

## **Visibility of Library and Information Science and Science Communication in Iran**

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### **Abstract**

This study examines how newspapers in Iran have presented library and information science (LIS) to society; how the media understand library and information science as a discipline; and how authors of articles in LIS journals collaborate with members of other disciplines. Three public newspapers (*Hamshahri, Iran, and Jam-e-Jam*) together with eleven peer-reviewed LIS journals approved by the Ministry of Science, Research and Technology were included in this study. The results show that LIS as a discipline is not visible enough in Iranian public media. However, recognition and understanding of LIS in specialized journals is better. We concluded that the communication between LIS professionals and journalists is less than optimal in Iran. The paper provided original information about the picture of library and information science in Iranian society.

**Keywords:** Library And Information Science, Media Visibility, Science Communication, Iran.

### **Introduction**

Library and information science (LIS) is concerned with collecting, organizing, classifying, storing, retrieving, and presenting information and knowledge. The development of a discipline as a specialization can disregard the importance and nature of that discipline to society and other experts and thus deprive it of the benefits of social recognition and interdisciplinary activities. How much attention has been paid to science-society and interdisciplinary communication in library and information science? For disciplines to play crucial roles in public and academic spheres, their social impact must be made visible in two spheres: (a) They must interact with the community so that they are visible to the community and the community understands their importance, and (b) Their professionals must pay attention to other areas of knowledge and participate in interdisciplinary research.

Libraries as social institutions have a long history all around the world. However, with the omnipresence of mass media today, the various media are affecting people's understanding of social institutions, including libraries. We may say that the media influences and shapes people's sense of different topics and institutions. We may argue that media are an essential dimension of visibility today and may wish to contemplate visibility within a social media theory. Our preliminary study showed that the critical role of librarians is little acknowledged

in Iran. No articles published last year in peer-reviewed journals or newspapers addressed the job of librarians. Indeed, the position of library and information science in the social context of Iran appears to be separate and isolated from the general society. Librarians are considered non-specialist staff responsible for providing books to the public and circulating books in libraries. The public and many professionals in other fields do not understand the nature of LIS and its social role. One way for LIS professionals to increase their stature among experts from different disciplines is to engage in media and use new media to uncover various functions of LIS.

Regarding these, the manuscript examines how journals and newspapers affect the visibility of library and information science to society. Therefore, the present study's research question asks how LIS and librarians obtain public visibility from the media. To answer this research question, the researchers considered three questions about the visibility of LIS and librarians as follows:

1. How do the Iranian newspapers, as agents of social cognition, consider library and information science and the role of librarians?
2. What is the media visibility of LIS as a discipline in Iran?
3. How do Iranian LIS professionals engage in inter-specialist and interdisciplinary communication?

This uncovers the dynamics of the relationship between LIS scholars, the public, and the media.

### **Theoretical Framework and Background**

Rae Goodell coined the concept of visible scientists in the 1970s. She believed that the aim of scientists to be visible was important for scientists' enterprises in the uproarious sphere of politics and argument. Based on her argument, scientists achieve high profiles by taking advantage of the media and developing cooperation with the press (Goodell, 1977). Fahy (2017) used the term *attuned* for these types of scientists since they comprehend the needs of the media. However, in the current era of social media, scientists have found it easier to get public visibility. Today it is expected that every researcher will participate in the visibility of science by communicating with a diverse public (Rödder, 2012).

Visibility is an essential issue for any discipline. Mateus (2017) stated that visibility is hardly a social grade to understand human interplay; it may also be taken as a distinctive deal of seeable and hidden activities, including acknowledgment and camouflage affairs by which anyone addresses social interactions. Visibility shapes subject situations and, per se, includes a critical distinction. Making society seeable to itself is a compelling affair to social theory. Visibility depends on complex social, technical, and political adjustments (Brighenti, 2010). Communication technologies participate in how the visible is carved in social reality and have two potential aspects: they have both a (potentially) empowering and a (potentially) disempowering role. Visibility has different effects because media construct visibilities and affect visibility's structure, restructure or change it entirely. Mateus (2017) believes that visibility works on the edges of shared thinking that result in the arraying, organizing, and categorizing of acts and human beings. Visibility chooses how visible relationships are made and ascribes relational and conflicting social places to humans and their activities. This indicates visibility is the management of collective attention using different articulations of the visible.

Brantner and Huber (2013) showed that factors that contribute to the visibility of researchers are macro, institutional, micro, or individual. On the macro level, the media comments on science, talking about science and scientists; on the micro level, researchers themselves use media for public communication. On the macro level, factors such as the distinctiveness of disciplines affect visibility. In this regard, they looked into the media presence of communication studies, reporting that communication studies are progressively employed as a supplemental component in news reporting. They mentioned that the initiative of scholars to serve as specialists is more influential than the journalism culture. On the micro level, a person's ability to describe his or her research project simply and engagingly in the media and to create and manage media interactions is strategically essential (Olesk, 2021).

