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Scholarly Communication and the Academic Library: Perceptions and Recent Developments

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Abstract

This chapter focuses on the role that academic libraries play in the process of scholarly communication and presents a mixed-methods study to investigate (a) how faculty members perceive the involvement of academic librarians in scholarly communication and (b) how academic librarians perceive their own abilities to be involved in this process. The research population included faculty members from the faculties of humanities and social sciences in three Israeli academic institutions and academic librarians working in the libraries affiliated with these faculties. Interviews regarding the role of academic librarians in scholarly communication indicated wide gaps between faculty members and academic librarians and between individual members of each group, while questionnaires showed that a similar percentage of librarians and faculty members believe that academic librarians are potentially capable of being involved in this process. However, when asked whether the academic librarians should be involved in scholarly communication, only 36% of the librarians answered positively, as compared with 55% of the faculty members. These gaps highlight the need for change in academic libraries, as librarians should possess adequate technological skills, broad general knowledge, and an understanding of how to reorganize the library work so as to accommodate collaborations with faculty members.

Keywords: scholarly communication, science communication, academic library, academic librarians, faculty members

1. Introduction

1.1 Human communication

Communication enables interpersonal transfer of messages and ideas and is a basic component of human interactions. Of all manifestations of human communication—e.g., facial expressions, body gestures, signs, or drawings—language appears to be the most complex, as it enables people to express complex ideas using a very wide range of words, subjects, and expressions, constructed into elaborate sentences. While researchers believe that language, or at least the ability to express thoughts by using words as means of communication, expression, and survival, is around 150–200 thousand of years old [1], it has evolved considerably with time, human biological and technological development, and changes in the human way of living, such that new words and expressions have been shaped to express ideas vis-à-vis life in the modern world.

Humans interact with each other whether they intend to or not; they interact with others at will, but they are also obliged to communicate non-voluntarily as part of society and of the world in which they live. As the communication, relationships, and activity of humans are affected by their thoughts, perceptions, motivations, life experiences, and biology, their actions are sometimes voluntary and are affected by thoughts and decisions. At other times, however, human actions are automatic—affected by biological elements that make one behave in a particular way in response to a certain event or constraint [2, 3]. Sherry and Bowman [4] defined communication as an interaction between two brains, thus highlighting the physical, mental, and interactive components of communication between people. They emphasized three types of traditional communication: interpersonal communication, human-media communication (i.e., communication between people made by using media), and mass communication (i.e., from media to people).

Human communication has evolved from the spoken language to the written language, which, since ancient times, has enabled not only breaking the limits of memory but also the storage of information, the preservation of knowledge, and the transfer of documents from one place to another. Writing is considered a technology, as it employs materials and means outside the human body. The invention of the printing press in the fifteenth century, which was defined as the first mass revolution, enabled the distribution of knowledge to the masses in unprecedented speed and scope, gave easier access to information, and improved the ability to preserve knowledge and use accumulated knowledge. The printing press had various impacts on society, including the emergence of intellectual foci, the spread of literacy, the democratization of certain societies, the proliferation of literature, art, and science, and the freedom of speech. In addition to printing books, the printing revolution also enabled the development of new formats, including announcements, letters, state orders, and others, and, by the seventeenth century, the publication of newspapers and scientific journals. Mass media, which enabled, for the first time in history, the transfer of information to the masses in real time and the exposure of information and interpretations, served as a democratic tool that allowed diverse voices, opinions, and contents to be heard by the public.

The means enabling human communication has developed greatly with the development of new technologies. The telegraph and the telephone (in the nineteenth century), and, later, the fax machine, enabled a rapid transfer of information and established connections between individual people, including scholars. During the twentieth century, other means of mass communication emerged, including cinema, radio, and television, which all facilitated the distribution of knowledge, news, art, and ideas to millions of people worldwide. Today, the development of the computer—in particular, of personal computers—together with the development of the Internet, allows us not only to talk with each other but also to rapidly transfer data, files, and articles, thus facilitating research collaborations between employees of international companies and between scholars who are geographically distant from one another. The latest revolution is the emergence of social networks; this is the newest and most advanced step in the development of communication means, which, for the first time, enables each person to produce knowledge and distribute it throughout the world; this is a distribution from the masses to the masses, which facilitates the formation of new communities—sometimes of enormous scale—without the traditional barriers of physical location. Network-mediated communication (chats) enables personal, business, and scientific communication between people, thus promoting ideas and shared activities, such as political actions or even the formation of social/political demonstrations. Lang [2] lists the types of communication as follow: human-computer interaction, human-media interaction, social media, message processing, digital gaming, virtual realities, and all the types of human communication not listed here or not yet invented.

1.2 Scholarly communication

The study hereby presented regards scholarly communication as a unique type of communication, mostly between academics, that is used to establish connections between individual scholars and international research groups with shared fields of interest and research. Such communication yields research publications in journals and conference proceedings, and it enables the exchange of opinions, positions, and information regarding conferences. Scholarly communication can be seen as the connection among scholars, which increases the awareness of one scholar to the work and ideas of another; indeed, scholarly communication has always been considered a fundamental aspect of scholarly and scientific research [5]. The scholarly communication system is the primary driver of the culture that shapes research practice within the academic sphere; after all, claims Hill [6], “the insights from research are of little, if any, value until they are shared” (p. 366).

