# Scholarly communication and academic librarians

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## ARTICLE INFO

## ABSTRACT

It is generally accepted among library and information science scholars that academic librarians can potentially assist faculty members with formal and informal scholarly communication processes. However, it is not clear to what extent faculty members and academic librarians are indeed aware of this potential and materialize it in the field. Following interviews with 20 faculty members and 15 academic librarians employed by a university or an academic college in Israel, questionnaires were constructed and delivered to 191 faculty members and 50 librarians. Qualitative and quantitative analyses revealed that both the faculty members and librarians believed that academic librarians are potentially capable of contributing to scholarly communication processes. However, more faculty members than librarians expressed the expectation that librarians should be involved in scholarly communication, and were willing for this to be the case. Bridging this gap—for example by appointing designated "research librarians"—may contribute to the increased involvement of academic librarians in scholarly communication processes, which will benefit both the faculty members and the academic library.

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## 1. Introduction

Since the beginning of the 21st century, there have been discussions among librarians, faculty members, and heads of universities regarding the way by which academic libraries are expected to function in the technological era; many of these discussions call for a re-examination of the needs of library users. According to Barclay (2007), a world of digital information has the potential to make the library seem superfluous, especially in scientific and technological fields. Hence, modern libraries must contend with ever-shrinking budgets on one hand, and with increasingly higher technological demands on the other. It is, therefore, essential for librarians to understand that, as technology develops and changes, information searching practices and needs change as well, which alters the expectations of modern library users. For instance, one important demand from the modern library is to provide maximal accessibility to online materials, a function considered significantly more essential than the physical presence of the library or of printed material (Creaser & Spezi, 2012).

One of the main issues of academia is scholarly communication, namely, the connections among scholars, which increase the awareness of one scholar to the work and ideas of another, and which have always been considered a fundamental aspect of scholarly and scientific research (Price de Solla, 1965). Scholarly communication is 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 (Association of College & Research Libraries, 2015). In its broader sense, scholarly communication refers to both the formal and informal connections among scholars and disciplines (Bhaskar, 2009). The study of scholarly communication regards the information needs of individual scholars and scholarly groups (Borgman, 2007). Menzel (1958) summarized the seven roles of scholarly communication in research: 1) providing answers to specific questions; 2) keeping scientists updated about new developments in their fields; 3) helping scientists to acquire an understanding of new fields; 4) verifying the reliability of a source of information by additional testimony; 5) providing scientists with a sense of 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. Roosendaal and Geurts (1997) describe scholarly communication in terms of five main forces and their interplay:

- Registration, which allows claims of priority for a scholarly finding.
- Certification, which enables the validity of a registered scholarly claim.
- Awareness, which allows scholars to remain aware of new claims and findings.
- Archiving, which preserves the scholarly record over time.
- Rewarding, which rewards actors for their performance, based on metrics derived from the scientific system.

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De Roure (2014), in his discussion of scholarly communication, describes articles as social objects which scholars share, cite, and discuss. These actions enable scholars to cross the boundaries of time, place, and discipline. More importantly, scholarly communication enables scholars to create a dialog in social and research networks, share information, and measure their own reputations. De Roure thus indicates that articles in the digital age are something more than a mere representation of knowledge; rather, they represent a social object, which forms social connections among scholars.

Significant and ongoing advances in information technologies which facilitate the preservation, organization, and distribution of information have expanded scholarly communication considerably in recent years (Bhaskar, 2009). In tandem with these advances, the traditional means of scholarly communication—both formal (e.g., publication of articles in peer-reviewed journals) and informal (e.g., personal and conference meetings, telephone calls, mail, and other informal channels)—have been supplemented with newer means of communication such as the use of e-mail and electronic databases; the publication of new conferences, journals and publications by way of the Internet; and the participation of individual scholars and scholarly groups in professional virtual communities, where Internet-based chats are conducted, blogs are shared, comments and suggestions are raised (e.g., on online-published research manuscripts), and forum discussions are held. This has facilitated scholarly communication that is easy, rapid, and global (Bhaskar, 2009), and transformed the process from private communication between individuals into a branched, developed, cooperative, and group-oriented form of communication (Borgman, 2007).

Such technological transformations pose new challenges for academic librarians because they have caused the demands of faculty members to be considerably changed, and faculty are a key population influencing the status of academic librarians. The attitudes of faculty members towards academic librarians are not uniform; rather, they are influenced by various factors, including the faculty members' 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 and attend to their needs. Because faculty members are the relatively permanent population of an academic institution, they are stakeholders in the library, and their perception of academic 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 (Searing & Greenlee, 2011).