Considering the shared character of scientific action (Kuhn, 2014), the second important issue is communication between and within professionals. This communication is supposed to bridge the gap between science and society, but it is not an easy process. Effective communication must be established between different experts. The visibility of LIS in mass media may affect the recognition of specialists in another field, too. Thus, Salager-Meyer (2008) knows visibility as a prerequisite for continuity in the intellectual sphere. A discipline or researcher lacking visibility is thus isolated and enters the domain of lost science, as Ferguson (2007) has said. Considering the importance of communication to the visibility of LIS in society and the academic sphere, it is necessary that (a) public media, as agents of social awareness, pay attention to library and information science and the role of librarians; and (b) librarians have an interdisciplinary perspective.

Bridging the gap between LIS and society needs to broaden the general public's understanding of the language of LIS. According to Bucchi (2008), communication of science has advanced in the context of two movements: establishing research as a work requiring academic or practical preparation with higher social prestige and growing expertise; and developing mass media. In contemporary Iran, many researchers are active in the field of LIS, but it seems that the media don't cover it as a valued field of study. Because of this, it may be expected that social recognition of LIS is less than satisfactory.

There are two basic models for public communication regarding scientific practices. The first are traditional models- the deficit (Lewenstein, 2003; Trench, 2008) and contextual (Lewenstein, 2003) that consider the audience's lack of knowledge and solve this by educating society through the media or other means. According to Logan (2001), the goal of these models is to increase literacy. The second are non-traditional models involving lay expertise (Lewenstein, 2003), public participation (Lewenstein, 2003 and Trench, 2008), and dialogue (Trench, 2008). Logan (2001) argued that the objectives of these models are to increase public engagement with science and to improve public belief in science.

None of these models is superior to the others, and their application and suitability depend on various conditions. It seems that lay people and experts in other disciplines don't have sufficient understanding and knowledge about the nature of LIS and its role in society. Thus, the traditional models, which could be termed diffusionist, would help increase public awareness. The discipline and its professionals can gain visibility in society and the academic world through better public communication regarding LIS.

Flyverbom, Leonardi, Stohl, and Stohl (2016) considered three attributes for visibility: using and acquiring information, circulating information, and quickly obtaining information for third parties. Accordingly, these characteristics are present in science communication. Well-

known paradigms of science communication are the deficit model, public understanding of science, and the public engagement with science and technology (Bucchi, 2008). The last two models assert distinct facets of visibility. While the third focuses on the visibility of the production of scientific knowledge, public understanding of science concentrates on the knowledge itself (Metag, 2021).

Highlighting specific issues more than others in the media sets the agenda for the public to attach greater importance to them and think about them more. This is called “agenda setting” in communication theories (McCombs & Shaw, 1972). When media pay attention and prominence to a subject by dedicating more space and affording it a better place, they construct media visibility (Manheim, 2012; Kiouisis, 2004). For our purposes here, media visibility refers to the attention LIS receives from the media, which would enhance society’s understanding of its function and importance. Visibility is necessary for survival in the academic world (Salager-Meyer 2008). A discipline or researcher lacking visibility is thus isolated and enters the domain of lost science, as Ferguson (2007) has said. On the contrary, when they are visible scientists (Goodell, 1977), they may affect politics and social arguments.

Considering the importance of communication to the visibility of LIS in society and the academic sphere, it is necessary that (a) public media, as agents of social awareness, pay attention to library and information science and the role of librarians; and (b) librarians connect with media and play what may be termed translator roles, simplifying the technical language of the field. There are three steps in the communication process by which public awareness and understanding of science are increased: first, knowledge production by experts; second, simplifying technical knowledge to make it understandable for non-experts; and third, dissemination in the community (Ojagh, 2019). We can consider this to be two types of factors that affect the visibility of researchers at two levels: macro, institutional, and micro, or individual.

### **Literature Review**

The literature review shows that the librarian's role is increasingly in vogue at a time when information professionals are more necessary than ever before. We reviewed the literature from two perspectives: the representation of the LIS and librarians in the public media and the representation of scientific collaborations in the specialized media.