Scholarly communication can be verbal, concrete, virtual, formal, or informal and includes the traditional elements of interpersonal communication and communication through media. Today, scholarly communication is more complex and sophisticated than in the past and employs diverse online means. Scholarly communication can be understood as the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use, and it promotes a shared system of research and scholarship [7]. Scientific publications play a central role in systematically documenting research findings and facilitating the exchange of information between researchers. In academia, articles that receive more attention from other scholars, in terms of citations, are generally considered more important and prestigious [8]. Publishing research outcomes is a central aspect of scholarly communication, and technological advancements have considerably changed how these outcomes are published; the formal scientific scholarly communication system, which originated in the seventeenth century, has evolved through the centuries, creating an authority structure in the form of journal publications, which still remains the preferred venues for sharing scientific research findings [9].

Today’s scientific communication workflows are based on the availability of Internet connection and devices, which make drafting, publishing, and accessing scientific publications in digital form the norm for the average scientists [10]. Thus, publishing in the digital era includes, in principle, any product (publications, datasets, experiments, software, websites, blogs, etc.), which is the result of a research activity that is relevant to the interpretation, evaluation, and reuse of the activity or part of it [10]. Almost all journal titles are available today in a digital format—over 96% in science, technology, and engineering subjects and over 86% in arts, humanities, and social science subjects [11].

In addition, and in its broader sense, scholarly communication refers to both the formal and informal connections among scholars and disciplines [12]. According to Menzel [13], scholarly communication has seven different roles in research: (1) providing answers to specific questions, (2) keeping scientists up to date regarding the recent developments in their fields, (3) helping scientists understand new fields, (4) verifying the reliability of information sources by additional testimony, (5) helping scientists understand the major trends in their fields, (6) providing scientists with feedback on their own work and its relative importance within the research field, and (7) redirecting or broadening the span of interest and attention of scientists. Importantly, in the digital era, research articles can be considered not only as representations or manifestations of knowledge but also as social objects that scholars share, cite, and discuss and which enable them to cross the boundaries of time, place, and discipline, interact and establish social connections with other scholars (e.g., through social and research

networks), share information, and evaluate their own reputations [14]. Moreover, new initiatives continually arise to construct the means by which to store the documentation of research, including the experiments and methodologies while the research is still ongoing. The objective is to offer researchers all the elements to repeat (“same experiment, same lab”), replicate (“same experiment, different lab”), reproduce (“same experiment, different configuration”), or reuse (“include part of the experiment into another experiment”) the experiment. Finally, information and communication technology (ICT) services offer scientists tools by which to create and share alternative forms of research products, which are not generally intended as valuable for publishing (p. 2) [10].

Assante and colleagues [10] present a holistic view of the act of publishing, claiming that the emergence of ICT facilities has enabled the establishment of modern scientific communication workflows in which scholars can easily publish their research outcomes (literature, datasets, experiments, etc.); breaking the reign of the paper paradigm is necessary for better representation and understanding of how scholarly results come into existence [15]. In addition, in recent decades, a new route of publication has emerged: the preprint. The first preprint server, arXiv, was initiated in 1991 and has become an established part of the publishing landscape in physics, computer science, and mathematics, hosting 1 million articles by the end of 2014 [16]. Preprint servers allow researchers to publish manuscripts that have been submitted for publication prior to peer review, thus providing a route for the rapid dissemination of findings. Equivalent facilities have been created for biology (bioRxiv) and the social sciences (the Social Science Research Archive, SSRN, and following the acquisition of SSRN by Elsevier, SocAr-Xiv). Further innovation has developed around the idea of preprint servers, with journals, such as F1000 Research, in which all articles are published in a preprint form prior to peer review [6]. The digital format has also reached the field of monographies, and, today, more books are being published electronically; in many instances, such digital publishing occurs in parallel to print publishing, but this situation is also bound to change in the future.

The field of publishing has also been drastically changed with the development of open access (OA) and institutional archives. OA literature is “digital, online, free of charge, and free of most copyright and licensing restrictions. What makes it possible is the Internet and the consent of the author or copyright-holder. OA is entirely compatible with peer review, and all the major OA initiatives for scientific and scholarly literature insist on its importance” (Suber, 2004c in [17]; p. 112). In other words, publishing in OA enables other researchers and academics direct access to academic and scientific journals, books, theses and dissertations, and multimedia materials. The researcher must sign an agreement for his/her article to be published in OA, which will be available to the public according to the criteria set by the publisher. OA is a platform of research journals that employs a pricing framework that is different from that of traditional journals (which require the academic libraries to purchase a subscription). The goal of OA publication is to change, at least partially, the current situation, wherein researchers must publish in journals governed by the most prominent publishers controlling the market and academic libraries and are required to pay increasingly higher fees to purchase subscriptions to databases and scientific journals that these publishers provide [18]. Another development in the field of OA is the emergence of mega-journals [19], which are OA journals that, by reason of being digital, contain a vast number of articles. Other characteristics of mega-journals are their broad disciplinary scope and their peer-review criteria, which are based specifically on the soundness of the research, as well as the basic criterion of OA that is typically based on a business model of prepublication article-processing charges (APCs) [20]. Lăzăroiu [21] claims (p. 1047) that mega-journals have swiftly advanced into the mainstream of academic communication and may

essentially alter the manner in which novel research is disseminated. Therefore, the emergence of mega-journals, in practice, changes the extreme field-specificity of journals, which has been evident over the past few decades.

In contrast to scientific journals, institutional archives are not concerned with the publication of research but, rather, with safekeeping existing publications and enabling users to access these publications. The institutional archive is an electronic reservoir of research publications written by the faculty of an academic institute, which is accessible to researchers and academic scholars and is maintained by the institute. As such, the institutional archive reflects the scholarly activity in the institute, enabling access to theses and dissertations, research reports, books, multimedia material, articles in electronic journals, technical reports, lectures in conferences, and even studies conducted within the institute and which have either not yet been published or will not be published (e.g., works of bachelor degree students) [22]. To enable such an endeavor, the institutional archive concentrates on publications by researchers of the institute, such that they are made easily accessible to the users.

