

## Analysis of Persian Wikipedia Articles in the Field of Library and Information Science

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### ABSTRACT

**Objective:** Wikipedia is a social multilingual encyclopedia that integrates all information about a particular topic on its platform. The present study aims to analyze the thematic content of Persian articles contributed in the field of library and information science (LIS) in Wikipedia and to identify the thematic gaps in this field.

**Materials and Methods:** The data were collected using two different methods: document analysis and observation. In the first and second phases of the study, 591 Persian articles written in the categories of Library and Information Science and other related sub-categories were identified and analyzed. Then, their thematic content and gaps were investigated using a checklist developed based on the JITA Classification System of LIS. The collected data were analyzed using Microsoft Excel.

**Findings:** The results revealed the following thematic content distribution of Persian articles written in the field of Library and Information Science in Wikipedia based on the JITA Classification System: "I. Information treatment for information services" class with 134 articles (22.69% out of 591 articles), "H. Information sources, supports, channels" class with 126 articles (21.32%), "L. Information technology and library technology" class with 84 articles (14.24%), "E. Publishing and legal issues" class with 58 articles (9.82%), "B. Information use and sociology of information" class with 57 articles (9.65%), "G. Industry, profession and education" class with 51 articles (8.64%), "D. Libraries as physical collections" class with 40 articles (6.78%), "A. Theoretical and general aspects of libraries and information" class with 16 articles (2.72%), "J. Technical services in libraries, archives, museum" class with 10 articles (1.7%), "F. Management" class with 9 articles (1.52%), "C. Users, literacy and reading" class with 4 articles (0.68%), and "K. Housing technologies" class with 2 articles (0.34%).

**Conclusion:** Due to the thematic dispersion of Persian Wikipedia articles, Iranian LIS professionals should improve the quantity and quality of Persian articles on Wikipedia, especially on topics with thematic gaps. While reviewing the articles, it was observed that some articles were weak in terms of content and scope. It is suggested that librarians, information specialists, and information professionals help Wikipedia to strengthen and improve its articles, which in turn benefits the millions of users around the world.

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## **Introduction**

Encyclopedia, also spelled encyclopaedia, is a reference work that provides extensive information on all branches of knowledge or treats comprehensively a specific branch of knowledge usually in articles arranged alphabetically (Merriam-Webster, Incorporated, 2022; Collison & Preece, 2021).

The Internet and the World Wide Web have revolutionized information access and availability in the world, as well as the publication of encyclopedias. The advent of the Web and Web 2.0 applications and technologies have affected the interactions between users and information producers. Then, following this revolution, interactive softwares were developed by Web 2.0 companies. One of these companies, Bomis, introduced the software called Wiki to support the creation of free-content online-encyclopedia projects Nupedia and Wikipedia, which became the basis for new generation encyclopedias called dynamic encyclopedias.

The development of Web 2.0-based technologies, such as social networks and wikis, has opened up new perspectives on formal and informal scholarly and social communication. The conversion of individual capital into social capital is one of the major issues in all scientific fields, especially encyclopedias (Rahmanzadeh, 2010). In this way, human capital (individual knowledge) becomes social capital (knowledge networks). Thus, collective knowledge networks can be used for the advancement of society and health care, as well as environmental care, and can also be used to solve problems quickly and teach others to avoid them.

Wikimedia is the collective name for the Wikimedia movement, which revolves around a group of related projects, including Wikipedia and other Wikis that aim to use the sharing power of the Internet and the Wiki to create and share individual knowledge (MediaWiki, 2020; McDowell & Vetter, 2022). Wikipedia, as an online multilingual encyclopedia with free content based on open collaboration projects through a model of content editing using web-based editing applications, is created and maintained by a community of volunteer editors and contributors (Librarianship Studies & Information Technology, 2020; Wikipedia contributors, 2022). Wikipedia is the result of the collective wisdom of the entire world. When public users search the Internet for comprehensive information, search engines provide them the online encyclopedia articles, especially from Wikipedia, on the first page of search results. Search engine's information retrieval algorithms, especially Google, rank Wikipedia articles on the first page because of global comprehensiveness. Although Wikipedia loads its content with hyperlinks, and the Google search engine considers backlinks. As a result, Wikipedia articles are very popular in the eyes of the general public.

The encyclopedias writing does not have a long history in the field of Library and Information Science (LIS). Out of the handfuls of encyclopedias in the field of LIS, the oldest is just over half

a century old. The first comprehensive encyclopedia of this field is the “*Encyclopedia of Library and Information Science*” under the editorship of Allen Kent and Harold Lancour; that the first volume was published in 1968, about 80 years after the beginning of formal university education in the United States of America, i.e., in 1887. Formal university education of modern librarianship and library education in Iran at the master’s level began in 1966, and about 35 years after the date, the first encyclopedia of this discipline was published in Persian (Horri, 2002, 2004). It is worth noting that library and information science education (modern librarianship) in Iran began in 1941 at the University of Tehran with short-term training courses that were followed seriously. It is almost 80 years since the training of this field in Iran. In the area of analysis of scientific research productivity in the field, evaluation of specialized journals with a bibliometric approach, and thematic analysis of published books, several studies have been conducted; but less has been done to evaluate and analyze the entries and articles of encyclopedias in this field; while special and general encyclopedias (especially, Wikipedia) play an important role in promoting and popularizing science and generalizing the concepts and topics of a scientific discipline throughout the world (Horri, 2002).

An overview of the Persian section of Wikipedia in the field of LIS shows that in some categories and sub-categories, the number of Persian Wikipedia articles is low and indicates the poverty of the content of Wikipedia and the low level of participation of Iranian LIS professionals. Therefore, Persian Wikipedia articles in the field of LIS quantitatively need to be improved and developed. In addition, enriching the content of Persian Wikipedia articles in the field of LIS requires the participation and collective wisdom of Iranian LIS professionals. Therefore, the present study seeks to answer the question: what is the status of Persian Wikipedia articles in the field of LIS, and in what sub-categories have they been published? In other words, the present study aims to analyze the thematic content of Persian Wikipedia articles written in the field of LIS to identify the thematic gaps in this field.

### **Research Questions**

1. What are the subject areas of Persian Wikipedia articles in the field of LIS?
2. In which categories and sub-categories of Persian Wikipedia articles in the field of LIS, are there thematic gaps?