Rowlands, Nicholas, Williams, Huntington, and Fieldhouse (2008) show the importance of librarian professionals by vanishing the common assumption that ability in the digital environment is considered the same as suitability in information literacy. However, Hicks (2016) analyzed the public’s understanding of librarians and said the public did not ally librarians with technology, which negatively affected their ability to commit to society; the last result of this wrong understanding was the profession’s death: “If librarians collectively and individually can’t alter this attitude, libraries and the profession will be destroyed” (p. 263). Similarly, due to increasing “digital divide” (Norris, 2001), librarians have a critical role in narrowing this gap. However, the lack of public awareness of this and visibility has led to the de-professionalization of public libraries (Conway, 2008). A study by Shaw (2010) about the image of the library and information professional in the UK press revealed that the media didn’t represent the abilities and responsibilities of librarians. However, the representation of professional duties, such as their abilities in collection and development, was positive.

New technologies have created conditions for LIS professionals that make it necessary to communicate with society. Alvim and Calixto (2013) in Portugal focused on the potentials of

Web 2.0 for establishing Library 2.0 that would provide interactivity, dialogue, and relation between the public libraries and audiences. “The library starts to offer a new service to the community from the social capital created in the cooperation, relationship, and the interaction between all”. Researchers have also considered the role of libraries and librarians in social inclusion. Innovating areas, forming favorable circumstances for positive conversation among various groups, helping people recognize misinformation, and promoting media literacy (Singh & Uttam, 2012) will be some of the social functions of libraries in the future. Headley, Johnson, and Jones (2023) concentrated on social media and showed its utility in research dissemination and the reach of information to the lay audience because it can reach every nonexpert person, thereby increasing social visibility.

The other way for LIS professionals to improve their image among experts from different disciplines is to engage in joint scientific research and extra-disciplinary research. However, we must be careful that the nature of the communication may differ across disciplines, as the traditions of science are often not the same. In order to understand communication in library and information science, we must also review its literature and pattern of authorship. According to Tang (2004), Cronin and Meho (2008), and Hjørland (2016 and 2017), LIS must be considered as a metascience because it is related to the specific fields of knowledge; for example, chemistry, biology, art studies, or literature studies.

Analyzing the authorship of articles in LIS journals to discover experts from other disciplines who collaborated in their production can reveal the presence or absence of such collaborative efforts and thus show the present status of the LIS field. A study disclosed that 31% of the articles printed in 31 LIS journals from 2007 to 2012 were by writers in library and information science academic departments. Faculty in departments of computer science (10%), management (10%), communication (3%), the other social sciences (9%), and the other natural sciences (7%) were also represented. Nearly one-quarter of the papers in the 31 journals were by practicing librarians, and 6% were by others in non-academic (e.g., corporate) positions (Walters & Wilder, 2016).

A European-based study by Jokić (2019) showed that the contribution of LIS authors from Central and Eastern Europe (CEE) countries between 1996 and 2017 indicates a difference before and after 2005. This year, most of the CEE countries became EU member states, thus welcoming the European Commission’s scientific policy standards and integrating them into their national science policy, resulting in more exhaustive publications in international journals. Although the values of the degree of cooperation by LIS subfields are various, the co-authorship at the level of the LIS field is increasing. Standard collaboration of authors from CEE countries continues but has not yet been accelerated, except in some countries with similar historical, geographical, and linguistic backgrounds. The most expressed cooperation of CEE authors is with authors from the USA, the UK, China, Spain, and Germany. The co-authorship network considerably differs based on whether the papers are published in CEE, non-CEE journals, or Scientometrics. A study by D’Este & Robinson-Garcia (2023) indicated a positive association between interdisciplinary research and societal visibility in blogs, news media, and policy documents.

The research presented here is an exploratory attempt to understand the visibility of the LIS field in the Iranian public media and the extent to which LIS professionals are involved in knowledge dissemination. The authors selected three newspapers and eleven peer-reviewed LIS journals to accomplish this, as explained in the “Sampling” section below.

### Materials and Methods

Due to text-based data and little knowledge in this area (Vaismoradi, Turunen & Bondas, 2013) this study uses a qualitative approach and an Inductive Content Analysis (ICA) method by which a researcher begins with specific empirical observations, derives general principles from them, and then applies them to other empirical observations and assign codes to them. After extracting the codes, they are categorized based on their differences or similarities, and finally, for each concept, the related text is quoted. This critical feature of ICA makes it possible to close-read the text. This means that the codes used to label the data emerge based on the content of the coding process. (Vears & Gillam, 2022).

'Open coding' was used to categorize concepts. Open coding is done during reading, i.e., notes and titles are written while reading the texts. Then, they are classified, and a generalized title is assigned to each group. The objective of grouping data is to decrease the number of categories by breaking down similar or dissimilar concepts into broader higher-order categories (Dey, 2003).

