribers, and it is out of our control. However, we can open theses, doctoral dissertations, and other university publications. People should not think that if they have written something, they now need to protect it, rather it is important to understand that it must be made accessible to all. This is both convenient and provides exposure for the researcher and the university. There needs to be a systemic, conceptual change on the part of everyone, on the part of libraries, on the part of faculty and on the part of administration. The concept should be that just as we publish every event and conference, etc. on the university website, we must also publish all research with the university’s name on it" (‎Interviewee no. ‎11).

# Discussion and Conclusions

Libraries are part of the process of making information accessible to researchers. They purchase the journals from publishers and develop tools for locating the articles. Over the past few decades, libraries have had to cut back on the number of journals they purchase, as a result of rising prices. This impairs the accessibility of information to their researchers. Therefore, it seems that they should encourage an open access approach to information.

Academic libraries are seen as natural allies of faculty members as regards open access because as journal prices go up, they find it difficult to pay these prices, and have to cancel subscriptions. The libraries are integrating into the practical aspect of open access: they upload publications, theses, dissertations, offer links to search engines and websites, as well as referrals to various journals and tools for free, open use through the library’s website. It is important to note, however, that open access to research publications can also have some detrimental consequences for academic and research libraries because they create a situation in which financial control moves from the librarians to the researchers who are publishing or the institutions that fund them. This leads to a reduction in the library budget, because libraries are no longer the only ones who receive funding for subscribing to databases and journals from the academic institution, there are others who control the budget and decide how to allocate it, without reference to the library. Thus, we have a situation in which, on one hand, the academic libraries support the open access approach, promote it and assist it, but, on the other, this activity saps at their power and hurts their budget.

Studies (e.g., Harley et al., 2010; Rodriguez, 2014; Schonfeld, 2019) show that, in general, researchers still have inaccurate, negative conceptions about OA journals. Although many do recognize the importance of OA, they prefer not to publish in them because of the reality of academic advancement. Therefore, it is important that librarians in academic libraries adopt a more active approach, and inform researchers about OA publishing options, especially the quality journals, their rankings, the copyrights for these publications, and their contribution to scholarly communication (Harley et al., 2010; Rodriguez , 2014). Clearly, this should be done with recognition of the relevant research fields for the particular institution, and awareness of the existing organizational culture, especially how the administration perceives this type of publication and the idea of ​​information sharing. We argue that it is especially important to develop awareness of this issue, and change researchers’ negative position in an era when also large and prestigious publishers, who dominate the academic publications market, are publishing OA journals.

The qualitative research presented in this chapter reports the attitudes of faculty members and academic librarians in Israel, and their perceptions of OA scholarly publications and the development of institutional repositories‎. Since the 1990s when these ideas were first discussed, they have made significant progress internationally, although there are considerable differences between countries and disciplines. The problem today is that faculty members in Israel know that academic institutions do not recognize research published in OA journals (even in English) when considering them for promotion and tenure. As a result, they still prefer the prestige of traditional journals, primarily in English. Even though some OA journals do submit articles to a process of peer-review, this attitude remains an obstacle that hampers the decision to publish in an OA journal (Bosc & Harnad, 2004). Some interviewees noted that OA e-journals require high fees from researchers who want to publish in them, and most are unable to pay these amounts, especially because universities do not allocate funds for this purpose. Clearly, the financial difficulty compounds the other problems. Another argument raised by the interviewees was the fear of losing their copyright for the intellectual content of their publications.

The attitudes towards OA that emerged from the present study are similar to those found in the larger world and reflect the same situation. The prevalent approach towards OA publications in Israel is negative. This problem is a result of the fact that Israel is a small country with very few employment opportunities in academic positions. One of the criteria for such positions is publishing in reputable journals that are published in English by respected publishers. Therefore, faculty members are reluctant to publish in OA journals, even in English and certainly not in Hebrew.