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 (Association of College & Research Libraries, 2015). The Toolkit is a summary of ideas first assembled in 2005 by what is now called the ACRL Research and Scholarly Environment Committee, with input from many librarians regarding the correct approach to educating the academic community about in the changes in scholarly communication; how to assimilate scholarly communication in other conversations and initiatives; canceling high-priced journals; including catalog records for open access (OA) journals and/or listing them via link resolvers; and integrating scholarly communication concepts into information literacy classes. For example, 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…. Identify allies among faculty and students and collaborate with them to create and adopt an open access policy at the institution…. Partner with different campus units … promote the benefits of using and creating open educational resources. Collaborate with the graduate school…. Future Faculty, and similar programs concerned with scholarly authorship, publication,

and research data management. Host workshops…. Connect and collaborate with library schools to prepare future information professionals… (ACRL, 2011–2013).

## 2. Problem statement

It is clear that scholarly communication, both formal and informal, is changing dramatically. Although the assumption has been made that academic librarians may contribute to scholarly communication, the degree to which faculty members and academic librarians themselves understand and materialize this potential is still unclear. The literature does indicate that faculty members are receptive to collaborations with librarians, and that liaison visits to faculty productively increase faculty use of the library's resources and services. Faculty members thereby become more aware of the convergence between what they want, as teachers and researchers, and what the library has to offer (Wiegand, 2013).

There is a lack of qualitative and quantitative data describing how faculty members and librarians in academic institutions currently perceive the function of academic librarians and their integration into the process of scholarly communication. Understanding the reciprocal relationships between faculty members and academic librarians may highlight perceptual gaps with regard to scholarly communication and may assist in developing the means to better integrate librarians into contemporary scholarly communication processes. When it comes to human behavior, perceptions are important to consider, as they often direct actions; perception and action have been said to be intimately linked, and "basic perception–action links are crucial building blocks for social understanding and social interaction" (Knoblich & Sebanz, 2006, p. 103).

Research questions:

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

## 3. Literature review

Traditional roles and tasks of librarians have included the acquisition of resources (i.e., review, selection, and purchase of resources for the library collection), cataloging and organization (i.e., describing resources and readying them for use), and serving library users (i.e., recommending books and materials to readers and answering users' questions). Such tasks were performed without the involvement of the users, while users passively received what librarians offered. Interaction between users and the library system, as well as users' contribution of ideas for the development of the library, was limited. New technologies—e-books, e-journals, and other electronic information resources—have enriched library collections and services and have extended and complicated the roles of both librarians and users. The relationship between librarians and users has changed, and users have become more independent in choosing and using library services. Today, users can access online library-supplied databases anytime and anywhere, register to receive e-mail notifications on topics of interest, or comment and provide feedback on usability of library websites. Library services have had to become flexible (Nguyen, Partridge, & Edwards, 2012).

Given the many changes in the academic world and the understanding that librarians cannot fully confront those changes, Saunders (2015) investigated what are, currently, the most important or most highly prioritized issues for academic libraries, according to their strategic plans. She performed a content analysis of 63 publicly available strategic plans of the institutions involved in ACRL's Value of Academic Libraries National Summits and examined the stated goals of academic libraries

to discover how they cope with the emerging changes relative to their traditional strategic plans. This analysis provides a perspective on how academic libraries address current issues and how they plan to allocate resources in response to contemporary trends. Her findings indicate that librarians should take additional actions beyond their traditional roles (i.e., selecting, organizing, locating, evaluating, and disseminating research information sources, developing collections, and staffing the reference desk and departmental libraries) to better accommodate the needs and requirements of modern users of the academic library. In relation to faculty members, Saunders claims that changes in scholarly communication are forcing librarians to shift their mental models and alter their services. She concludes that effective strategic planning can make change and shift paradigms.

Formal scholarly communication between researchers mainly produces printed or electronic publications, which increase in number each year and affect the funding of research and publications. In the past 30 years, control over scholarly communication has moved from universities to commercial publishers. Following several mergers in the publishing industry, a few large corporations now dominate major sectors in the market of academic journals, particularly in the fields of sciences and medicine. These mergers between journal publishers, together with a steep rise in the price of journals (particularly in the sciences), have resulted in new pricing mechanisms, which have had a detrimental impact on the buying power of libraries (Genoni, Merrick, & Willson, 2006). In addition, changing technologies and user expectations are forcing academic libraries to develop new resources and service areas. Unfortunately, in an age characterized by an abundance of and accessibility to information, the high cost of digital information items prevents academic libraries from achieving their main goal, to supply access to a wide range of knowledge, and further, no library can respond to each new trend in the field. To adequately respond to emerging trends, academic library managers need to determine priorities (Saunders, 2015), a process which requires substantial personal and organizational commitment for change. Changes in library activities aimed at creating an atmosphere of mutuality and shared action to facilitate scholarly communication pose a significant challenge. Malenfant (2010) suggests that librarians should think of themselves as partners with faculty in the research enterprise, rather than as service providers.