During open coding, it is essential to determine what data to catch and how to demonstrate during research design (Williams & Moser, 2019). A practical approach to determining codes is using the "5W-1H" (e.g., who, what, where, when, and how) questions as an underlying technique for investigating and analyzing data to group codes and classes joined to the text (Flick, 2009, p. 311). The aim of creating categories is to describe and understand the phenomenon, and to produce knowledge. To make groups, the researcher uses inductive content analysis (Dey, 2003).

In this research, the whole of the samples was read by two researchers. Then, they extracted meaningful sentences and assigned a code for each sentence. According to Corbin and Strauss (1990), resources for naming codes are phrases used by the texts themselves and existing concepts in the field or discipline. The coding process is refined based on comparisons between documents and then repeated. Two researchers coded each text twice and discussed the different codes to reach agreement. During the coding phase, we refined the code by adding or removing some of them.

To make the process repeatable, after coding the texts, we divided them into general categories based on what they had in common by answering these questions: What is the generic character of this text? What is the main issue in each key sentence? Finally, we abstracted the main theme of each sentence based on phrases in the text or related concepts. To gain reliability, we use inter-coder agreement. For this, the researchers shared their inferences in the research process and finally gave the same or a different number. After entering details into an Excel spreadsheet, the K-ALPHA calculated was 0.67, a substantial agreement level of inter-coder reliability based on Landis and Koch's recommendation (O'Connor & Joffe, 2020).

The 'unit of analysis' is an integral part of content analysis. The 'unit of analysis' is what is being studied. Here, the subject of a published article is the 'unit of analysis'. The 'recording unit' is the context in which the unit of analysis is located. The journals or newspaper websites are this study's 'recording unit'.

### Sampling

The sample for this study consisted of randomly selected Iranian newspapers and specialized LIS journals. Issues of the newspapers and periodicals published during 2019 were

examined. The sample included the following publications:

1. *Newspapers*: 360 newspapers were published in Iran by 2020 (Ministry of Culture and Islamic Guidance 2020). The sample includes three public newspapers: *Hamshahri*, *Iran*, and *Jam-e-Jam*, all selected because they had scores above 75.1 based on the criteria by the Ministry of Culture and Islamic Guidance (2017). The Ministry of Culture and Islamic Guidance annually evaluates the country's newspapers based on 27 indicators, some of which include citations by foreign media, having websites, authors' infographics, regular editorial reviews, etc. Two issues per month in 2019 were randomly selected for each newspaper for further study. Overall, 90 articles from these newspapers were studied.

The categories for the content analysis of peer-reviewed journals that form the coding frame (Schreier, 2012) were:

- How many book-related articles are there in the samples?
- What is their primary concern?

2. *Specialized Journals*: All 16 peer-reviewed LIS journals approved by the Ministry of Science, Research and Technology (retrieved from <http://rppc.msrt.ir/fa/download/>) were identified, and 11 of them were selected for further study (a list of these journals is available in the appendix). Of the 16 journals listed in the category of Libraries, Archives, and Manuscripts, two journals (*Ganjine-ye Asnad* and *Mirror of Heritage (Ayene-ye Miras)*) were removed from the sample list because their focus was not LIS. The contents of two other journals (*Popularization of Science* and *Journal of Science & Technology Policy*) were inaccessible, and one journal (*Human Information Interaction*) was not published during the 2019 study period. Thus, the population includes articles published in 11 journals on the list. All articles published in these journals were analyzed.

The dimensions for the content analysis of peer-reviewed journals that form a coding frame (Schreier, 2012) were:

- What disciplines have been considered by the selected journals?
- What was the subject of the study?
- What was their main concern?

To find samples for analyzing the newspapers, each newspaper's website was searched using six terms: LIS (Library & Information Science), library, librarian, book, archive, and documentation center. All related texts were selected. The samples for peer-reviewed journals were selected based on the relative richness of the research problem and objectives in their articles.

## Results

### Findings for the public journals

During the coding process, we identify the number of book-related articles in three sampled newspapers. Then, we read sampled texts and found six main concerns, which are presented as subject categories in Table 1.

For the *Hamshahri* newspaper, sampling dates were the 5th and 25th of each month. If a date fell on the day the paper was not published, the first business day after that was sampled. During the study period, 34 book-related articles were published in 20 selected issues of *Hamshahri*, of which 18 were related to both books and LIS. Of the 18 cases, only one referred to the librarian, and none of the others mentioned the librarian's profession or role. A total of 9 out of the 18 articles addressed the authors' biographies, two of which related to events

associated with reading, and five of which presented newly published books.