### **Materials and Methods**

The data were collected using two different methods: document analysis and observation. In the first and second phases of the study, 591 Persian articles written in the categories of Library and Information Science and other related sub-categories were identified, and their thematic content and gaps were investigated using a checklist created based on the [JITA Classification System of Library and Information Science](#). The collected data were analyzed using Microsoft Excel. The

study used a quantitative descriptive-analytical approach through many statistical tools to achieve the research objectives. The quantitative strategies used in this research were based on the documentary study used to investigate the subject of Persian Wikipedia articles in the field of LIS. To identify the areas and the thematic gaps in Persian Wikipedia articles in the field of LIS, we examined the Persian Wikipedia “Category: Library Science,” and “Category: Information science,” and we list up to three levels of sub-categories and related articles, which were about 4,000 articles. First, duplicates were removed from the list; then, the articles topically and conceptually unrelated to the field of LIS and miscategorized under the field of LIS were removed from the list. After all the data-cleaning steps mentioned above, we have 591 articles in total. Therefore, a total of 591 articles were studied in the first and second phases of the study.

In the current study, the list of thematic categories of Persian Wikipedia articles in the field of LIS was extracted and re-classified based on the JITA classification system to identify the thematic gaps in Persian Wikipedia articles in the field of LIS. According to the [JITA subject classes](#) presented in the [e-LIS](#), we assigned a subject class to each of the 591 Persian Wikipedia articles in the field of LIS to re-categorize Persian Wikipedia articles to achieve our objective, that is, to identify the thematic gaps. The number of articles belonging to each sub-category was determined, as seen in Tables 1 to 12 below. It is worth noting that the JITA Classification System of Library and Information Science is used in the e-LIS, the international digital repository for Library and Information Science (LIS). The e-LIS includes bibliography, book, book chapter, conference paper, conference poster, conference proceedings, dataset, departmental technical report, guide/manual, journal article (paginated), journal article (unpaginated), library instructional, material, newspaper/magazine article, preprint, presentation, project/business plan, report, review, technical report, thesis, tutorial, and other.

In the data-cleaning steps, articles about specific publishers, special journals, special museums, special books, types of libraries (most articles in the category of libraries and related sub-categories) and their names, dictionaries, encyclopedias, special encyclopedias and maps, special software, other wikis, special Wikipedia-based projects, computer languages, computer systems, names of databases unrelated to the field, and e-bookstores, were removed. In other words, only articles expressing the specialized topics and concepts of the field of LIS were used as the research population.

Understanding that “The Web is a growing organism” (Noruzi, 2004) and Wikipedia is no exception to these changes and revolutions, it should be noted that data collection for this study began on November 10, 2020, and the data were updated until January 8, 2021, and maybe while you read this paper, the data has changed, and new articles have been added to Wikipedia.

## Results

### *The subject areas of Persian Wikipedia articles in the field of LIS*

After reviewing Persian Wikipedia articles in the field of LIS and assigning a thematic class to them based on the twelve principal subject classes of the JITA classification system, the number of articles related to each subject class and its related sub-classes are presented below in separate tables. Table 1 shows the number of articles in the subject class “A. Theoretical and general aspects of libraries and information”.

**Table 1. Class A, Theoretical and general aspects of libraries and information**

<b>A. Theoretical and general aspects of libraries and information</b>			
<b>Sub-classes</b>	<b>No. of Articles</b>	<b>Percentage of articles in each sub-class</b>	<b>Percentage out of total No. of articles (591)</b>
AA. Library and information science as a field	6	37.50	1.02
AB. Information theory and library theory	6	37.50	1.02
AC. Relationship of LIS with other fields	1	6.25	0.17
AZ. None of these, but in this section	3	18.75	0.51
Total	16	100	2.72

Table 1 shows the number of Wikipedia articles reviewed in this study, which are related to the subject class “A. Theoretical and general aspects of libraries and information,” and are mostly associated with the sub-classes of “AA. Library and information science as a field” and “AB. Information theory and library theory”. Some Persian Wikipedia articles in the field of LIS belong to the subjects that could not be classified in specific sub-classes of the subject class “A”. Therefore, they are classified under the sub-class “AZ. None of these, but in this section”. Moreover, there is an article on “AC. Relationship of LIS with other fields”. Table 2 presents the number of articles in the subject class “B. Information use and sociology of information”.

**Table 2. Class B, Information use and sociology of information**

<b>B. Information use and sociology of information</b>			
<b>Sub-classes</b>	<b>No. of Articles</b>	<b>Percentage of articles in each sub-class</b>	<b>Percentage out of total No. of articles (591)</b>
BA. Use and impact of information	7	12.28	1.18
BB. Bibliometric methods	26	45.61	4.40
BC. Information in society	0	0.00	0.00
BD. Information society	1	1.75	0.17
BE. Information economics	1	1.75	0.17
BF. Information policy	0	0.00	0.00
BG. Information dissemination and diffusion	2	3.51	0.34
BH. Information needs and information requirements analysis	4	7.02	0.68
BI. User interfaces, usability	12	21.05	2.03
BJ. Communication	4	7.02	0.68
BZ. None of these, but in this section	0	0.00	0.00
Total	57	99.99	9.65

Table 2 demonstrates that among the Wikipedia articles reviewed in the current investigation, the articles related to the class “B. Information use and sociology of information” are more related to the sub-classes of “BB. Bibliometric methods,” “BI. User interfaces, usability,” “BA. Use and impact of information,” “BH. Information needs and information requirements analysis,” “BJ. Communication,” “BG. Information dissemination and diffusion,” “BD. Information society,” and “BE. Information economics,” respectively. Table 3 shows the number of articles in the class “C. Users, literacy and reading”.

**Table 3. Class C, Users, literacy and reading**

<b>C. Users, literacy and reading</b>			
<b>Sub Classes</b>	<b>No. of Articles</b>	<b>Percentage of articles in each sub-class</b>	<b>Percentage out of total No. of articles (591)</b>
CA. Use studies	0	0.00	0.00
CB. User studies	2	50	0.34
CC. User categories: children, young people, social groups	0	0.00	0.00
CD. User training, promotion, activities, education	0	0.00	0.00
CE. Literacy	1	25	0.17
CF. Reading and story telling	1	25	0.17
CZ. None of these, but in this section	0	0.00	0.00
Total	4	100	0.68

Table 3 shows that among the Wikipedia articles reviewed in this study, the articles related to the class “C. Users, literacy and reading” are in the sub-classes of “CB. User studies,” “CE. Literacy,” and “CF. Reading and story telling,” sequentially. Table 4 exhibits the number of articles in the class “D. Libraries as physical collections”.