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. Libraries are situated to meet those needs and have been doing so with the creation of new departments, new positions, and new staff responsibilities. An analysis of Association of Research Libraries (ARL) staffing requests from 113 universities in the United States and Canada found that more than half of the advertised employment positions were for newly created or significantly redefined roles. While new roles are being created in traditional library areas, there is also a clear hiring trend which emphasizes finding more functional specialists with a strong digital or technology background. Academic and research libraries are expected to fulfill new and more specialized capacities. Therefore, it is important to keep institutions sufficiently flexible to adapt to these new roles (Johnson, Adams Becker, Estrada, & Freeman, 2014).

Decisions as to how to prioritize and allocate resources should be made in collaboration with a library's parent institution. Colleges and universities face their own pressures, driven by increasing demands from stakeholders to hold themselves accountable. In turn, these institutions look to their departments to demonstrate how their programs and services support and extend the mission and goals of the college. In this environment, academic libraries monitor trends in library and information science (LIS) and in higher education in general to determine where to focus resources and efforts. According to the Horizon Project report, academic libraries will continue to be impacted by changing technologies and related standards, including mobile devices, and open access, as well as the Internet of things, the semantic Web, and linked data (Johnson et al., 2014).

Bell (2012) explains that, although scholarly research itself is conducted by faculty members, the content and rights of this research belong to the publishers, who sell access back to libraries at exaggerated rates. It is, therefore, critical that academic libraries build and maintain additional open education resources for faculty and students, beyond subscription content (Harris & Weller, 2012). In this way, librarians can mediate between the faculty members who conduct research and the users of the resulting information (e.g., other researchers) (Mitchell & Chu, 2014). Indeed, some academic libraries today collect online content created on campus and make it freely available through their institutional repositories. This trend is promoted mainly by campus librarians in an attempt to reduce costs and better serve the campus community. It is also facilitated by continuing developments in information technology which allow the academic community to produce large quantities of research and scientific publications independently of commercial publisher; this in turn increases the demand for free and open access to scientific research and publications (Genoni et al., 2006). Researchers can communicate with colleagues around the world, publish their scholarly work online, and locate others operating in the same field, leading to international scholarly communities that cross the boundaries of academic institutions and nations. Physical, linguistic, geographical, and other obstacles can be overcome by information technology (Vaughn, 2013). In light of these developments, scholars and librarians have been continuously developing models that allow open access (OA) to research materials, a direction that is strikingly different from that of the traditional publishing industry. From the perspective of academic librarians, adopting OA models increases the power of the library and its involvement in scholarly communication, as the library thereby becomes a mediator between researchers and publications (Navin & Vandever, 2011).

Thomas (2013) suggested three main fields in which librarians could contribute to scholarly communication: OA publication, that is, helping scholars in making their research accessible through OA journals and teaching them about the various models of OA; copyrights and agreements, including teaching scholars about fair use and how to copyright their materials, and assisting them with publisher agreements; and research support, such as helping researchers evaluate the materials that they use and locate research grants, budgets, and support. Thomas claims that, in addition to training librarians for these tasks, it is also important to develop scholarly communication in academic libraries through a structured program that includes a range of activities. While the framework identifies roles and responsibilities in nine areas, those for scholarly communication are: to educate and inform faculty, graduate students, and campus administrators about scholarly communication issues; to advocate for sustainable models of scholarly communication; and to work closely with faculty members to understand their changing workflows and patterns of scholarly communication and assist in the development and creation of tools and services to facilitate scholarly communication (Malenfant, 2010).

Friend (2008) points to the importance of establishing good connections between faculty members and librarians. Friend claims that recent changes in the academic publications industry—including the multiplicity of journals, the sharp increase in their prices, changes created by the opening of collections, and ever-expanding research needs—affect scholarly communication and, accordingly, alter the demands made of librarians, their job descriptions, and their involvement in academic issues. Borgman (2007) indicates that, although academic libraries are already involved in some aspects of scholarly communication when they purchase scientific publications and databases, this involvement is insufficient. Librarians lack an adequate understanding of how research is conducted in a digital setting, and they are unaware of the importance of developing skills for working with digital materials and advanced technologies. Similarly, several studies have suggested that academic

librarians do not fully understand the information needs and the searching methods of faculty members, whereas faculty members are not fully aware of the physical and electronic capabilities of the library (Atif, 2010; Bausman, Ward, & Pell, 2014; Brewerton, 2012; Neal, 2009; Shen, 2013). Meeting with faculty members in person can make them more receptive to further communication, whether face-to-face or otherwise. This may also lead to a greater understanding of the role of the liaison librarian and, thus, to a more effective use of the liaison librarians' skills by the faculty (Watson, 2010).