Recently, in addition to the OA publishing movement, a new requirement has been raised, that for "Open Data," which will revolutionize the way science is documented [9]. Data sharing maximizes the value and use of data by promoting follow-up research and facilitates the combination of data from multiple sources and locations. Traditionally, to support their research claims, scientists have shared research data as tables, graphs, and summaries in their publications; with advances in computer and communication technologies, data can be collected, stored, archived, disseminated, retrieved, and analyzed in ways that are much easier and faster than before. As data are considered the foundation of science, data sharing is gaining momentum.

The continuous advancement in information technologies has considerably expanded scholarly communication, not only by facilitating the preservation, organization, and distribution of information [12] but also by supplementing the traditional means of formal and informal scholarly communications with newer means of communication. Indeed, modern information technologies enable scholars to readily use e-mails and electronic databases, distribute information regarding new conferences, journals, and publications through the Internet, and participate, either as individuals or as scholarly groups, in professional virtual communities that employ Internet-based chats, forum discussions, blogs, and other online communication tools that expand their professional networks [8]. Moreover, some scholars use not only academic social network platforms (such as ResearchGate, Academia.edu, or Mendeley) but also a variety of social media, such as Twitter, Facebook, Flickr, YouTube, Dropbox, blogs, and podcasts for scholarly communication [23]. These social media tools have expanded the possibilities of informal communication. Social networks and tools, such as Facebook or Twitter, have increased the number of connections and the diffusion of scholarly information. For instance, discussing academic conferences and articles through interactive, wide-ranging, and cross-disciplinary conversations in Twitter was found to reflect the academic impact of these conferences and articles, and being cited or mentioned on Twitter could be a new sign of one's academic impact [8]. Lee and colleagues [24] explain that, in the context of scholarly conferences, Twitter is the most convenient social medium to spread information and communicate between conference participants. Indeed, social media tools, such as Twitter, have become prominent tools for scholarly activities and communications, and many scholars have shed new light on Twitter as a useful means of informal scholarly communication [25, 26]. Noorden (2014, cited in [24]) suggests that although Twitter is used regularly by only 13% of researchers (according to a survey by Nature), it is much more active and social than other media; researchers often use Twitter to follow discussions on research-related issues, and 40% of them testified that Twitter had become both a public and a private

medium for “commenting on research that is relevant to my field” (as compared with 15% on ResearchGate.net) (p. 127). Facebook, by contrast, is not widely used as a professional network, and Academia.edu and ResearchGate.net are typically used as a means to contact other researchers. Lupton (2014, cited in [27]) identified Twitter, LinkedIn, Academia.edu, Facebook, ResearchGate, blogs, and YouTube as the most popular services used in the context of academic work. These media have facilitated scholarly communication that is easy, rapid, and global [12], and they have transformed the process from private communication between individuals into a branched, developed, cooperative, and group-oriented form of communication [28]. Abrizah et al. [29] claim that the move to digital scholarship, amplified by the use of social media and OA, may have served to break down the social and cultural barriers that prevent academics from peripheral countries to take their rightful place in the international research community.

1.3 Scholarly communication and the academic library

The main outcomes of formal scholarly communication are printed or electronic publications. The number of such publications has been continuously increasing and, in the past three decades, commercial publishers—rather than universities—have taken control over the process of scholarly communication. Today, following several mergers between journal publishers, major sectors in the market of academic journals (particularly in the fields of sciences and medicine) are dominated by only a few large corporations. Together with a sharp increase in the price of journals, these mergers yielded new pricing mechanisms that negatively affect the buying power of libraries [30]. Moreover, to meet the demands of the changing technologies and user expectations, contemporary academic libraries must develop new resources and service areas; however, the high cost of digital information items currently prevents them from achieving this goal, and they cannot adequately provide access to the wide range of knowledge available in the digital space [31]. Changes in library activities aimed at creating an atmosphere of mutuality and shared action to facilitate scholarly communication pose a significant challenge for academic libraries.

It is important to note that the content and rights of the scholarly research that faculty members conduct belong to the publishers, who then sell access to this content, at exaggerated rates, back to the academic libraries [32]. Thus, constructing and maintaining additional open education resources (beyond subscription content) are a crucial need for contemporary academic libraries [33], as it could enable librarians to mediate between the researchers, who conducted the research, and the users of the resulting information (e.g., other researchers) [34]. Some academic libraries today have already begun collecting online campus-created content and making it freely available in institutional repositories—a trend that is promoted mainly by campus librarians in an attempt to reduce costs and better serve their community of users. The ongoing developments in information technology also facilitate this process, as they allow the academic community to publish research independently of commercial publishers, thereby increasing the demand for free and open access to scientific publications [30]. By overcoming physical, linguistic, geographical, and other obstacles, current Internet-based information technologies allow researchers to communicate with colleagues across the globe, publish their scholarly work online, and locate other researchers working in the same field—actions that facilitate the establishment of international scholarly communities that cross the boundaries of academic institutions and nations [35]. Concomitantly with these developments, and in striking contrast with traditional publishing norms, some scholars and librarians today have undertaken to develop models that allow OA to research materials; such models turn the library into a mediator between

researchers and publications and thus increase the power of the library and its involvement in scholarly communication [36]. As a result, one of the new assignments of librarians is adding OA resources to the library catalog [37].