**Table 4. Class D, Libraries as physical collections**

<b>D. Libraries as physical collections</b>			
<b>Sub Classes</b>	<b>No. of Articles</b>	<b>Percentage of articles in each sub-class</b>	<b>Percentage out of total No. of articles (591)</b>
DA. World libraries	1	2.5	0.17
DB. National libraries	3	7.5	0.51
DC. Public libraries	3	7.5	0.51
DD. Academic libraries	2	5	0.34
DE. School libraries	1	2.5	0.17
DF. Government libraries	0	0.00	0.00
DG. Private libraries	1	2.5	0.17
DH. Special libraries	4	10	0.68
DI. Science libraries	0	0.00	0.00
DJ. Technical libraries	0	0.00	0.00
DK. Health libraries, Medical libraries	2	5	0.34
DL. Archives	9	22.5	1.52
DM. Museums	2	5	0.34
DZ. None of these, but in this section	12	30	2.03
Total	40	100	6.78

Table 4 presents that among the Wikipedia articles reviewed in this study, the articles related to the subject class “D. Libraries as physical collections” are mainly related to the subjects that could not be classified in specific sub-classes of this class. In other words, they do not have a specific sub-class in this class while they are related to this class. Therefore, they are classified under the sub-class “DZ. None of these, but in this section”. Other available articles in this subject class are in the sub-classes of “DL. Archives,” “DH. Special libraries,” “DB. National libraries,” “DC. Public libraries,” “DD. Academic libraries,” “DK. Health libraries, Medical libraries,” “DM. Museums,” “DA. World libraries,” “DE. School libraries,” and “DG. Private libraries,” respectively. Table 5 show the number of articles in the class “E. Publishing and legal issues”.

**Table 5. Class E, Publishing and legal issues**

<b>E. Publishing and legal issues</b>			
<b>Sub-classes</b>	<b>No. of Articles</b>	<b>Percentage of articles in each sub-class</b>	<b>Percentage out of total No. of articles (591)</b>
EA. Mass media	1	1.72	0.17
EB. Printing, electronic publishing, broadcasting	13	22.41	2.20
EC. Book selling	0	0.00	0.00
ED. Intellectual property: author’s rights, ownership, copyright, copyleft, open access	39	67.24	6.60
EE. Intellectual freedom	1	1.72	0.17
EF. Censorship	4	6.90	0.68
EZ. None of these, but in this section	0	0.00	0.00
Total	58	99.99	9.82

Table 5 reveals that among the Wikipedia articles reviewed in this study, articles related to the subject class “E. Publishing and legal issues” are mainly in the sub-classes of “ED. Intellectual property: author’s rights, ownership, copyright, copyleft, open access,” “EB. Printing, electronic publishing, broadcasting,” “EF. Censorship,” “EA. Mass media,” and “EE. Intellectual freedom”. Table 6 presents the number of articles in the class “F. Management”.

**Table 6. Class F, Management**

<b>F. Management</b>			
<b>Sub-classes</b>	<b>No. of Articles</b>	<b>Percentage of articles in each sub-class</b>	<b>Percentage out of total No. of articles (591)</b>
FA. Co-operation	0	0.00	0.00
FB. Marketing	0	0.00	0.00
FC. Finance	0	0.00	0.00
FD. Public relations	0	0.00	0.00
FE. Personnel management	0	0.00	0.00
FF. Funding	0	0.00	0.00
FG. Local government	0	0.00	0.00
FH. Reorganization	0	0.00	0.00
FI. Unitary authorities	0	0.00	0.00
FJ. Knowledge management	8	88.89	1.35
FZ. None of these, but in this section	1	11.11	0.17
Total	9	100	1.52

Table 6 explains that among the Wikipedia articles reviewed in this study, the articles related to the subject class “F. Management” are in the sub-classes of “FJ. Knowledge management” and “FZ. None of these, but in this section”. Table 7 shows the number of articles in the subject class “G. Industry, profession and education”.

**Table 7. Class G, Industry, profession and education**

<b>G. Industry, profession and education</b>			
<b>Sub-classes</b>	<b>No. of Articles</b>	<b>Percentage of articles in each sub-class</b>	<b>Percentage out of total No. of articles (591)</b>
GA. Information industry	1	1.96	0.17
GB. Software industry	0	0.00	0.00
GC. Computer and telecommunication industry	0	0.00	0.00
GD. Organizations	12	23.53	2.03
GE. Staff	3	5.88	0.51
GF. Biographies	30	58.82	5.08
GG. Curricula aspects	0	0.00	0.00
GH. Education	5	9.80	0.85
GI. Training	0	0.00	0.00
GZ. None of these, but in this section	0	0.00	0.00
Total	51	99.99	8.64

Table 7 shows that among Persian Wikipedia articles in the field of LIS, the articles in the subject class “G. Industry, profession and education” are mainly in the sub-classes of “GF. Biographies,” “GD. Organizations,” “GH. Education,” “GE. Staff,” and “GA. Information industry”. Table 8 displays the number of articles in the subject class “H. Information sources, supports, channels”.

**Table 8. Class H, Information sources, supports, channels**

<b>H. Information sources, supports, channels</b>			
<b>Sub-classes</b>	<b>No. of Articles</b>	<b>Percentage of articles in each sub-class</b>	<b>Percentage out of total No. of articles (591)</b>
HA. Periodicals, Newspapers	22	17.46	3.72
HB. Gray literature	2	1.59	0.34
HC. Archival materials	3	2.38	0.51
HD. Rare books and manuscripts	2	1.59	0.34
HE. Print materials	7	5.56	1.18
HF. Microforms	1	0.79	0.17
HG. Non-print materials	2	1.59	0.34
HH. Audio-visual, Multimedia	1	0.79	0.17
HI. Electronic Media	2	1.59	0.34
HJ. CD-ROM	0	0.00	0.00
HK. Online hosts	0	0.00	0.00
HL. Databases and database networking	48	38.10	8.12



HM. OPACs	5	3.97	0.85
HN. e-journals	2	1.59	0.34
HO. e-books	1	0.79	0.17
HP. e-resources	0	0.00	0.00
HQ. Web pages	0	0.00	0.00
HR. Portals	0	0.00	0.00
HS. Repositories	2	1.59	0.34
HT. Web 2.0, Social networks	7	5.56	1.18
HZ. None of these, but in this section	19	15.08	3.21
Total	126	100	21.32

Table 8 indicates that among Persian Wikipedia articles in the field of LIS, the articles in the subject class “H. Information sources, supports, channels” are in the sub-classes of “HL. Databases and database networking,” “HA. Periodicals, Newspapers,” “HZ. None of these, but in this section,” “HE. Print materials,” “HT. Web 2.0, Social networks,” “HM. OPACs,” “HC. Archival materials,” “HB. Gray literature,” “HD. Rare books and manuscripts,” “HG. Non-print materials,” “HI. Electronic Media,” “HN. e-journals,” “HS. Repositories,” “HF. Microforms,” “HH. Audio-visual, Multimedia,” and “HO. e-books”. Table 9 displays the number of articles in the subject class “I. Information treatment for information services”.