Researchers seem to be aware that no academic institution can purchase all the journals that are published each year, and all the databases and publications that could help them with their research. They acknowledge that this could be detrimental to their research and work efficiency, and therefore many consider librarians their allies. They expect the academic library to invest most of its budget and efforts in research assistance, acquiring new technology, information retrieval, and storage in print or electronic formats. In the current situation, it appears that these issues are not on the academic agenda, making it harder for faculty members to develop a clear position and become part of the process. Some of the interviewees thought that the library could indeed integrate into certain aspects that support an OA approach, focusing their attention on OA publications.

While it was found that the academic librarians expressed positive attitudes towards open access and institutional repositories, as well as libraries’ potential to be involved in developing these issues, faculty members presented a different position. Librarians expressed their views on these issues, based on thinking about how academic libraries could integrate into these processes, how it might benefit libraries, upgrade their role, and encourage their integration into the research world. Conversely, faculty members expressed a range of attitudes, which stem from their commitment to quality publication in prestigious journals, because of their personal interest in academic promotion, and the limitations imposed by the Council for Higher Education. Furthermore, they consider repositories a marketing tool, and do not attribute any importance to them, perhaps because faculty are linked to research groups, and these relationships allow them to access all the articles they want. Because the administrations of academic institutions do not promote repositories or allocate budgets for them, the importance of repositories is insufficiently understood. Faculty members who are occupied with publications and conferences, do not delve into the subject and certainly do not promote it. Unless there is a collaboration with the faculty, and the administration allocates funds for their promotion, institutional repositories will continue to falter. It seems that resource allocation and staff training is not currently on the agenda at Israeli academic institutions.

Regarding institutional repositories, a study published by Pinfield and colleagues (2014) argued that these archives are one of the most important developments in the research world in 21st century. However, another study (Björk, et al., 2013) revealed that while institutional repositories are a good channel to publishing articles via the green OA approach, only a small proportion of articles are published this way. Despite what has been said above, the data shows that there is discernable progress on these issues in some countries, unlike the situation in Israel. Contrary to international attitudes, this study shows that many of the interviewees are unaware of repositories, their advantages and their development. Indeed, faculty members mostly defined them as additional marketing tools for the academic institution because they display the names of researchers and their fields; they do not consider them a practical tool that might assist them in their work. This attitude is compounded by the fact that establishing and maintaining repositories costs a significant amount of money. However, there were some faculty members who do believe that an institutional repository is an additional tool for discovering articles, and that a university as an institution has more power when confronting publishers than a single researcher.

Thus, academic libraries do have a role to play in advancing institutional repositories. Some faculty members spoke about the need for libraries to change their traditional role and how they provide services so as to cater for the increasing availability of open educational resources and other OA content. As Liauw (2011, as cited in Leng, Ali & Hoo, 2016, p. 47) notes:

"Creating open access repositories platforms is one good effort but academic libraries must go beyond their roles of just populating their repositories’ content. Collaborative effort with various communities within and outside the institution will strengthen libraries roles’ and help to increase institutional visibility."

Based on the responses of Israeli librarians, it seems that they are aware of developments in the academic world, and understand the importance of open access and its advantages for research publications, as well as the importance of institutional repositories. In addition, they understand that academic libraries can indirectly contribute to advancing these developments. However, they admit that these measures are not adequately developed in Israel, and there is insufficient responsiveness. In general, librarians are more supportive of an open approach than faculty members, perhaps because they see the issue from their professional perspective, and consider the potential for the library to integrate into these processes. Moreover, librarians understand that libraries will benefit indirectly from the adoption of OA. Currently, the publishers of the databases and journals are very influential in the market and have almost no competition. However, if there were more OA journals, that would create competition and publishers would be forced to lower prices. Reduced prices would, in turn, help libraries acquire more journals at more reasonable rates, and they would not need to unsubscribe from expensive publishers, as most libraries have now done. Continuing those subscriptions would lessen faculty members’ disappointment with the library’s resources and its ability to meet their needs.

#

# References

Abrizah, Abdullah. 2017. The cautious faculty: Their awareness and attitudes toward institutional repositories. *Malaysian Journal of Library and Information Science* 14 (2): 17–37.