The Iran newspaper's sampling dates were the 9th and 24th of each month. If a date fell on the day the paper was not published, the first business day after that was sampled. A total of 19 book-related articles were published in *Iran* during the period. Of these, 11 presented books to readers, five were about authors or translators of books, and one focused on the personal life of an older publisher. Only two articles mentioned the librarian's profession or role. In addition, sometimes there was a page in *Iran* called 'Culture', but most of the attention there was given to discussing books or authors. There were some sections related to cinema and film in this newspaper, and they often addressed these two topics very seriously. However, there was no serious consideration of LIS, and librarianship was not considered an interesting subject or profession.

For the *Jam-e-Jam* newspaper, sampling dates were the 12th and 30th of each month. If a date fell on the day the paper was not published, the first business day after that was sampled. A total of 37 book-related articles were published during the study period, of which 22 were about books, two dealt with authors, and one was about a professional reader of books who participated in the IBBY-iREAD Outstanding Reading Promoter Award in China. *Jam-e-Jam* had 12 articles that covered librarianship.

Table 1

Shows a summary of the subject categories in the three selected newspapers

Newspaper Title	Subcategories ▶	Authors or Translators	Books	Publishers	Professional reader	Relevant Events	Librarian or LIS Profession	Total
<i>Hamshahri</i>		9	5	-	-	2	18	34
<i>Iran</i>		5	11	1	-	-	2	19
<i>Jam-e-Jam</i>		2	22	-	1	-	12	37

A comparison of the number of articles related to books and LIS in the three newspapers in 2019 shows that *Jam-e-Jam* had the highest number of articles and *Iran* had the least. But most of the materials in both *Jam-e-Jam* and *Iran* were dedicated to discussions of books. *Hamshahri* published the most content related to news items or book-related events. The findings of this study show that six areas focusing on the book and librarianship were discussed in the three Iranian newspapers.

The first issue concerns the current state of the book and reading in the Iranian community and shows that Iranians' average reading time is 13 minutes per day (*Iran*, October 25; *Jam-e-Jam*, October 30, 2019). Iranians are most interested in novels (*Iran*, November 25) and popular stories (*Jam-e-Jam*, June 30) and then in religious books (*Iran*, November 25). The shortage of books and libraries was discussed, especially in the less developed areas of cities and countries (*Hamshahri*, September 5). People consider events such as book fairs to be an opportunity for them and their families to spend their leisure time (*Jam-e-Jam*, August 12). Events such as the World Book Awards aim to promote and sell books that play an essential role in furthering the

ideology of the Islamic Republic of Iran (*Hamshahri*, June 25), and they are held in different regions of the country at various times.

The second issue concerns cultural policymaking. The Ministry of Culture and Islamic Guidance has been trying to establish cultural-artistic parity between the capital and other provinces, Tehran and provincial capitals, and other Iranian cities (*Iran*, November 25). Promoting Iranian-Islamic identity by hosting Iranian and Islamic book awards (*Hamshahri*, June 25) is also among Iranian cultural policies. In collaboration with publishers, the Iranian Ministry of Culture and Islamic Guidance is organizing seasonal discounted book sales (*Jam-e-Jam*, November 30, *Hamshahri*, November 25) that will help promote book sales and facilitate book purchases in difficult economic times.

In addition to these policies, certain inappropriate policymaking created criticism in newspapers, such as sudden and inconsistent decisions about the production and publication of books (*Hamshahri*, 25 November), mismanagement, lack of planning, and the setting for cultural events such as the annual Book Fair (*Hamshahri*, May 5) and not taking advantage of the 30 years of the nation's experience in holding book fairs (*Hamshahri*, April 25). However, perhaps the most important of these issues is the lack of clarity on copyright in Iran (*Jam-e-Jam*, September 12), which has decreased esteem and created economic hardship for Iranian authors, translators, and publishers.

The role of the book in transforming the Iranian lifestyle is a third issue discussed in Iranian newspapers. Newspapers have been trying to introduce a reading lifestyle with features such as participating in literary meetings; going to old, established bookstores (*Hamshahri*, May 5); the emergence of e-books (*Hamshahri*, November 25) and audio-books (*Jam-e-Jam*, November 30); promoting a new type of charitable activities, such as buying books from bookstores that donate a percentage or all of the sales to those in need (*Jam-e-Jam*, 30); and using opportunities like Book Fair for outdoor and entertainment (*Jam-e-Jam*, August 12).

The fourth book-related issue is how social networks have increased the public's role in criticizing and improving the content of books. For example, *Jam-e-Jam* reported that people on social networks criticized a children's book that contained several articles about suicide and had been published several times by several publishers (*Jam-e-Jam*, October 5).

The fifth book-related issue is the condition of book publishing in Iran. Topics include a lack of understanding of social change by older publishers and emphasis on traditional methods (*Hamshahri*, November 25); the high cost of publishing a book as compared to the low cost of translated books (*Jam-e-Jam*, September 12); security constraints and high sensitivities about books dealing with the Iran-Iraq war (*Jam-e-Jam*, September 30); religious books, including translations of the Quran (*Hamshahri*, November 25); and a lack of understanding of picture books' capacity to enhance creativity and reading skills in children (*Hamshahri*, January 5).