**Table 9. Class I, Information treatment for information services**

<b>I. Information treatment for information services</b>			
<b>Sub-classes</b>	<b>No. of Articles</b>	<b>Percentage of articles in each sub-class</b>	<b>Percentage out of total No. of articles (591)</b>
IA. Cataloging, bibliographic control	16	11.94	2.71
IB. Content analysis (A and I, class.)	11	8.21	1.86
IC. Index languages, processes and schemes	20	14.93	3.38
ID. Knowledge representation	30	22.39	5.08
IE. Data and metadata structures	2	1.49	0.34
IF. Information transfer: protocols, formats, techniques	6	4.48	1.02
IG. Information presentation: hypertext, hypermedia	0	0.00	0.00
IH. Image systems	0	0.00	0.00
II. Filtering	1	0.75	0.17
IJ. Reference work	29	21.64	4.91
IK. Design, development, implementation and maintenance	1	0.75	0.17
IL. Semantic web	15	11.19	2.54
IM. Open data	3	2.24	0.51
IZ. None of these, but in this section	0	0.00	0.00
Total	134	100	22.69

Table 9 reveals that among Persian Wikipedia articles in the field of LIS, articles in the subject class “I. Information treatment for information services” are in the sub-classes of “ID.

Knowledge representation,” “IJ. Reference work,” “IC. Index languages, processes and schemes,” “IA. Cataloging, bibliographic control,” “IL. Semantic web,” “IB. Content analysis (A and I, class.),” “IF. Information transfer: protocols, formats, techniques,” “IM. Open data,” “IE. Data and metadata structures,” “II. Filtering,” and “IK. Design, development, implementation and maintenance”. Table 10 shows the number of articles in the subject class “J. Technical services in libraries, archives, museum”.

**Table 10. Class J, Technical services in libraries, archives, museum**

<b>J. Technical services in libraries, archives, museum</b>			
<b>Sub-classes</b>	<b>No. of Articles</b>	<b>Percentage of articles in each sub-class</b>	<b>Percentage out of total No. of articles (591)</b>
JA. Acquisitions	1	10	0.17
JB. Serials management	0	0.00	0.00
JC. Withdrawals	0	0.00	0.00
JD. Stock taking	0	0.00	0.00
JE. Record keeping	1	10	0.17
JF. Paper preservation	0	0.00	0.00
JG. Digitization	1	10	0.17
JH. Digital preservation	3	30	0.51
JI. Circulation	0	0.00	0.00
JJ. Document delivery	0	0.00	0.00
JK. Interlibrary loans	1	10	0.17
JZ. None of these, but in this section	3	30	0.51
Total	10	100	1.7

Table 10 demonstrates that Persian Wikipedia articles in the field of LIS related to the subject class “J. Technical services in libraries, archives, museum” are mainly in the sub-classes “JH. Digital preservation,” “JZ. None of these, but in this section,” “JA. Acquisitions,” “JE. Record keeping,” “JG. Digitization,” and “JK. Interlibrary loans”. Table 11 shows the number of articles in the subject class “K. Housing technologies”.

**Table 11. Class K, Housing technologies**

<b>K. Housing technologies</b>			
<b>Sub-classes</b>	<b>No. of Articles</b>	<b>Percentage of articles in each sub-class</b>	<b>Percentage out of total No. of articles (591)</b>
KA. Resources centers	0	0.00	0.00
KB. Library, archive and museum buildings	0	0.00	0.00
KC. Furniture	2	100	0.34
KD. Vehicles	0	0.00	0.00
KE. Architecture	0	0.00	0.00
KF. Planning, Design, Removal	0	0.00	0.00
KG. Safety	0	0.00	0.00
KH. Disaster planning	0	0.00	0.00
KZ. None of these, but in this section	0	0.00	0.00
Total	2	100	0.34

Table 11 demonstrates that among Persian Wikipedia articles in the field of LIS, articles in the subject class “K. Housing technologies” are only in the sub-class of “KC. Furniture”. Table 12 shows the number of articles in the subject class “L. Information technology and library technology”.