Adolphus, Margaret. n.d. Institutional Repositories Part: 1. <http://www.emeraldpublishing.co.uk/librarians/info/viewpoints/repositories.htm>. Accessed December 2, 2014.

Allard, Suzie, Thura R. Mack, and Melanie Feltner‐Reichert. 2005. The Librarian’s Role in Institutional Repositories: A Content Analysis of the Literature. Edited by Ilene F. Rockman. *Reference Services Review* 33 (3): 325–36. <https://doi.org/10.1108/00907320510611357>.

Archambault, Eric, Amyot, Didier, Deschamps, Philippe, Nicol, Aurore, Rebout, Lise, and Roberge, Guillaume. 2013. Proportion of Open Access Peer-Reviewed Papers at the European and World Levels 2004–2011. https://www.science-metrix.com/pdf/SM\_EC\_OA\_Availability\_2004-2011.pdf. Accessed on February 10, 2020.

Arunachalam, Subbiah. 2004. “India’s March towards Open Access.” SciDev.Net (blog). March 3, 2004. <https://www.scidev.net/global/opinions/indias-march-towards-open-access/>. Accessed on February 2 2020.

Arza, Valeria, and Mariano Fressoli. 2017. Systematizing Benefits of Open Science Practices. *Information Services & Use* 37 (4): 463–74. <https://doi.org/10.3233/ISU-170861>.

Ball, David. 2017. Open Access Effects on Publishing Behaviour of Scientists, Peer Review and Interrelations with Performance. In *The Future of Scholarly Publishing: Open Access and the Economics of Digitisation*, edited by Peter Weingart and Niels Taubert, 165–98. Cape Town: African Minds.

Bankier, Jean-Gabriel, and Irene Perciali. 2008. The Institutional Repository Rediscovered: What Can a University Do for Open Access Publishing? *Serials Review* 34 (1): 21–26. <https://doi.org/10.1016/j.serrev.2007.12.003>.

Bergman, Sherrie S. 2006. The Scholarly Communication Movement: Highlights and Recent Developments. *Collection Building* 25 (4): 108–28. <https://doi.org/10.1108/01604950610705989>.

Björk, Bo-Christer, Mikael Laakso, Patrik Welling, and Patrik Paetau. 2014. Anatomy of Green Open Access. *Journal of the Association for Information Science and Technology* 65 (2): 237–50. <https://doi.org/10.1002/asi.22963>.

 Björk, Bo-Christer. 2014. Open Access Subject Repositories: An Overview. *Journal of the Association for Information Science and Technology* 65 (4): 698–706. <https://doi.org/10.1002/asi.23021>.

Bosc, Hélène, and Stevan Harnad. 2005. “In a Paperless World a New Role for Academic Libraries: Providing Open Access.” *Learned Publishing* 18 (2): 95–99. <https://doi.org/10.1087/0953151053585028>.

Budapest Open Access Initiative. Budapest Open Access Initiative | Read the Budapest Open Access Initiative. <https://www.budapestopenaccessinitiative.org/read>. Accessed June 9, 2021.

Chadwell, Faye, and Shan C. Sutton. 2014. The Future of Open Access and Library Publishing. *New Library World* 115 (5/6): 225–36. <https://doi.org/10.1108/NLW-05-2014-0049>.

Courtney, Nancy. 2001. Barbarians at the Gates: A Half-Century of Unaffiliated Users in Academic Libraries. *The Journal of Academic Librarianship* 27 (6): 473–80. [https://doi.org/10.1016/S0099-1333(01)00260-9](https://doi.org/10.1016/S0099-1333%2801%2900260-9).

Dalton, Elizabeth D., Carol Tenopir, and Bo-Christer Björk. 2020. Attitudes of North American Academics toward Open Access Scholarly Journals. *Portal: Libraries and the Academy* 20 (1): 73–100. <https://doi.org/10.1353/pla.2020.0005>.

Edwards, Caroline. 2014. How Can Existing Open Access Models Work for Humanities and Social Science Research? *Insights* 27 (1): 17–24. <https://doi.org/10.1629/2048-7754.135>.