The sixth issue is the inappropriate conditions for selling books in Iran. The lack of institutional support (*Jam-e-Jam*, July 12) and the low profit margins of the bookstores (*Jam-e-Jam*, July 12) have diminished the book business's competitiveness, and some companies have been closed.

### **Findings for the specialized journals**

Based on frame coding, three main categories are interdisciplinary contributors, the purpose of the study, and the main concern. About the interdisciplinary contributors' category, 150 articles were published in 2019 in the 11 specialized journals. Of these, 15 articles (10 percent)

were written by one author, and 90 percent were by two or more authors. A review of the authors of the 150 articles shows that the majority of the authors are from the LIS field, but authors from 32 other disciplines are either authors or collaborators. The titles of the 32 partner disciplines are as follows:

Design and system operation, Evaluation & Research Development, Sociology, Communication, Artificial Intelligence, Computer Engineering, Economic sciences, Educational Management, Information Management, Arabic Language and Literature, Science and Technology Policy, Counseling, Educational Sciences, Industrial Engineering, Entrepreneurship, Geology, Linear Resource Planning, Radiotherapy, Business Management, Organizational Behavior Management, Painting and Sculpture, Art History, Art, Psychology and Education of Children with Special Needs, Government Management, Curriculum Studies, Medical Education, Political Science, Accounting, Rehabilitation, Human Geography, Geographic Information System.

A total of 454 authors were involved in writing the 150 articles, 103 of whom were not LIS professionals. That means 22.6 percent of authors were from other disciplines. But the number of articles written in collaboration with LIS specialists is 38 articles (25.3 percent of the total). Twenty-eight articles (18.6 percent) were written entirely by authors from other disciplines. The results follow the previous studies such as Tang (2004), Cronin and Meho (2008), and Walters and Wilder (2016).

This situation shows that scientific communication between LIS professionals and members of other academic disciplines has resulted in collaboration in the authorship of joint articles in 2019. This can play an essential role in introducing the nature and importance of LIS to other academic disciplines in science. Of course, a topic of further study could be the number of articles authored or co-authored by LIS experts and published other (non-LIS) academic journals. Compared to general publications and newspapers, recognition and understanding of LIS within the field of science is better than the public domain, and communication in the academic domain has been more substantial than in the public domain.

In investigating the status of the second main category, i.e., subject of the study, 18 subcategories were identified (Table 2) in the articles published in 2019 in the 11 specialized LIS journals.

*Table 2*

*Summary of subject subcategories in the eleven LIS peer-reviewed journals*

	Subcategories of the Subject studies	Number of Published Articles
1	Scientometrics	40
2	Information Storage and Retrieval	25
3	Organization of Information	15
4	Knowledge Management	15
5	Reading and studying	11
6	Public Libraries	10
7	Information Seeking Behavior	7
8	Marketing	6
9	Learning	4
10	Library and Information Science Education	3
11	Information Literacy	3

Subcategories of the Subject studies		Number of Published Articles
12	Academic Libraries	2
13	Future studies of Library and Information Science	2
14	Book Therapy	2
15	Digital Libraries	1
16	Empowering Librarians	1
17	Charitable Contribution in Libraries	1
18	Library Buildings and Equipment	1

Finally, to study the third category as the primary concern, this research indicates that of the 150 papers, one is about waste management policy and management, probably because of the nature of the journal that focuses on science policy. Of the remaining 149 papers, only 15 focused on the library's relationship to the community, with concerns such as charitable contributions in libraries, book therapy, learning, reading, and studying. The papers in the "Learning" group focused on the role of libraries in lifelong learning and self-directed learning; the "Reading and Studying" group focused on topics that motivated individuals to read books, such as storytelling and film screening. The 13 other articles also focused on the quality of information services and users' satisfaction with library services. Thus, 28 papers out of 150 published in the specialized journals (18.6%) addressed the role and function of libraries in the community, with only one article (0.6%) considering librarians as the subject of study.

### Discussion

This paper aimed to investigate the representation of library and information science and the role of librarians in sampled Iranian newspapers, the media visibility of LIS as a discipline in Iran, and engagement of Iranian LIS professionals in inter-specialist and interdisciplinary communication. The result answered these questions as follows:

Regarding the first question, the findings show that six main categories are seen in general Iranian newspapers. Still, the social role of librarians was not given sufficient visibility even in the subcategories. The main categories were as follows:

- the current state of reading books in the Iranian community;
- cultural policymaking;
- the role of the book in transforming Iranian lifestyle;
- the increased role of the public in criticizing published books with the help of social networks;
- the conditions for book publishing in Iran; and
- Inadequate conditions exist for selling books in Iran.