**Table 12. Class L, Information technology and library technology**

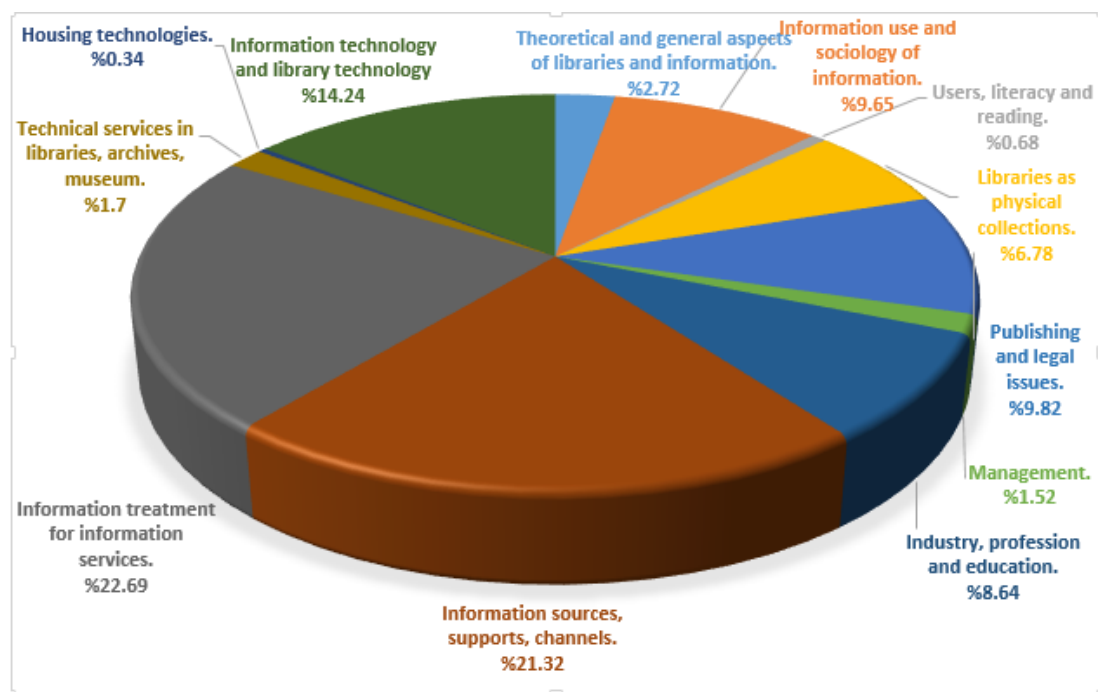
<b>L. Information technology and library technology</b>			
<b>Sub-classes</b>	<b>No. of Articles</b>	<b>Percentage of articles in each sub-class</b>	<b>Percentage out of total No. of articles (591)</b>
LA. Telecommunications	1	1.19	0.17
LB. Computer networking	3	3.57	0.51
LC. Internet, including WWW	1	1.19	0.17
LD. Computers	3	3.57	0.51
LE. Scanners	1	1.19	0.17
LF. Digital cameras	0	0.00	0.00
LG. Photocopiers	0	0.00	0.00
LH. Computer and network security	2	2.38	0.34
LI. Authentication, and access control	0	0.00	0.00
LJ. Software	5	5.95	0.85
LK. Software methodologies and engineering	0	0.00	0.00
LL. Automated language processing	11	13.10	1.86
LM. Automatic text retrieval	6	7.14	1.02
LN. Data base management systems	34	40.48	5.75
LO. Object-oriented DBMS	2	2.38	0.34
LP. Intelligent agents	1	1.19	0.17
LQ. Library automation systems	5	5.95	0.85
LR. OPAC systems	0	0.00	0.00
LS. Search engines	5	5.95	0.85
LT. Mobile devices	1	1.19	0.17
LZ. None of these, but in this section	3	3.57	0.51
Total	84	99.99	14.24

Table 12 explicates that among Persian Wikipedia articles in the field of LIS, articles in the subject class “L. Information technology and library technology” are in the sub-classes of “LN. Data base management systems,” “LL. Automated language processing,” “LM. Automatic text retrieval,” “LJ. Software,” “LQ. Library automation systems,” “LS. Search engines,” “LB. Computer networking,” “LD. Computers,” “LZ. None of these, but in this section,” “LH. Computer and network security,” “LO. Object-oriented DBMS,” “LA. Telecommunications” “LC. Internet, including WWW,” “LE. Scanners,” “LP. Intelligent agents,” and “LT. Mobile devices”.

The results revealed the following thematic content distribution of Persian articles written in the LIS field in Wikipedia based on the JITA classification system: “I. Information treatment for

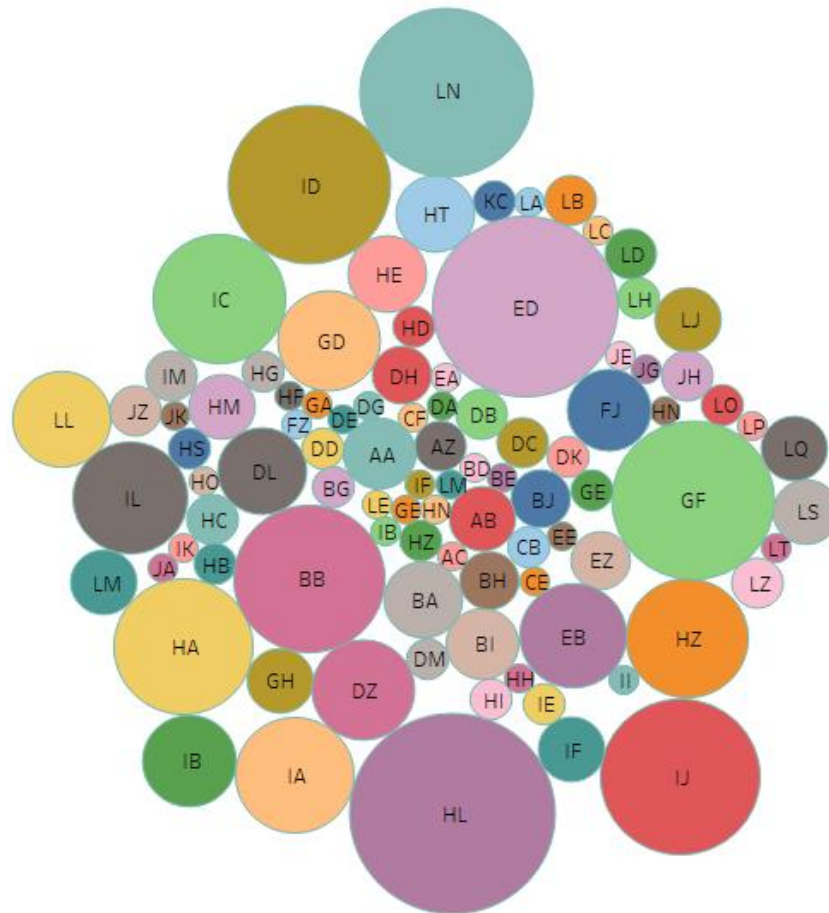
information services” class with 134 articles (22.69% of articles); “H. Information sources, supports, channels” class with 126 articles (21.32%); “L. Information technology and library technology” class with 84 articles (14.24%); “E. Publishing and legal issues” class with 58 articles (9.82%); “B. Information use and sociology of information” class with 57 articles (9.65%); “G. Industry, profession and education” class with 51 articles (8.64%); “D. Libraries as physical collections” class with 40 articles (6.78%); “A. Theoretical and general aspects of libraries and information” class with 16 articles (2.72%); “J. Technical services in libraries, archives, museum” class with 10 articles (1.7%); “F. Management” class with 9 articles (1.52%); “C. Users, literacy and reading” class with 4 articles (0.68%); and “K. Housing technologies” class with 2 articles (0.34%).

Figure 1 illustrates the thematic distribution of Persian Wikipedia articles in the field of LIS based on the JITA classification system at the main class level.