Ghosh, Maitrayee. 2009. Information Professionals in the Open Access Era: The Competencies, Challenges and New Roles. *Information Development* 25 (1): 33–42. <https://doi.org/10.1177/0266666908098075>.

Hahn, Susan E., and Anna Wyatt. 2014. Business Faculty’s Attitudes: Open Access, Disciplinary Repositories, and Institutional Repositories. *Journal of Business & Finance Librarianship* 19 (2): 93–113. <https://doi.org/10.1080/08963568.2014.883875>.

Harley, Diane, Sophia Krzys Acord, Sarah Earl-Novell, Shannon Lawrence, and C. Judson King. 2010. Assessing the Future Landscape of Scholarly Communication: An Exploration of Faculty Values and Needs in Seven Disciplines. <https://escholarship.org/uc/item/15x7385g>. Accessed on February 2 2020.

Jomier, Julien. 2017. Open Science – towards Reproducible Research. *Information Services & Use* 37 (3): 361–67. <https://doi.org/10.3233/ISU-170846>.

Laakso, Mikael, Patrik Welling, Helena Bukvova, Linus Nyman, Bo-Christer Björk, and Turid Hedlund. 2011. The Development of Open Access Journal Publishing from 1993 to 2009. *PLOS ONE* 6 (6): e20961. <https://doi.org/10.1371/journal.pone.0020961>.

Lara, Kate. 2015. The Library’s Role in the Management and Funding of Open Access Publishing. *Learned Publishing* 28 (1): 4–8. <https://doi.org/10.1087/20150102>.

Lawson, Stuart. 2015. Total Cost of Ownership’ of Scholarly Communication: Managing Subscription and APC Payments Together. *Learned Publishing* 28 (1): 9–13. <https://doi.org/10.1087/20150103>.

Leong, Jack Hang Tat. 2013. Community Engagement – Building Bridges between University and Community by Academic Libraries in the 21st Century. *Libr*i 63 (3): 220–31. <https://doi.org/10.1515/libri-2013-0017>.

Leng, Chew Bee, Kamsiah Mohd Ali, and Ch’ng Eng Hoo. 2016. Open Access Repositories on Open Educational Resources: Feasibility of Adopting the Japanese Model for Academic Libraries. *Asian Association of Open Universities Journal* 11 (1): 35–49. <https://doi.org/10.1108/AAOUJ-06-2016-0005>.

Liauw, Toong Tjiek. 2011. Institutional Repositories: Facilitating Structure, Collaborations, Scholarly Communications, and Institutional Visibility. In *Digital Libraries - Methods and Applications*, edited by Hung Huang Kuo, 163-182. IntechOpen. <https://doi.org/10.5772/15575>.

Loan, Fayaz Ahmad. 2014. Open Access Digital Repositories in Asia: Current Status and Future Prospects. *International Journal of Information Science and Management (IJISM)* 12 (2): 35–45.

Liauw, Toong Tjiek, and Paul Genoni. 2017. A Different Shade of Green: A Survey of Indonesian Higher Education Institutional Repositories. *Journal of Librarianship and Scholarly Communication* 4 (General Issue): eP2136. <https://doi.org/10.7710/2162-3309.2136>.

Mehtonen, Pentti. 2016. The Library as a Multidimensional Space in the Digital Age. *Information Research: An International Electronic Journal* 21 (1): memo6.

Nagra, Kanu A. 2012. Building Institutional Repositories in the Academic Libraries. *Community & Junior College Libraries* 18 (3–4): 137–50. <https://doi.org/10.1080/02763915.2012.799028>.

National Institutes of Health Public Access (NIH). 2008. NIH Public Access Policy Details. <http://publicaccess.nih.gov/>. Accessed on March 10, 2020.

Nisha, Faizul, and Hilal Ahmad. 2014. Analysis of Open Access Scholarly Journals in Chemistry. *Library Philosophy and Practice* (e-Journal), June. <https://digitalcommons.unl.edu/libphilprac/1100>. Accessed on March 15, 2020.