As more universities incorporate new technologies into the teaching and learning processes, the demand is increasing for technological and instructional support for faculty and students to extend beyond being facilitators, brokers, and guardians and to promote changes that would benefit the whole research community [38]. This demand creates new and attractive opportunities for academic librarians. For instance, in 2014, more than half of the employment positions advertised by the Association of Research Libraries (ARL) in the United States and Canada were for either newly created or significantly redefined roles [39]. In addition to the creation of new roles in traditional library areas, a trend is emerging in which functional specialists with a strong digital or technological background are hired. Indeed, as modern academic libraries must fulfill new and more specialized capacities, institutions should be sufficiently flexible to adapt to these new roles [39].

How can librarians contribute to scholarly communication? Several fields of contribution have been identified [40, 41]: (1) informing researchers of the various models of OA and helping them make their research more accessible to others; (2) assisting researchers with issues regarding copyrights (e.g., teaching them about fair use and copyrighting materials) and publisher agreements; (3) assisting researchers with their actual research, e.g., in evaluating the materials that they use and locating research grants, budgets, and support; (4) educating and informing faculty, graduate students, and campus administrators about scholarly communication issues; (5) advocating for sustainable models of scholarly communication; (6) working closely with faculty members to understand their changing workflows and patterns of scholarly communication; and (7) assisting in the development of tools and services to facilitate scholarly communication. Significantly, although academic libraries are already involved in some aspects of scholarly communication (e.g., when they purchase scientific publications and databases), librarians often lack an adequate understanding of how research is conducted in a digital setting, are unaware of the importance of developing skills for working with advanced technologies and digital materials [28], and do not fully understand the information needs of faculty members; on the other hand, faculty members appear to be unaware of the entire physical and electronic capabilities of the library [42–46]. To more effectively utilize the skills of liaison librarians, faculty members need to better understand their roles, e.g., through in-person meetings with the academic librarians in their institutes, which may facilitate a more receptive and close communication [47].

To fulfill their role and effectively support researchers, academic librarians need to be aware of the information needs and search behavior of researchers in various fields [48], requiring them to be flexible and collaborate with different workgroups. Already today, reference librarians (also designated as subject specialists [49] or subject librarians [50]) in some academic libraries collaborate directly with faculty members, both in scholarly communication processes and in research processes. It has been suggested that modern academic libraries should become hybrid libraries, which both house collections and supply information technology [50]. Faculty members who incorporate media-based assignments into their courses rely more on librarians to help students learn media-production skills, and universities increasingly expect librarians to undertake more responsibilities in programmatic and teaching contexts; however, some evidence indicate that librarians may lack the pedagogical background to design and facilitate a sustainable course [39]. Such changes in roles and perceptions have affected the discourse among librarians, leading, for instance, to discussions about the possible need to introduce changes

into the curricula of Library and Information Science (LIS) master's programs and to educate active librarians about collaboration with faculty members [51].

In its Scholarly Communication Toolkit, the Association for College and Research Libraries (ACRL) recommends several actions for librarians to integrate scholarly communication into the library [7]. Among others, the Toolkit suggests partnering with academic departments to host public events to proactively inform faculty, students, and university administrators of the latest development of key scholarly communication topics; identifying allies among faculty and students and collaborating with them to create and adopt an OA policy at the institution; promoting the benefits of using and creating open educational resources; collaborating with the graduate school and similar programs concerned with scholarly authorship, publication, and research data management; hosting workshops; and collaborating with library schools to train future information professionals [7]. Important agents in obtaining these aims and reaching out to faculty are subject librarians, who are typically more aware of research and publications coming from their faculty and who can thus alert the repository librarian to any relevant research output [37].

In the pre-digital era, the traditional roles and tasks of librarians—acquiring resources, cataloging, organizing, serving library users, etc.—were performed without the involvement of the users, who passively received what the librarians offered. The emergence of new technologies, such as e-books, e-journals, and other electronic information resources, has dramatically enriched the library collections and services and has both extended and complicated the roles of the librarians and the library users; the relationship between the two has, therefore, changed, such that the users have become more independent in choosing and using the library services. Today, users can access online library-supplied databases at the convenience of their own time and place, register to receive relevant e-mail notifications, and provide feedback on the usability of library websites. Thus, library services have become more flexible [52].

In a content analysis of 63 publicly available strategic plans of the institutions involved in ACRL's Value of Academic Libraries National Summits, Saunders [31] examined the stated goals of academic libraries to discover how they cope with the emerging changes relative to their traditional strategic plans. She concluded that librarians should take additional actions, beyond their traditional roles, to better accommodate the needs and requirements of modern library users and that changes in scholarly communication are forcing librarians to shift their mental models and alter their services.

How should resources be prioritized and allocated? Such decisions should be made in collaboration with each library's parent institution, as colleges and universities face their own pressures, driven by increasing demands from stakeholders to hold themselves accountable and demonstrate how programs and services support and extend the mission and goals of the institution. In this environment, academic libraries monitor trends in LIS (and in higher education, in general) to determine where to focus their resources and efforts. A Horizon Project report [39] suggests that academic libraries will continue to be impacted by changing technologies, including mobile devices, OA, the Internet of Things, the Semantic Web, and linked data.

The recent changes in the academic publications industry—including the multiplicity of journals, the sharp increase in their prices, the changes induced by the opening of collections, and the ever-expanding research needs—affect scholarly communication and, accordingly, alter the demands made of librarians, their job descriptions, and their involvement in academic issues [53]. Today, faculty members appear to prefer direct methods of information searching over using the library: scholarly communication is typically conducted among the researchers themselves, while the academic libraries are still not considered to be central participants in this process (although they purchase materials and access technologies for the

researchers). It is important to note that the attitudes of faculty members toward the academic librarians vary and depend upon various factors, including the field of research, relationship with librarians, awareness of the capabilities and the services provided by librarians, and assessment of the ability of librarians to assist them. Because faculty members are the relatively permanent population of an academic institution, they are stakeholders in the library, and their perception of the librarians can influence the library in many ways. Therefore, it is important for librarians to be continually aware of and to appropriately adjust and attend to the changing needs of faculty members [54].