**Figure 1. Distribution of Persian Wikipedia articles in the field of LIS based on the JITA thematic classification at the class level**

Figure 2 demonstrates the subject areas of Persian Wikipedia articles in the field of LIS based on the JITA classification system at the sub-classes level. The capital letters indicated in the circles of Figure 2 are letters used in the JITA classification system to designate sub-classes presented in Tables 1 to 12. The larger the circles are in this figure, the more frequent the sub-classes are, and the more Persian Wikipedia articles in the field of LIS belong to it.

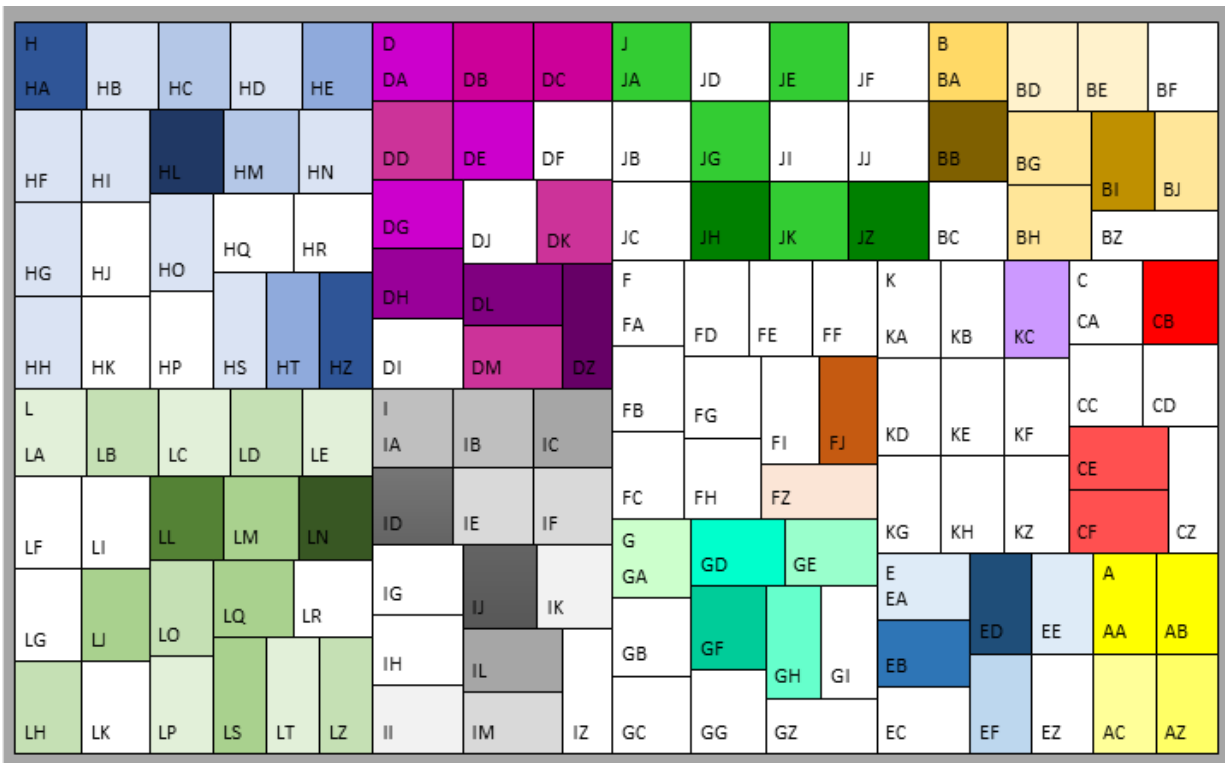


**Figure 2. Subject areas of Persian Wikipedia articles in the field of LIS based on the JITA classification system at the sub-classes level**

### *Categories and sub-categories of Persian Wikipedia articles in LIS with thematic gaps*

Research question one was asked to determine the subject areas of Persian Wikipedia articles in the field of LIS. The answer to this question is thematic classes and sub-classes of JITA that do not have any articles.

Figure 3 shows the thematic areas and gaps (dispersion) in Persian Wikipedia articles in the field of LIS based on the JITA classification system at the sub-class level. Figure 3 reveals the thematic areas and gaps in Persian Wikipedia articles in the field of LIS. As can be seen, each class contains several sub-classes represented by two capital letters. Information on classes and sub-classes is provided on the [E-LIS site](#) in addition to Tables 1 to 12. Each color spectrum in this figure represents a subject class. The higher the frequency of the sub-classes of that class, the more colorful the color of that sub-classes in the color spectrum of the class itself. Moreover, the white color indicates the thematic gaps in Persian Wikipedia articles in the field of LIS.



**Figure 3. Thematic areas and gaps (dispersion) in Persian Wikipedia articles in the field of LIS based on the JITA classification system at the sub-class level**

## Discussion

After reviewing Persian Wikipedia articles in the category of LIS, articles belonging to each sub-category up to three levels were evaluated to ensure that they are concepts in the field of LIS and presented in Tables 1 to 12 above. Persian Wikipedia articles in the category of LIS were re-classified based on the JITA classification system to identify the thematic gaps. In this section of the paper, we discuss the thematic areas and gaps in Persian Wikipedia articles in the field of LIS.

The JITA subject class “A. Theoretical and general aspects of libraries and information” is the only subject class in which all sub-classes have their related articles. A total of 16 articles (2.72% of articles in the field of LIS) are related to this subject class, but the distribution of articles in this class is different. As Table 1 shows, the thematic sub-classes “AA. Library and information science as a field” and “AB. Information theory and library theory,” each have six articles (1.02% of articles in the field and 37.50% of articles in this class), and most of the articles in this class have dedicated to themselves. The sub-class “AZ. None of these, but in this section,” has three articles (0.51% of articles in the field and 18.75% of articles in this class), and the sub-class “AC. Relationship of LIS with other fields,” has one article (0.17% of articles in the field and 6.25% of articles in this class).