Newspapers focus little on librarians as a social group or profession. Only in one case (*Hamshahri*, September 5) was the role of librarians discussed, and that was how to interest children in reading. Also, the library was not considered a place or venue for events. Only in one item (*Hamshahri*, January 25) was the library's role viewed as a repository of treasure and past heritage.

The functions of libraries, their potential roles, their improvements by information

technology, and the roles they can play in promoting community culture were not addressed. News such as innovations in book sales in Iran (Mobile Bookstore, *Hamshahri*, May 5) and the “Bookstore on the Messenger of Hope” (*Hamshahri*, January 5) were covered by the selected newspapers. This situation shows that newspapers have addressed some critical issues related to the book and highlighted certain categories, but have not provided specific insights on librarianship as a profession and libraries and their social roles. Therefore, it can be expected that Iranian society generally has little awareness of the librarianship profession and its social role. Another point is that no librarian wrote any newspaper articles, and that even during ‘the week of the book’ events, no attention has been paid to the LIS profession and its expertise.

The second question considered the media visibility of LIS as a discipline in Iran. Based on findings and comparisons between public newspapers and LIS journals, the number of articles focusing on the LIS field published in LIS journals is higher than that in public newspapers. There were similarities regarding only two subjects: book marketing and reading and studying. However, there was no connection between journalists or information science experts in these cases. The public newspapers fail to discuss the social role of libraries that one finds presented in specialized journals. LIS professionals and their expertise are unrecognized by newspaper journalists. This result confirms previous findings by Shaw (2010) in the UK, who found a need to represent abilities and responsibilities accomplished by librarians in papers taken from two important UK newspapers (*The Times* and *The Mirror*).

LIS professionals have not attempted to reach out to the community. Therefore, libraries in the public media are portrayed as independent and dedicated to information services. Whatever is presented in public (newspaper) media is about the book's content and reading, publishing, and selling books, cultural policy making, and lifestyle.

The communication between LIS professionals and journalists is minimal in Iran, and the LIS profession has done little to reach out to the community and their colleagues in other disciplines. As a result, library and information science as a discipline is not visible enough in the media, particularly in the newspapers. Much needs to be done to change the society's perspective about the LIS profession in Iran. The need for changes in LIS education has been reported frequently in the literature, as librarians' social roles change. Over the last few decades, library science and its education have experienced changes. They must reconstruct their tasks and approaches to establish a new and holistic perspective on the profession (Wilson, 2002; Myburgh, 2003).

We may compare the result of the current study with a study by Azonobi (2021), who found that postgraduate students in Nigeria use periodicals by searching, downloading, and locating them from various sources and retrieve them to meet their information needs. There was an essential link between visibility and the consumption of periodicals, and a critical link between visibility, accessibility and the use of periodicals among LIS postgraduate students. They concluded that visibility and accessibility affected the consumption of periodicals among LIS postgraduate students in federal university libraries in Nigeria.

The findings of our study are based on another study by Weatherburn and Harvey (2016) about the future of LIS education in Australia. They said that the library and information science education continue if educators are involved with or aware of the latest global advancements in information management, digital protection, and information governance. LIS educators must reflect on the best ways to stimulate practitioner-researchers, breeding younger academics, and focus on social duties within the university system.

Visibility has various outcomes such as influencing policy, increasing public support and trust for science, influencing citizen behavior, and increasing public understanding of science and funding (Kappel & Holmen, 2019; Weingart & Joubert, 2019). Coverage in newspapers and magazines is a more relevant pathway to effectuate societal impact (Jonker, Vanlee & Ysebaert, 2022). However, the authors said that persistent involvement in public discussion is only for prestigious researchers. Similarly, media attention is highly subject-dependent, and particular fields of study have easier routes to popularization in media than others. This trend would be unfair to researchers and worsen current disparities in academia.

The third question looks at the engagement of Iranian LIS professionals in inter-specialist and interdisciplinary communication. Findings said that inter-specialist and multidisciplinary communication in the field of LIS emerges in the form of joint articles, which can also indicate collaboration in research. This study reveals that the multi-authorship pattern dominates over the single-authorship pattern in the sample journals in Iran. However, the results also show that the collaborative authorship pattern between experts of LIS is the dominant aspect of scientific communication in this field. As 77.32 percent of joint articles were written by authors who all specialized in the field of LIS, and 22.68 percent of cases are dedicated to their collaboration with other fields. Results of a bibliometric analysis of LIS journals indexed in the Scopus database from 2001 to 2015 indicated that the global trend about single-author papers is the opposite, and the dominant pattern is single authorship with 53.59% (Barik & Jena, 2018). Also, Abotalebi & Biglu (2017) investigated the scientific collaboration of scholars in the field of LIS in the Web of Science Core Collection database and concluded that the collaborative authorship in the field of LIS was weak and minor. Similarly, research by Alipour, Siheili, Ziaei & Khasseh (2020) indicated that the co-authorship network in this field is weak and the single-author approach is the most common.