Ogungbeni, John I., Amaka R. Obiamalu, Samuel Ssemambo, and Charles M. Bazibu. 2018. The Roles of Academic Libraries in Propagating Open Science: A Qualitative Literature Review. *Information Development* 34 (2): 113–21. <https://doi.org/10.1177/0266666916678444>.

OpenDOAR. Directory of Open Access repositories 2015. <http://opendoar.org/>. Accessed on March 10, 2020.

Schultz, Teresa Auch, Elena Azadbakht, Jonathan Bull, Rosalind Bucy, and Jeremy Floyd. 2019. Assessing the Effectiveness of Open Access Finding Tools. *Information Technology and Libraries* 38 (3): 82–90. <https://doi.org/10.6017/ital.v38i3.11009>.

Patterson, Mark. 2013. Bringing ELife to Life. *Insights* 26 (3): 261–66. <https://doi.org/10.1629/2048-7754.110>.

Pinfield, Stephen, Jennifer Salter, Peter A. Bath, Bill Hubbard, Peter Millington, Jane H. S. Anders, and Azhar Hussain. 2014. Open-Access Repositories Worldwide, 2005–2012: Past Growth, Current Characteristics, and Future Possibilities. *Journal of the Association for Information Science and Technology* 65 (12): 2404–21. <https://doi.org/10.1002/asi.23131>.

Piwowar, Heather, Jason Priem, and Richard Orr. 2019. The Future of OA: A Large-Scale Analysis Projecting Open Access Publication and Readership. *BioRxiv*, October, 795310. <https://doi.org/10.1101/795310>.

Rodriguez, Julia E. 2014. Awareness and Attitudes about Open Access Publishing: A Glance at Generational Differences. *The Journal of Academic Librarianship* 40 (6): 604–10. <https://doi.org/10.1016/j.acalib.2014.07.013>.

Sanjeeva, Meghana, and Powdwal Sushama. 2017. Open Access Initiatives: Reframing the Role of Librarians. *Library Herald* 55 (4): 467. <https://doi.org/10.5958/0976-2469.2017.00037.9>.

Segado-Boj, Francisco, Juan Martín-Quevedo, and Juan José Prieto-Gutiérrez. 2018. Attitudes toward Open Access, Open Peer Review, and Altmetrics among Contributors to Spanish Scholarly Journals. *Journal of Scholarly Publishing* 50 (1): 48–70. <https://doi.org/10.3138/jsp.50.1.08>.

Suber, Peter. 2012. Open Access. Cambridge, Mass.: MIT Press.

Sultan, Mussarat, and Muhammad Rafiq. 2021. Open Access Information Resources and University Libraries: Analysis of Perceived Awareness, Challenges, and Opportunities. *The Journal of Academic Librarianship* 47 (4): 102367. <https://doi.org/10.1016/j.acalib.2021.102367>.

Taubert, Niels Christian, and Peter Weingart. 2017. Changes In Scientific Publishing: A Heuristic For Analysis. In *The Future of Scholarly Publishing: Open Access and the Economics of Digitisation*, edited by Peter Weingart and Niels Taubert, 1–33. Cape Town: African Minds.

Watson, Julia. 2018. The New World of Republishing in Open Access: A View from the Author’s Side. *Journal of Scholarly Publishing* 49 (2): 231–47. <https://doi.org/10.3138/jsp.49.2.231>.

Wilson, Katie, Cameron Neylon, Lucy Montgomery, and Chun-Kai Huang. 2019. Access to Academic Libraries: An Indicator of Openness? *Information Research: An International Electronic Journal* 24 (1): n1.

Xia, Jingfeng. 2009. Library Publishing as a New Model of Scholarly Communication. *Journal of Scholarly Publishing* 40 (4): 370–83. <https://doi.org/10.3138/jsp.40.4.370>.

Zhu, Yimei. 2017. Who Support Open Access Publishing? Gender, Discipline, Seniority and Other Factors Associated with Academics’ OA Practice. *Scientometrics* 111 (2): 557–79. <https://doi.org/10.1007/s11192-017-2316-z>