Rather than using the library, faculty members generally appear to prefer more direct methods of information searching; scholarly communication is typically conducted among the researchers themselves and, despite purchasing materials and access technologies, academic librarians are still not central participants in the process of modern scholarly communication. Indeed, academic librarians themselves deem interpersonal scholarly communication an important and reliable way of obtaining information (Haglund & Olsson, 2008).

It is generally acknowledged that academic librarians need to be aware of the information needs and search behavior of researchers in order to support them effectively (Mamtora, 2011). However, to be involved and support research in a wide variety of fields, academic librarians must be flexible and need to collaborate with different workgroups. In some academic libraries, reference librarians, also designated as subject specialists (Frank, Raschke, Wood, & Yang, 2001) or subject librarians (Auckland, 2012), collaborate directly with faculty members in both scholarly communication processes and research processes. Some researchers today believe that modern academic libraries should become hybrid libraries, housing various collections but also supplying information technology (Auckland, 2012). Faculty members who incorporate media-based assignments into their courses rely more on librarians to help students learn media-production skills. Universities increasingly expect librarians to undertake more responsibilities in programmatic and teaching contexts, but it seems that librarians may lack the pedagogical background to design and facilitate a sustainable course (Johnson et al., 2014). 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 LIS master's programs, and to educate active librarians about collaboration with faculty members (Corrall, 2012).

## 4. Methodology

### 4.1. Research methods

This integrated, mixed-methods study employs both qualitative and quantitative approaches. The integration of these approaches provides a better understanding of the research problem, as it provides for more comprehensive evidence using a wide range of data collection tools (Creswell & Clark, 2011). In the current study, an interview was first conducted that allowed an in-depth analysis of particular perceptions held by librarians and faculty members. The analysis of these data prompted a subsequent questionnaire which examined the prevalence of these perceptions.

The research population included two groups: (a) faculty members (lecturers, senior lecturers, and professors) from the faculties of humanities and social sciences who teach and conduct research in three academic institutions in Israel; and (b) academic librarians working in the libraries affiliated with these faculties in the three academic institutions.

The interviews were based on a convenience sample of 20 faculty members and 15 academic librarians, selected by the snowball sampling technique. The questionnaires were distributed to all faculty members and librarians.

### 4.2. The study sample

For faculty members the response rate was 30.85% from a population of 619. Of the sample of 191 faculty researchers, 56.5% ($n = 108$) were men and 43.5% ($n = 83$) were women. Their ages ranged from 25 to 76 years ($M = 49.25, SD = 11.13$). All participants resided and worked in academic institutions in Israel. The time length of participants at their current academic institution ranged from 1 to 43 years ($M = 13.44, SD = 10.36$).

In the case of academic librarians, the sample included 50 academic librarians (47 women and 3 men), for a response rate of 62.5% from a population of 80. The sample comprised librarians working in libraries of various types, including departmental, faculty, and central libraries. The age of participants ranged from 27 to 66 years ($M = 47.02, SD = 10.62$), and their seniority at the institution ranged from 3 to 40 years ($M = 18.64, SD = 11.23$).

### 4.3. Data collection techniques

#### 4.3.1. In-depth, semi-structured interview

The interview was flexible and allowed the interviewer not only to ask the questions that were prepared in advance, but also to develop the conversation based on the answers of the participant, to respond to statements made by the participant, and to ask spontaneous clarification questions or new questions to obtain additional information (Berg, 2009). The interview questionnaire was developed according to the model of Patton (2002), which includes six types of issues to which the interview should relate: experience and behavior, opinions and values, feelings, knowledge, sensory, and demography. Interviews were conducted during the 2012–2013 academic year.

The interview with faculty members included seven demographic questions and seven content questions (with some sub-questions), and assessed the attitude of the faculty member towards the involvement of librarians in scholarly communication, OA, and institutional archives. The interview with academic librarians included five demographic questions and six content questions (with some sub-questions), and assessed the perceptions of the academic librarian towards scholarly communication and OA and the degree to which the librarian is involved in these functions.

#### 4.3.2. Questionnaire

The questionnaire was used to gather relevant quantitative data, and was based on accepted research methods for gathering quantifiable data. It did not focus on the individual but, rather, on all participants as a single group (Creswell, 2009). As this study was descriptive, a structured questionnaire with closed, multiple-choice questions was used. All participants received the same questions in the same order; possible answers were stated on the questionnaire; and the purpose of the research was not concealed (Sapsford, 1999).