The JITA subject class “B. Information use and sociology of information” consists of 57 articles (9.65% of articles in the field of LIS); that the distribution of articles in its sub-classes is different, and in some sub-classes, there is a significant number of articles. In contrast, some of the sub-classes lack any articles, which shows a thematic gap in Persian Wikipedia articles in the field of LIS. The sub-class “BB. Bibliometric methods” with 26 articles (4.40% of articles in the field and 45.61% of articles in this class), sub-class “BI. User interfaces, usability” with 12 articles (2.03% of articles in the field and 21.05% of articles in this class), sub-class “BA. Use and impact of information” with seven articles (1.18% of articles in the field and 12.28% of articles in this class), sub-class “BH. Information needs and information requirements analysis” and sub-class “BJ. Communication” each with four articles (0.68% of articles in the field and 7.02% of articles in this class), sub-class “BG. Information dissemination and diffusion” with two articles (0.34% of articles in the field and 3.51% of articles in this class), sub-class “BD. Information society” and sub-class “BE. Information economics” each with one article (0.17% of articles in the field and 1.75% of articles in this class) shows the order of the frequency of articles in this class. The sub-classes “BC. Information in society” and “BF. Information policy” do not have any Persian articles in the field of LIS, which present a thematic gap in this subject class.

The JITA subject class “C. Users, literacy and reading” has four articles (0.68% of articles in the field). The sub-class “CB. User studies” has two articles (0.34% of articles in the field and 50% of articles in this class), and the sub-classes “CE. Literacy” and “CF. Reading and story telling” each one with one article (0.17% of articles in the field and 25% of articles in this class). The sub-classes of “CA. Use studies,” “CC. User categories: children, young people, social groups,” and “CD. User training, promotion, activities, education” have no articles and show that there is a thematic gap in this subject class. In addition, 40 articles (6.78%) of the articles examined in this study belong to the subject class “D. Libraries as physical collections”. The distribution in the sub-classes of this class is as follows. The sub-class “DZ. None of these, but in this section” with 12 articles (2.03% of articles in the field and 30% of articles in this class), and the sub-class “DL. Archives” with nine articles (1.52% of articles in the field and 22.5% of articles in this class) are the most frequent in this class. The sub-class “DH. Special libraries” with four articles (0.68% of articles in the field and 10% of articles in this class), and the sub-classes “DB. National libraries” and “DC. Public libraries” each with three articles (0.51% of articles in the field and 7.5% of articles in this class), sub-classes “DD. Academic libraries,” “DK. Health libraries, Medical libraries,” and “DM. Museums” each with two articles (0.34% of articles in the field and 5% of articles in this class), sub-classes “DA. World libraries,” “DE. School libraries,” and “DG. Private libraries” each with one article (0.17% of articles in the field and 2.5% of articles in this class) show the scatter of articles related to this subject class. The sub-classes “DF. Government libraries,” “DI. Science libraries,” and “DJ. Technical libraries” do not have any articles, which indicates that there is a thematic gap in this subject class.

The JITA subject class “E. Publishing and legal issues” has 58 articles (9.82% of articles in the field). These articles are scattered in the sub-classes “ED. Intellectual property: author’s rights, ownership, copyright, copyleft, open access” (with 39 articles, i.e., 6.60% of articles in the field and 67.24% of articles in this class), “EB. Printing, electronic publishing, broadcasting” (with 13 articles, i.e., 2.20% of articles in the field and 22.41% of articles in this class), “EF. Censorship” (with four articles, i.e., 0.68% of articles in the field and 6.90% of articles in this class), “EA. Mass media,” and “EE. Intellectual freedom” (each one has an article, i.e., 0.17% of articles in the field and 1.72% of articles in this class). The sub-class “EC. Book selling” does not have an article related to it and indicates a thematic gap in this subject class.

The JITA subject class “F. Management” has a total of nine articles (1.52% of articles in the field), which belong to the sub-classes of “FJ. Knowledge management” with eight articles (1.35% of articles in the field and 88.89% of articles in this class), and “FZ. None of these, but in this section” with one article (0.17% of articles in the field and 11.11% of articles in this class). It is worth noting that the sub-classes “FA. Co-operation,” “FB. Marketing,” “FC. Finance,” “FD. Public relations,” “FE. Personnel management,” “FF. Funding,” “FG. Local government,” “FH. Reorganization,” and “FI. Unitary authorities” lack any articles that reveal the existence of a thematic gap in this subject class.

Furthermore, there are 51 articles (8.64% of articles in the field) in the subject class of “G. Industry, profession and education,” of which 30 articles (5.08% of articles in the field and 58.82% of articles in this class) are in the sub-class “GF. Biographies”; 12 articles (2.03% of articles in the field and 23.53% of articles in this class) are in the sub-class “GD. Organizations”; five articles (0.85% of articles in the field and 9.80% of articles in this class) are in the sub-class “GH. Education”; three articles (0.51% of articles in the field and 5.88% of articles in this class) are in the sub-class of “GE. Staff”; and one article (0.17% of articles in the field and 1.96% of articles in this class) is in the sub-class of “GA. Information industry”. However, the sub-classes of “GB. Software industry,” “GC. Computer and telecommunication industry,” “GG. Curricula aspects,” and “GI. Training” do not have any articles, which shows that there is a thematic gap in this subject class.

The JITA subject class “H. Information sources, supports, channels,” and the subject class “L. Information technology and library technology” are the broadest classes in the JITA classification. The subject class “H. Information sources, supports, channels” includes 126 articles (21.32% of articles in the field). The subclass “HL. Databases and database networking” with 48 articles (8.12% of articles in the field and 38.10% of articles in this class) is the sub-class with the most Persian Wikipedia articles in this class and among all sub-classes of Persian LIS articles. After that, there are the sub-class “HA. Periodicals, Newspapers” with 22 articles (3.72% of articles in the field and 17.46% of articles in this class), “HZ. None of these, but in this



section” with 19 articles (3.21% of articles in the field and 15.08% of articles in this class), “HE. Print materials” and “HT. Web 2.0, Social networks” each with seven articles (1.18% of articles in the field and 5.56% of articles in this class), “HM. OPACs” with five articles (0.85% of articles in the field and 3.97% of articles in this class), “HC. Archival materials” with three articles (0.51% of articles in the field and 2.38% of articles in this class). The sub-classes of “HB. Gray literature,” “HD. Rare books and manuscripts,” “HG. Non-print materials,” “HI. Electronic Media,” “HN. e-journals,” and “HS. Repositories” each have two articles (0.34% of articles in the field and 1.59% of articles in this class), and sub-classes of “HF. Microforms,” “HH. Audio-visual, Multimedia,” and “HO. e-books” each have one article (0.17% of articles in the field and 0.79% of articles in this class). However, the sub-classes “HJ. CD-ROM,” “HK. Online hosts,” “HP. e-resources,” “HQ. Web pages,” and “HR. Portals” do not have any articles, which reveals the existence of a thematic gap in this subject class.