In the context of librarianship as a discipline and a profession, the function and importance of the science-society relation and scientific collaboration between academic fields seem unknown in Iranian society. However, visibility is critical both in the public and educational arenas. These results help to explain whether visibility supports the relation between science and the public domain (Weingart & Joubert, 2019) or whether Iranian researchers in the librarianship discipline do media-related adaptations (Olesk, 2021). In addition, understanding the level of visibility helps one guess or even predict continued funding (Salager-Meyer, 2008) or isolation (Ferguson, 2007). Moreover, coverage of scientific studies in influential newspapers leads to a higher citation rate (Dumas-Mallet Garenne, Boraud & Gonon, 2020). Thus, a critical evaluation of both the micro and macro factors contributes to the life or silent death of a scientific discipline and profession.

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Researchers must consider the critical importance of visibility in new media and its impact. They must develop knowledge of the most suitable digital platforms (such as ORCID,

ResearcherID, WOS, Scopus, Mendeley, LinkedIn, etc.), such as Andrea Naranjo-Toro, Guerra-Reyes, Carrascal and Benavides-Piedra (2022) have said. Furthermore, scientific communities must regulate media contacts with their members, as Peters (2013) states. A better understanding of the visibility of disciplines can also help design related training programs. LIS education programs must include training about public visibility and scientific communication.

### Conclusions

This research found that science communication between LIS scholars is better than between scholars from multiple disciplines. But, social recognition of LIS is weak, both because of the underrepresentation of LIS experts and the stereotypical representation of libraries in media, and because of the lack of presence of LIS experts in the media. In the context of librarianship as a discipline and a profession, the function and importance of the science-society relation and scientific collaboration between academic fields seem unknown in Iranian society. However, visibility is critical both in the public and educational arenas.

The results indicated that the LIS researchers are not visible at the micro or macro levels. They do not go to the media themselves, nor do the media come to them. Visibility and public communication regarding LIS are very important to librarians and LIS professionals and can lead to their empowerment. If society understands the importance of the discipline, there will be a stronger relationship between librarians and society, and librarians can have a more effective role in society. If this is not the case, librarians will become frustrated and may be further distanced from society. It can be concluded that the gap between librarians and the LIS community will undoubtedly increase if the present situation continues. Therefore, the LIS specialists and librarians must take action. They need to publish more articles in public newspapers on the nature of the discipline and expand communication within and with other scientific disciplines.

Furthermore, given its small sample size and focus on just one discipline, this paper points to the need for a more considerable, exploratory investigation of public visibility. Studies in other disciplines regarding media competence and experience are needed to gain such a comprehensive view. Considering the importance of visibility, more research is needed to determine the status of visibility in other disciplines, as well as its causes and factors.

### Implications

- This research highlighted the role of media in public understanding and social recognition of LIS.
- The study provides fruitful insights for science policy to foster LIS's scientific and societal pertinence.
- It emphasizes the need to establish efficient mechanisms for LIS researchers to disseminate information to the general public.
- Increasing inter-disciplinary collaboration may be responsible for developing LIS as an interdisciplinary knowledge sphere.
- The distribution of subject subcategories shows that LIS is an open field, and Iranian scholars' research interests go beyond traditional topics.

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### Appendix

List of 16 peer-reviewed LIS journals approved by the Ministry of Science, Research and Technology in the category of Libraries, Archives, and Manuscripts

No.	Journal Name (translated into English)	Year started
1	Research on Information Science and Public Libraries	1982
2	(NASTINFO) National Studies on Librarianships and Information Organization (Mutaliat-i Milli-i Kitabdari va Sazmandihi-i Ittialat)	1990
3	Rahyaft	1991
4	Ganjineh Ye Asnad	1991
5	Information Processing and Management	1991
	Academic Librarianship and Information Research (former Kitabdari)	1997

	Heritage Mirror	1998
6	Library and Information Science	1998
7	Studies in Library and Information Science	2000
8	Library and Information Science Research	2001
9	International Journal of Information Science & Management (IJSM)	2003
10	Science and Technology Policy	2008
13	Popularization of Science	2011
14	Human Information Interaction	2014
15	Scientometrics Research	2015
16	Information Management	2015