Some of the changes in the role of academic librarians, as discussed above, already manifest in breakthrough libraries. For instance, some libraries have begun appointing librarians specializing in assisting in the process of scholarly communication with the faculty in their institutes, e.g., in the Oregon State University library, a librarian for research and scholarly communication was nominated in 2016 [55] and some voices have already been heard that indicate the need for the library community to increase investment in common open infrastructure and open publications. For example, in a much-echoed publication, Lewis [56] calls for the “2.5% commitment initiative”, i.e., to allocate 2.5% of the budget of American academic libraries toward an open common infrastructure, that is, projects that provide software or services that support open scholarship.

2. Perceptions of scholarly communication in the academic library

2.1 Problem statement

Like other forms of communication, scholarly communication—in both its formal and informal form—has changed dramatically in recent years and is expected to continue changing with the development of novel technologies. While academic librarians may potentially contribute to scholarly communication in the digital era, it is still unclear to what extent the faculty members and the academic librarians themselves understand and materialize this potential. It was shown that faculty members are receptive to collaborations with librarians and that liaison visits to the faculty increase the extent to which faculty members use the library’s resources and services, making them more aware of the convergence between what they need as teachers and researchers and what the library can offer [57]. Currently lacking, however, are qualitative and quantitative data that describe how faculty members and librarians in today’s academic institutions perceive the function of academic librarians and their integration into the process of scholarly communication. Understanding this reciprocal relationship may highlight gaps in the perceptions of faculty and librarians regarding scholarly communication; as “basic perception–action links are crucial building blocks for social understanding and social interaction” (p. 103 in [58]), understanding these perception gaps is an important step toward strengthening the collaboration between faculty members and academic librarians.

2.1.1 Research questions

1. How do faculty members perceive the involvement of academic librarians in scholarly communication?
2. How do academic librarians perceive their own abilities to be involved in scholarly communication?

2.2 Methodology

2.2.1 Research methods

This integrated, mixed-methods study integrated both qualitative and quantitative approaches to provide a better understanding of the situation by using a wide range of data collection tools [59]. In the first stage of this study, interviews were conducted to enable an in-depth analysis of librarians' and faculty members' perceptions. Based on the collected data, a questionnaire was subsequently formed to analyze the prevalence of various perceptions.

The research population comprised two groups: (a) faculty members (lecturers, senior lecturers, and professors) who teach and conduct research in the faculties of humanities and social sciences in three Israeli academic institutions and (b) academic librarians working in the libraries affiliated with these faculties and institutions. The interviews were based on a convenience sample of 20 faculty members and 15 academic librarians (selected by the snowball sampling technique), while the questionnaires were distributed to all participants.

2.2.2 The study sample

Faculty members. From an initial population of 619 faculty members, 191 (30.85%) agreed to participate in the study, of which 56.5% ($n = 108$) were men and 43.5% ($n = 83$) were women. The duration of employment of participants at their current academic institution ranged from 1 to 43 years ($M = 13.44$ years, $SD = 10.36$ years).

Academic librarians. From an initial population of 80 librarians, 50 (62.5%) agreed to participate in this study, of which 6% ($n = 3$) were men and 94% ($n = 47$) were women. The librarians in the sample worked in libraries of various types, including departmental, faculty, and central libraries, and their seniority at the institution ranged from 3 to 40 years ($M = 18.64$ years, $SD = 11.23$ years).

2.2.3 Data collection techniques

2.2.3.1 In-depth, semi-structured interviews

All interviews reported here were conducted during the 2012–2013 academic year. The interviews were flexible and allowed the interviewer to ask the prepared questions and to develop the conversation based on the answers of the participant [60]. Developed according to the model of Patton [61], the interview questionnaire related to six issues: experience and behavior, opinions and values, feelings, knowledge, sensory perception, and demography. More specifically, the interviews with faculty members included seven demographic questions and seven content questions (each comprising several sub-questions) and assessed the attitude of the participant toward the involvement of academic librarians in the process of scholarly communication, OA, and institutional archives. The interviews with academic librarians included five demographic questions and six content questions (with some sub-questions) and assessed the perceptions of the academic librarian toward scholarly communication, OA, and the degree to which the librarian is involved in these functions.

2.2.3.2 Questionnaires

Structured questionnaires with closed, multiple-choice questions were used to obtain relevant quantitative data, focusing on all participants as a single group [62].

The same questions, in the same order, were presented to all participants, and the purpose of the research was not concealed [63]. Pretest questionnaires were initially sent to five faculty members and five academic librarians, but they did not recommend any significant modifications.

The questionnaire for academic librarians included demographic questions, questions relating to their awareness of the scholarly communication process, and questions regarding their view toward the involvement of the library in scholarly communication and toward OA to research materials.

Similarly, the questionnaire for faculty members included demographic questions, questions relating to the perception of the faculty member of the degree to which academic librarians are aware of the process of scholarly communication, and questions regarding their view toward the involvement of the library in scholarly communication and toward OA to research materials.

2.3 Findings

2.3.1 Perceptions of faculty members

2.3.1.1 Positive perceptions of cooperation

The interviews revealed marked variability in the perceptions of faculty members regarding the involvement of academic librarians in scholarly communication: some interviewees indicated that such an involvement should be part of the duties of the academic librarian, some did not find a connection between the librarian and the process of scholarly communication, and some felt that librarians can have a limited role in this process.