The questionnaire for academic librarians included: (a) questions regarding the awareness of the librarians of scholarly communication, and their view towards the involvement of the library in scholarly communication and towards open access to research materials; and (b) demographic questions.

The questionnaire for faculty members assessed parameters similar to those in the questionnaire for librarians: (a) the perception of the faculty members of the degree to which academic librarians are aware of scholarly communication, and their view towards the involvement of the library in scholarly communication and towards open access to research materials; and (b) demographic questions.

Pre-test questionnaires were sent to five faculty members and five academic librarians before they were distributed to all research participants. No significant modifications were recommended.

# 5. Findings

## 5.1. Perceptions of faculty members

### 5.1.1. Positive perceptions of cooperation

The perceptions of faculty members regarding the involvement of the library in scholarly communication varied. Some faculty members indicated that academic librarians are certainly fit and able to be involved in scholarly communication, and that such involvement should be part of the duty of an academic librarian. Conversely, other faculty members did not agree with this perception and believed that librarians could only have a limited role in scholarly communication, or that there is no connection between the librarian and the process of scholarly communication.

A senior researcher defined scholarly communication and the processes that it involves as follows:

> From my perspective, 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 in my acquaintance have some level of awareness, I think that it could be much greater, and they need a lot more training. It is important to note that this is also a function of age. Therefore, I assume that it's very important to be aware of this and balance the ages among the library staff, so that it also includes young people who have the motivation, desire, and openness to be involved in this new world. Older people are sometimes set in their perceptions.
>
> [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:

> In the future, there could be a major quantum leap; take, for example, the exchange of information between myself and a researcher in Shanghai … Perhaps, in the future, there will be some sort of a library-like institution that would process the connection between us and provide both of us with shared services. 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]

Another researcher also claimed that, in his opinion, academic librarians have the necessary abilities to be involved in scholarly communication, but need to develop greater awareness and training:

> Librarians, in my opinion, can be involved, but it is important that they remain up-to-date, online at all times … They need to lead a change. This should begin with academic training in universities, professional training in the field on a regular basis … One of the roles of the librarian is to adapt him- or herself, and to develop him- or herself according to the pace of changes.
>
> [Interviewee 1]

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

> 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, which will help him or her become more familiar with the field and with the needs of those researchers. In addition, he or she can update faculty members in the field, which I would call "pushing information." There is no doubt that there should be collaboration in this … I would gladly preach to faculty members that they should make contact with the librarians and attend the library.
>
> [Interviewee 13]

### 5.1.2. Negative perceptions of cooperation

In contrast to the opinions presented above, other faculty members complained that, despite their appreciation for the library staff and their skills, they do not understand how librarians could be involved in scholarly communication and what their role would be in the process:

> 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]

> How is the library connected to this? I do not think that this is their business or relevant to them. It is not information science or library science. Meaning, if I exchange professional opinions with researchers, this is neither related nor relevant to the librarian, as I see it.
>
> [Interviewee 8]

> I have always encountered librarians at a high, impressive level who know how to give advice, search information, and make connection between things. It is a profession in its own right, but it is not clear to me how the library can be included, perhaps in searches for information…
>
> [Interviewee 19]

> 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]

### 5.1.3. Thoughts about involvement

Some faculty members had not previously thought about the issue of involving librarians in scholarly communication. They did not oppose the idea and did not think that librarians should not be involved in scholarly communication. However, because they had not considered the possibility of librarians being involved in this process, some faculty members made suggestions (and revealed assumptions) during the interview. One senior researcher stated that, in his opinion, librarians

should not be more active in this field; however, while explaining this opinion, the researcher also proposed an 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. Not to specific research fields but 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]

One university lecturer, who initially presented negative opinions regarding the involvement of librarians in scholarly communication, also made some suggestions as the interview developed:

> The librarian could be involved in another aspect of this communication, for example, in providing information about conferences being held in the field, 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]

### 5.2. Perceptions of librarians

When the librarians were asked, during the interview, to define scholarly communication, some did not give a clear answer and explained that they had heard this phrase before but were unable to explain its meaning. In the questionnaire, the librarians were asked to define the term scholarly communication by agreeing or disagreeing with six possible statements (Fig. 1).