The JITA subject class “I. Information treatment for information services” consists of 134 articles (22.69% of articles in the field), which belong to the sub-classes of “ID. Knowledge representation” with 30 articles (5.08% of articles in the field and 22.39% of articles in this class), the sub-class “IJ. Reference work” with 29 articles (4.91% of articles in the field and 21.64% of articles in this class), the sub-class “IC. Index languages, processes and schemes” with 20 articles (3.38% of articles in the field and 14.93% of articles in this class), the sub-class “IA. Cataloging, bibliographic control” with 16 articles (2.71% of articles in the field and 11.94% of articles in this class), the sub-class “IL. Semantic web” with 15 articles (2.54% of articles in the field and 11.19% of articles in this class), the sub-class “IB. Content analysis (A and I, class.)” with 11 articles (1.86% of articles in the field and 8.21% of articles in this class), the sub-class “IF. Information transfer: protocols, formats, techniques” with six articles (1.02% of articles in the field and 4.48% of articles in this class), the sub-class “IM. Open data” with three articles (0.51% of articles in the field and 2.24% of articles in this class), the sub-class “IE. Data and metadata structures” with two articles (0.34% of articles in the field and 1.49% of articles in this class), the sub-class “II. Filtering,” and “IK. Design, development, implementation and maintenance” each with one article (0.17% of articles in the field and 0.75% of articles in this class), and the sub-classes “IG. Information presentation: hypertext, hypermedia,” and “IH. Image systems” do not have any articles, which indicates that there is a thematic gap in this subject class.

The JITA subject class “J. Technical services in libraries, archives, museum” has 10 articles (1.7% of articles in the field), which belong to the sub-classes of “JH. Digital preservation,” and “JZ. None of these, but in this section” each has three articles (0.51% of the articles in the field and 30% of articles in this class); the sub-classes “JA. Acquisitions,” “JE. Record keeping,” “JG. Digitization,” and “JK. Interlibrary loans” each has one article (0.17% of articles in the field and

10% of articles in this class); and the sub-classes “JB. Serials management,” “JC. Withdrawals,” “JD. Stock taking,” “JF. Paper preservation,” “JI. Circulation” and “JJ. Document delivery,” which presents that there is a thematic gap in this subject class.

In the JITA subject class of “K. Housing technologies,” only the sub-class “KC. Furniture” has two articles (0.34% of articles in the field and 100% of articles in this class). The other sub-classes have no articles that reveal the existence of a thematic gap, including the sub-classes of “KA. Resources centers,” “KB. Library, archive and museum buildings,” “KD. Vehicles,” “KE. Architecture,” “KF. Planning, Design, Removal,” “KG. Safety,” and “KH. Disaster planning”.

The JITA subject class “L. Information technology and library technology” has 84 articles (14.24% of articles in the field), which belong to the sub-classes of “LN. Data base management systems” with 34 articles (5.75% of articles in the field and 40.48% of articles in this class), the sub-class “LL. Automated language processing” with 11 articles (1.86% of articles in the field and 13.10% of articles in this class), the sub-class “LM. Automatic text retrieval” with six articles (1.02% of articles in the field and 7.14% of articles in this class); the sub-classes of “LJ. Software,” “LQ. Library automation systems,” and “LS. Search engines” each have five articles (0.85% of articles in the field and 5.95% of articles in this class); the sub-classes “LB. Computer networking,” “LD. Computers,” and “LZ. None of these, but in this section” have three articles each (0.51% of articles in the field and 3.57% of articles in this class); the sub-classes of “LH. Computer and network security” and “LO. Object-oriented DBMS” each with two articles (0.34% of articles in the field and 2.38% of articles in this class); the sub-classes of “LA. Telecommunications,” “LC. Internet, including WWW,” “LE. Scanners,” “LP. Intelligent agents,” and “LT. Mobile devices,” each with one article (0.17% of articles in the field and 1.19% of articles in this class). However, there are no articles in the sub-classes of “LF. Digital cameras,” “LG. Photocopiers,” “LI. Authentication, and access control,” “LK. Software methodologies and engineering,” and “LR. OPAC systems,” which illustrates that there is a thematic gap in this subject class.

## **Conclusion**

The results of the study conclude that there is dispersion in Persian Wikipedia articles in the field of LIS based on the JITA Classification System of Library and Information Science. Thus, Iranian LIS professionals should improve the quantity and quality of Persian articles on Wikipedia, especially on topics with thematic gaps. While reviewing the articles, it was observed that some articles were weak in terms of content and scope. Thus, it is suggested that librarians, information specialists, and information professionals help Wikipedia to strengthen and improve its articles, which in turn benefits the millions of users around the world.

A comprehensive review of articles published in all classes and their sub-classes based on the frequency of articles shows that Persian Wikipedia articles in the field of LIS are scattered in the subject classes as follows: the class “I. Information treatment for information services” with 134 articles (22.69% of articles in the field), the class “H. Information sources, supports, channels” with 126 articles (21.32% of articles in the field), the class “L. Information technology and library technology” with 84 articles (14.24% of articles in the field), the class “E. Publishing and legal issues” with 58 articles (9.82% of articles in the field), the class “B. Information use and sociology of information” with 57 articles (9.65% of articles), the class “G. Industry, profession and education” with 51 articles (8.64% of articles), the class “D. Libraries as physical collections” with 40 articles (6.78% of articles), the class “A. Theoretical and general aspects of libraries and information” with 16 articles (2.72% of articles), the class “J. Technical services in libraries, archives, museum” with 10 articles (1.7% of articles), the class “F. Management” with nine articles (1.52% of articles), the class “C. Users, literacy and reading” with four articles (0.68% of articles), and the class “K. Housing technologies” with two articles (0.34% of articles).

### **Author Contributions**

Conceptualization, S.Y. and A.N.; methodology, S.Y.; software, S.Y.; validation, S.Y., and A.N.; formal analysis, S.Y.; investigation, S.Y.; resources, S.Y., and A.N.; data curation, S.Y.; writing—original draft preparation, S.Y.; writing—review and editing, A.N.; visualization, S.Y.; supervision, A.N.; project administration, A.N.. All authors have read and agreed to the published version of the manuscript.

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Data available on request from the authors.

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### **Conflict of interest**

The authors declare no conflict of interest.

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