One senior researcher defined scholarly communication as follows:

Scholarly communication is the possibility of transmitting information and knowledge between people in the context of problems and their solutions in fields of human thought. This is a broad definition but these communications are supposed to be conducted on an intellectual level between academic researchers ... digital systems, Internet forums, virtual communities, topical communities. The wealth of possibilities for transmitting information changes and influences the traditional library, but it should not be forgotten that the library remains important as an archive of information, and that the people working in the library have an equally central role ... The librarians have some level of awareness, they need a lot more training. (Interviewee 4)

This participant also made an interesting proposal regarding the involvement of librarians in scholarly communication that could potentially promote the position of the librarian as a partner in communication on campus:

I mean that one possible future development in the global world may be a library that offers international services ... This would be a new profession, a significant change in function. This is the future of librarianship as I see it. (Interviewee 4)

A senior lecturer in one university explained how librarians could better collaborate with faculty members and be more involved in scholarly communication:

They should be more involved in the use and utilization of technologies that would enable them to communicate with their clients, students and faculty members. Work in the library needs to be divided such that each person is responsible for a certain field. That person can then participate in social networks of scholars in the

field. In addition, he or she can update faculty members in the field, which I would call “pushing information.” (Interviewee 13)

2.3.1.2 Negative perceptions of cooperation

In contrast to the opinions presented above, other faculty members explained that, although they appreciate the library staff, they cannot see a role for librarians in scholarly communication:

I do not think it is the job of the library to be involved in scholarly communication. We receive publications from professional groups. I do not see the library as a tool for transmitting information about things like this. (Interviewee 2)

In the field where I work, there are international communities ... The community communicates and has systems for distributing information. It is virtual, but there are also several conferences each year. I receive information from annual conferences, not from the library. The library is already involved in purchasing journals and other materials ... The scientific world is full of research fields and sub-fields and it is impossible to expect a librarian to specialize in them. (Interviewee 5)

The job of librarians is to make information accessible; they are mediators in this field ... I do not think that librarians think in terms of scholarly communication, they think in the direction of developing the collection ... Beyond this, I do not think that they need to be involved in other aspects. (Interviewee 20)

2.3.1.3 Thoughts about involvement

Some faculty members indicated that they had not previously thought about the issue of involving librarians in scholarly communication, but they offered various suggestions and assumptions during the interviews.

For instance, one senior researcher proposed a different idea for the involvement of librarians in scholarly communication:

Perhaps it would be possible to develop library activities that would move the academic library closer to the schools, for example, developing forums to which the library would invite both well-known and other lecturers. It would be possible to hold a monthly meeting on innovations, publications by major authors ... Various activities to bring them closer. Despite the fact that, practically speaking, this would be difficult... (Interviewee 5)

Another suggestion was raised by a university lecturer who initially presented negative opinions regarding the involvement of librarians in scholarly communication:

The librarian could be involved for example, in providing information about conferences, new databases, calls for lectures at conferences, etc. Definitely yes! You have no idea how many conferences I have missed because of a call for papers ... There should be an ongoing communication between researchers and librarians, and then the librarian would better know the researchers, their fields of research, and will be more aware of developments... (Interviewee 8)

2.3.2 Perceptions of librarians

Some librarians explained that they had heard of the term scholarly communication before, but they were unable to explain its meaning. In the questionnaire, the librarians were asked to define scholarly communication by agreeing or disagreeing with six possible statements, as shown in **Figure 1**.

The most prevalent definitions of scholarly communication were the generally accepted definitions, namely, “cooperation between researchers,” “information transmitted at conferences,” and “membership in research networks” (46%). However, only 22% regarded the connection between the faculty and the academic library to be part of the scholarly communication process, whereas approximately 80% did not include a clear role for the librarian in this process.

In the interviews, after the interviewer adequately defined scholarly communication, opinions varied regarding the possible role of librarians in the process, although most librarians agreed that they can perhaps be more involved in it.

2.3.2.1 Positive attitudes toward involvement

Some librarians indicated that various library activities could be considered as scholarly communication—and were generally positive about being involved in the process—but they emphasized that such an involvement is mainly in teaching and not in research. The degree to which librarians were aware of and willing to participate in scholarly communication processes varied even between librarians from the same institution.

One university faculty librarian said:

The librarians work on a high level and are aware of the needs, but this relates mostly to needs of teaching and not to needs of research ... Regarding research, the one-on-one service of individual reference librarians could be better integrated into the world of research. (Interviewee 6)

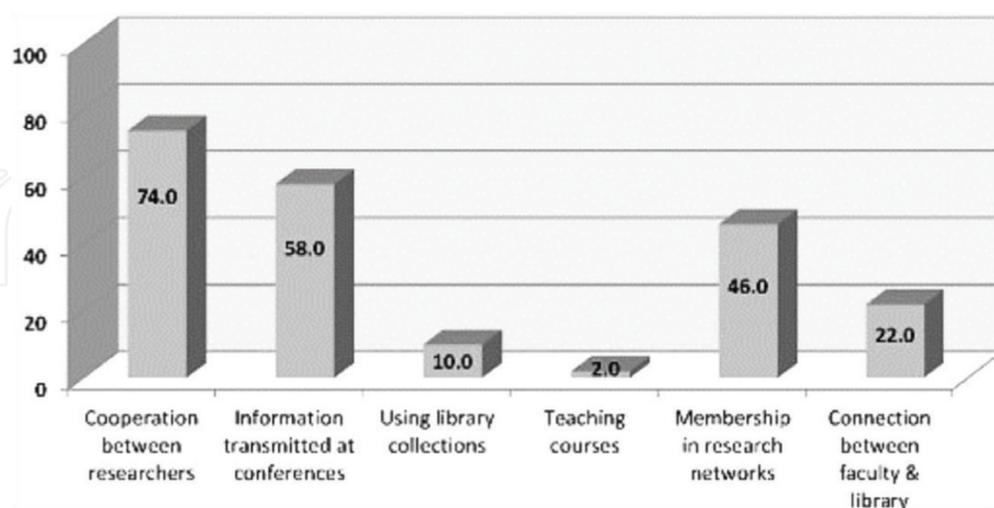


Figure 1. Percentage of academic librarians agreeing with different definitions of scholarly communication.