Most librarians agreed that scholarly communication can be defined by the statement "cooperation between researchers" (74%) and by the statement "information transmitted at conferences" (58%)—two statements that are included in the generally accepted definition of scholarly communication—and many (46%) indicated that "membership in research networks" is a statement that defines scholarly communication. However, approximately 80% of the librarians did not include a clear role for the librarian in the process of scholarly communication, and only 22% regarded the connection between the faculty and the academic librarian to be part of the scholarly communication process.

During the interview, when the interviewer explained the meaning of the term, the librarians generally replied that academic librarians perhaps could be more involved in scholarly communication, but differences in their answers were apparent.

#### 5.2.1. Positive attitudes towards involvement

Some librarians in departmental or faculty university libraries exhibited positive attitudes towards the idea of being involved in scholarly communication. These librarians also detailed library activities that, perhaps, could be considered part of scholarly communication. However, they also emphasized that their personal involvement in scholarly communication is mainly in teaching and not in research. Notably, different librarians in the same institutes expressed different degrees of awareness and willingness to participate in scholarly communication processes. Hence, it appears that the variation in the perceptions of librarians originates from inter-individual variability, rather than the institution in which the librarian is employed.

One librarian said:

> The libraries now have blogs for librarians, so as I understand it, the library could be a member of certain blogs of researchers … Perhaps we could be involved in their conferences … It depends on the library's initiative; I think it is possible to do more.
>
> [Interviewee 1]

A librarian of a faculty library at a university said:

> The librarians work on a very 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]

When the interviewees were asked about their perceptions regarding the involvement of librarians in scholarly communication, they explained that although they would be interested in doing more, various constraints often make their involvement 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. We offer seminars, courses, etc. after working hours, but many do not stay, and I understand them.
>
> [Interviewee 9]

The director of a departmental university library explained that the collaboration must be initiated by the department, which needs to
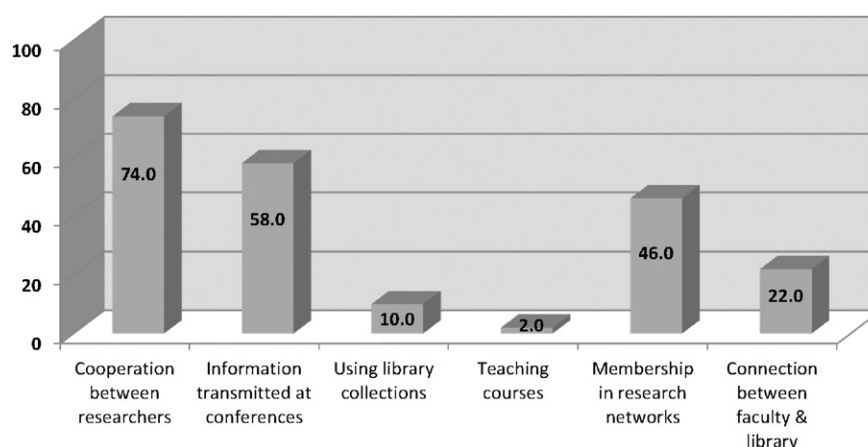


**Fig. 1.** Percentage of academic librarians agreeing with different definitions of scholarly communication.

support this activity. She felt that, at present, such recognition and support are lacking and that librarians cannot initiate such a process on their own, without cooperation and recognition from the academic side:

> 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 … In my opinion, librarians are definitely able to be involved in these processes. 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 the structure of a departmental library, which is physically smaller, receives less funding, and employs a smaller staff than in larger libraries, cannot adequately accommodate activities related to scholarly communication:

> 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. Librarians need to be involved and to understand the research field to a certain level in order to be involved as necessary. I do not think that everyone could get involved in terms of his or her education and technological knowledge. 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]

### 5.2.2. Negative attitudes towards 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, which reflects the view of many other librarians as well, is one of the obstacles responsible for the disconnection between the library and faculty members. If the librarians were more aware of the formal and informal connections between faculty members, and if the importance of such connections and the ability of the librarians to be involved in these connections were clearer to the librarians, then presumably the collaboration between faculty members and librarians would develop and become more fruitful and successful. The responses of librarians to the idea of being involved in scholarly communication remained divided even when the interviewer detailed activities in which the librarian could, potentially, be involved. From the response of Interviewee 7, for example, it is clear that she does not see any place for the librarian to be involved in scholarly communication:

> 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]

The interviews indicate gaps between faculty members and academic librarians, and between individual members of each of these groups, regarding the role and ability of the academic librarians to be involved in the scholarly communication process. The range of perceptions of faculty members and librarians was wide; some thought that the librarians should be much more involved in scholarly communication, while others thought that librarians have no place in this process.

However, the interviews also indicated several means by which the collaboration between faculty members and academic librarians could be improved, which would promote the image of the library in the eyes of the faculty. These means include being more involved in academic conferences, developing subject skills, establishing better connections with faculty members, and understanding and acknowledging the importance of these connections. Clearly, however, such processes would require the collaboration of faculty members, who must be willing to understand the potential contribution of the librarians and collaborate effectively with them.

Participants were also asked to 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" (Fig. 2). A similar but relatively low fraction (about 28%) of librarians and faculty members agreed that librarians are capable of being involved in scholarly communication. However, more faculty members (56%) than librarians (36%) indicated that the library should be involved in scholarly communication. Thus, taken together, just over half of the faculty members appear to think that the library ought to be involved in scholarly communication and should define, or at least develop, scholarly communication as part of its role at the academic institution. The librarians themselves, however, are less eager for this possibility.

## 6. Discussion

It was expected in the current study that the perceptions of faculty members and academic librarians would differ with respect to the capability and desirability of librarians being involved in scholarly communication and in scientific communities. The perceptions of faculty members regarding integration of the librarians in scholarly communication, as stressed in the interviews, were divided and varied. Some faculty members believed that librarians could contribute to scholarly communication, whereas others stated that scholarly communication is not in the scope of the librarian's job and that librarians are already sufficiently involved by purchasing materials and subscribing to databases, and should not be involved in additional ways. These participants stressed that research fields are numerous and varied, and that they do not expect librarians to understand a particular field or provide any additional research assistance. The individual differences between faculty members are likely to be influenced by their perceptions of the complexity of their research field, their expectations from the librarians, their feelings about sharing their research with others, their personal relationships with librarians, and their perceptions of the ability of librarians to assist them.

Similar to the faculty members, the academic librarians were also divided in their opinions. In the interviews, some librarians claimed that they do not even know how to define scholarly communication and do did not understand what their role could be in this process. Others claimed that the library is already involved to a certain extent, which is, in their opinion, sufficient. Still others stated that the library should be more involved in scholarly communication and claimed that the library in which they work takes action to increase such an involvement. Moreover, these librarians contended that they do not always receive the cooperation that they expect from faculty members. They explained that they would feel more like active partners if they were sent to in-service courses, and that such courses would improve their perception of their capability to be involved in scholarly communication. 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 more actively involved in scholarly communication. It seems that both the librarians and the faculty members have difficulties in defining how exactly academic librarians can be involved in the scholarly communication process. Indeed, scholarly communication is a general term representing a
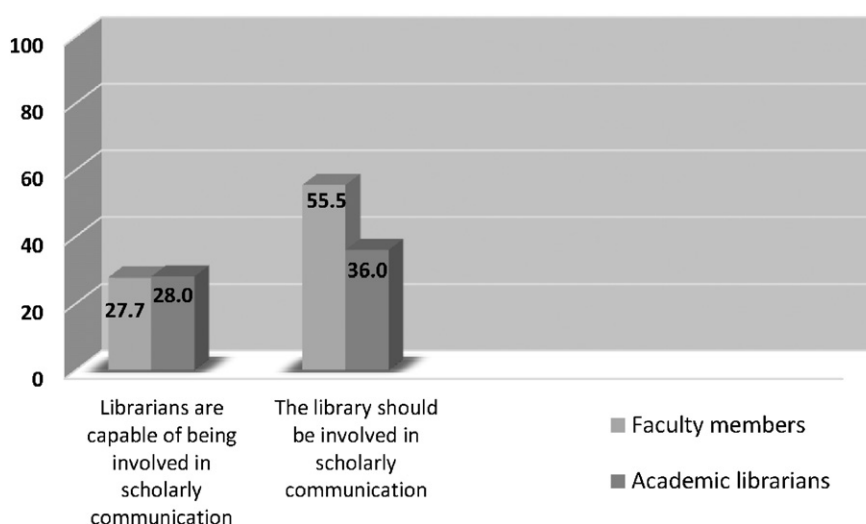
**Fig. 2.** Percentage of faculty members and academic librarians agreeing with two different statements describing the involvement of the academic library in scholarly communication.

wide variety of activities in the scholarly world, and part of those activities could be accomplished through collaborations between faculty members and librarians.

Despite the picture emerging from the interviews, analysis of the quantitative data indicated that a similar percentage of librarians and faculty members think that librarians are capable of being involved in the process of scholarly communication. Nevertheless, when asked whether the library should be involved in scholarly communication, only 36% of the librarians answered positively, as compared with 55% of the faculty members. Thus, although both groups agreed to a similar extent that librarians have the necessary skills to assist with scholarly communication, a perceptual gap was evident between the two groups regarding the need for or desirability of the involvement of the librarians in the process. Given the statements made by some faculty members that they do not need the help of the librarians, it can be expected that they would assume that there is a no place for the library to be involved in scholarly communication. The librarians, in contrast, appeared to be uninterested or believed that it is not their job to be involved in scholarly communication. It is possible that they do not believe in their capabilities to perform tasks related to scholarly communication well enough, or that they have a more traditional conception of the role of the library. The librarians were more passive in their perception about this subject.