Some librarians detailed the constraints that make their involvement in scholarly communication difficult. For instance, the director of a faculty library at one university explained:

If I examine the situation truly, few librarians in the library are really partners in research. The ones who have more exposure to research either work in the reference department or are research students themselves. Some of the reference librarians working in specific fields have an interest in that field, but others do not. (Interviewee 9)

The director of a departmental university library explained that librarians cannot initiate such a process on their own without cooperation and recognition from the academic side. She felt that, at present, such recognition and support are lacking.

I think this must come from the department. I mean, if they were to send us to various conferences and seminars, and fund these for us, then I think we would be able to be more involved in this process Faculty members understand how I can help them on a technical level but do not sufficiently value my ability to assist them in collaboration and research. (Interviewee 11)

The director of another departmental university library explained that departmental libraries cannot accommodate scholarly communication activities because they are physically smaller, employ fewer librarians, and receive less funding than larger libraries:

I do think that it is desirable for librarians to be involved, but it is appropriate for large libraries that have larger personnel, here it would be really problematic. Small libraries, on one hand, employ professional people who understand the narrow field and it could be easier for them to be involved in this ... On the other hand, small libraries have a serious problem of personnel, which does not make it possible. (Interviewee 15)

2.3.2.2 Negative attitudes toward involvement

One librarian in a departmental library at a university said:

Regarding librarians' involvement, if the faculty members ask, we will help them, but from our perspective, it does not seem to me that we would approach them and offer any kind of further involvement. (Interviewee 7)

This view, shared by many librarians, hinders the development of a fruitful collaboration between the librarians and faculty. Indeed, it seems that increasing the awareness of librarians regarding their ability to be involved in scholarly communication, the importance of such an involvement, and the (formal and informal) connections between faculty members could further develop this collaboration.

Some librarians remained negative about being involved in scholarly communication even when the interviewer explained which scholarly communication-related activities librarians could be involved in:

None of this activity happens here. I think that today's librarians do have the technological abilities and education, but I really do not know if anyone here does anything like this. Regarding the future — might it be necessary to develop teams to work with faculty members? I have never thought about that... (Interviewee 7)

To summarize, the interviews with faculty members and academic librarians highlighted considerable gaps—both between and within the two groups—regarding the involvement of librarians in the process of scholarly communication. Regardless of the institution with which the interviewees were affiliated, high interindividual

variability was observed, and perceptions varied from the view that librarians should be much more involved in the process of scholarly communication to the view that they have no place in it. Notwithstanding, the interviews also revealed how librarians could improve collaboration with faculty members and promote the image of the library in the eyes of the faculty, e.g., by developing subject skills, increasing their involvement in academic conferences, and establishing better connections with faculty members while acknowledging the importance of such connections.

In the questionnaire distributed to the librarians and faculty members, the participants were asked to either agree or disagree with the two following statements: “librarians are capable of being involved in scholarly communication processes (with capability being defined as having the suitable education and technological abilities)” and “the library should be involved in these communication processes” (Figure 2). The fraction of participants who agreed with the first sentence was similarly low (~28%) in both groups. However, the fraction of participants who agreed with the second sentence was considerably higher among the faculty members than among the librarians (56 versus 36%, respectively).

2.4 Discussion

The perceptions of faculty members regarding the involvement of academic librarians in scholarly communication-related processes varied considerably. While some faculty members were positive about such an involvement, others perceived scholarly communication to be beyond the scope of the librarian’s job and stressed the variability between the numerous research fields, which would hinder librarians from providing substantial research assistance. Several issues can explain the individual differences between faculty members, including their perceptions of the complexity of their research fields, their feelings about sharing their research with others, their relationships with the librarians in their institutions, and their expectations and perceptions of the ability of these librarians to provide assistance. On the other side, librarians claimed that they do not even know how to define scholarly communication and do not understand what their role could be in this process. Others claimed that the library is already involved to a sufficient extent. Still others stated that the library should be more involved in scholarly communication and claimed that the library in which they work acts to increase such an involvement. The librarians seem to be more passive in their perceptions and activities, although they raise two important issues: the lack of cooperation with faculty members and the lack of knowledge required to be involved more actively in scholarly communication-related processes.

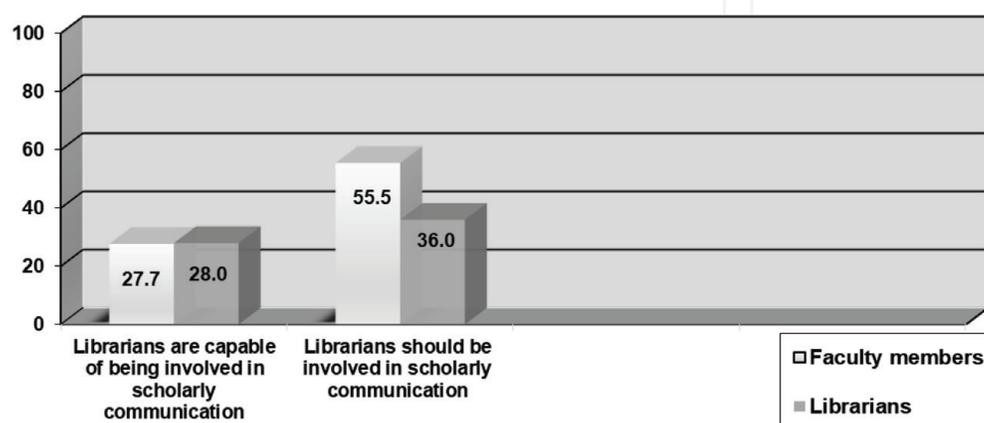


Figure 2. Percentage of faculty members and academic librarians agreeing with two different statements describing the involvement of the academic library in scholarly communication.