Shen (2013) showed similar gaps with respect to the perception of the role of the librarian in assisting faculty members with research-related activities. Although Shen showed that librarians are more aware and willing to collaborate with faculty members than observed in the current study, gaps were evident with regard to the content of such activities. Thus, in Shen's study, faculty members considered three activities most important: 1) collaborating with the faculty members in the development of collections; 2) notifying faculty members of relevant new publications; and 3) providing information regarding copyrights. In contrast, the librarians perceived the two following activities to be of the utmost importance in their work: 1) teaching and training information literacy skills to the faculty members and students; and 2) integrating "library orientation" courses within the regular curriculum. These findings are similar to those of Atif (2010), who showed that, when asked in interviews or questionnaires, librarians show a willingness to collaborate with faculty members and vice versa; however, gaps were evident in the content of such activities, such that the activities that faculty members expect librarians to perform are different from those that the librarians believe they can and should provide. Although

the current study focused on collaboration between faculty members and librarians in the field of scholarly communication (while other studies focused on other aspects of such collaboration, e.g., developing collections and information literacy), the gaps in perceptions are manifested similarly. 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.

The data collected from the study's interviews indicate that some librarians believe that the library ought to primarily serve teaching requirements, while scholarly communication and other research-related issues are perceived to be beyond the scope of the academic librarian's job. Some librarians explained that, if they had the right training, they could be involved in the research activities of faculty members. This issue should be thoroughly discussed among librarians, as it raises some important questions and concerns: What is 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 are academic librarians mostly directing their activity towards other fields of librarianship? Should the training of librarians in LIS programs be augmented? Although these departments teach a wide range of courses dealing with information technology, digital collections, databases, and so on, there are still not enough courses dealing with the development of guidance and educational skills for supporting faculty members in various aspects of their work. Such courses are important for meeting the needs and expectations of faculty members, and suitable activities could be developed that would increase likelihood of library use by faculty members and their collaboration with the academic librarians. Knowledge of research networks and skills in locating and promoting scholarly conferences and research grants are also relevant elements of academic librarian preparation, as is knowledge of pedagogy.

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 (namely, that libraries do not have a special department with which to serve the research needs of faculty members). In some academic libraries around the world, librarians are considered faculty members 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, these librarians not only become more acquainted with the ongoing research in a specific scholarly field, but they also develop research-

oriented skills that strengthen their self-confidence and their feelings of capability, assist them in better understanding the needs of faculty members, and enhance the effectiveness of faculty-library collaborations. It is reasonable to assume this will increase the likelihood that faculty members will consider librarians as partners who can support their research in various ways. This also suggests that exposing students in LIS programs to the various stages of the research process would go some way to bridging the gap between librarians and research faculty.

The interviews also revealed that librarians employed in smaller libraries (i.e., with fewer staff) had a deeper knowledge of the research fields in their department, and were more able to help researchers. However, these librarians were also more limited in their ability to be involved and generate active collaborations with faculty members due to budget problems, small staff size, and limited opening hours. These librarians could not fully exercise their capabilities and better collaborate with faculty members, despite their knowledge. This might be ameliorated by reorganizing libraries in ways that will maintain the advantages of the departmental libraries within larger faculty libraries.

## 7. Conclusion

The perceptual gaps identified between faculty members and academic librarians suggest specific changes in academic libraries; changes which would be likely to increase research-library collaboration and promote the involvement of librarians in scholarly communication. In addition, library size (in terms of staff) appears to be important, and employees must possess the technological knowledge and capabilities required for collaborating with faculty members, as well as a broad general knowledge, an understanding of the scholarly communication process, and a general recognition that it is important for them to be involved in this process. To be more involved in the scholarly communication process, academic libraries might need to reorganize library staff accordingly. For instance, establishing a team of designated research librarians might be useful and could construct a new and different image for the library, which could be used to market and position the library as an important place in the life and activities of the campus.

Beginning conversations and making connections with disciplinary faculty by finding common interests in scholarship enhances the role of the librarian and benefits both the library and the academic community, locally and globally. Through learning more about how scholars and students work, improving curriculum-based library resource provisions, and improving collaborative relationships between librarians and faculty, the library can be what Wiegand (2013) envisioned—a learning space, centered on the educational mission, and integrated into learning and scholarship activities.

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