The quantitative data obtained by the questionnaires revealed that the percentage of librarians and faculty members who think that librarians are capable of being involved in the process of scholarly communication is similar—but relatively small. In contrast, more faculty members than librarians appear to think that the library should be involved in scholarly communication, highlighting the perceptual gap between the two groups. Some faculty members stated that they do not need librarians to help them in scholarly communication, and it can be expected that these participants would not see a place for librarians in the process of scholarly communication. A more passive approach was conveyed by the librarians, who appeared to be uninterested in assisting researchers with scholarly communication processes or did not perceive such assistance to be part of their job definition. It is possible that these librarians hold a traditional approach toward the role of the academic library or that they believe that they cannot assist in this process because they lack the required professional capabilities.

The current study focused on collaboration between faculty members and librarians in the field of scholarly communication; however, the gaps in perceptions are similarly manifested. It appears, therefore, that awareness must be raised in both communities, possibly by better defining activities in which the librarians and faculty members can and should collaborate. Perceptual gaps between librarians and faculty members were previously reported by Shen [45] regarding the possible role of librarians in assisting research-related activities (notably, as compared with the awareness and willingness of librarians to assist with scholarly communication, as reported in the current study, the librarians examined in Shen's study were more aware and willing to assist faculty members with their research activities). Shen [45] reported that the main gaps between librarians and faculty members regarded the content of activities in which librarians may assist faculty members. Thus, faculty members considered the possible involvement of librarians to be most important in three research-related activities: (1) developing collections together with the faculty members, (2) raising the awareness of faculty members regarding relevant new publications, and (3) providing information regarding copyrights. In contrast, the librarians considered two activities to be most important in assisting faculty members with their research-related activities: (1) teaching and training information literacy skills to both the faculty members and their students and (2) adding to the regular curriculum various “library orientation” courses. Similarly, Yousef [46] showed that, although librarians are generally willing to collaborate with faculty members and vice versa, the activities that faculty members expect librarians to perform are different from those that the librarians believe they can and should provide. Such gaps, therefore, appear to be prevalent and hinder fruitful collaboration between the two groups.

Another important finding in this study is that some librarians believe that the library should assist the teaching requirements of the faculty more than their scholarly communication and other research-related requirements, which they perceive to be beyond the scope of the academic librarian's job. From the point of view of the librarians, the lack of appropriate training seems to be a significant obstacle in their ability to assist faculty with scholarly communication or research-related activities; this perception raises important questions and concerns that librarians should discuss thoroughly. Issues to discuss include the source of the gap between the expectations of faculty members and the practical work of librarians in the field (is it an issue of budgets, personnel, and working hours, or do academic librarians direct their activities mostly toward other fields of librarianship?) and the possible need to change and update the training of librarians in LIS programs (specifically, although these departments teach various courses on information technologies, still lacking are courses on how to support faculty members in various aspects of their work). When asked about activities related to scholarly communication, several librarians noted that their work in this field is hindered by the lack of cooperation

from faculty members, by financial difficulties, and by an inadequate organizational structure of the library.

It is important to mention that some academic librarians are considered faculty members in their institutions and are, therefore, required to conduct their own research and publish in research journals throughout their careers. Although they usually do so in LIS (rather than other subject areas), they become more acquainted with the ongoing research in a specific scholarly field and, more importantly in the context of the current study, develop research-oriented skills. Such skills, in turn, strengthen their self-confidence, increase their feelings of capability, enable them to better understand the needs of faculty members, and increase the effectiveness of faculty-library collaborations. These processes will likely positively affect the perceptions of faculty members regarding the academic librarians in such institutes, thus increasing collaboration and support.

The interviews presented above also revealed that librarians employed in smaller libraries had a deeper knowledge of the research fields in their department but they were more limited in their ability to generate active collaborations with faculty members (due to budget problems, small staff size, and limited opening hours). Reorganizing libraries to maintain the advantages of the departmental libraries within larger faculty libraries may help in this regard.

2.5 Conclusions

The perceptual gaps between faculty members and academic librarians call for changes in academic libraries, which could increase collaboration between librarians and faculty in issues concerning scholarly communication. Such changes may include increasing the size of the library staff and teaching the librarians the technological know-how that is required for collaborating with the faculty members. In addition, to be able to effectively contribute to scholarly communication, the librarians should possess broad general knowledge, understand the scholarly communication process, and recognize the importance of their involvement in this process. Establishing a team of designated research librarians could contribute to these efforts and help improve the image of the library in the eyes of the faculty, thus positioning the library as an important factor contributing to campus life and activities. Initiating a dialog between disciplinary faculty and librarians, based on common interests in scholarship, would enhance the role of the academic librarians to the benefit of both the library and the academic community. To fulfill the vision of Wiegand [57] of the library as a learning space centered on the educational mission and integrated into learning and scholarship activities, academic librarians should learn more about how scholars and students work and improve their collaborative relationships with the faculty.

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Conflict of interest

The authors of this chapter declare no conflict of interest.

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