

Study on Citation Accuracy of Iranian Journals in the Field of Library and Information Science

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ABSTRACT

The purpose of this study was to identify the citation status of scientific and research journals in the field of Information Science and Knowledge during the years 2016-2018. The present study is a survey analytic one and its statistical population includes all the articles of twelve scientific and research journals published by the National Scientific Journals Commission. Since some articles did not have a number of citations, out of 2264 citations, 1111 citations were analysed. The results showed that there was no statistically significant difference between source citation error and citation source language components, year of publication, number of authors, and author's academic rank. But it has a significant relationship with the type of citation and publication component. The results showed that out of 1111 citations selected, 21 citations (1.9%) were not retrieved, 749 citations (67.4%) lacked any citations errors and 341 citations (30.7%) contained citations errors. The National Library of Librarian Studies and Information Organization and the Journal of Library and Information Research were the best in terms of citation accuracy, and the Journal of Human Interaction and Information had the lowest citation accuracy. Among the factors contributing to the occurrence of citation errors can be the lack of co-operation between authors, the carelessness of authors, and the lack of emphasis on journals. Solutions such as highlighting journals are recommended for authors to observe the validity of citations, insert proper citations to published articles, and evaluate and review some of the paper citations as an acceptance process.

Keywords: Scientific Citation, Scientific Journals, Information Science and Knowledge

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INTRODUCTION

Citations are an important part of articles published in scientific journals. They are an important tool in validating texts and help researchers in retrieving citations and information. In order for citations to be useful, they must be presented in a correct and accurate manner in scientific publications. Obviously, no one can produce new knowledge independently and without the need for the knowledge produced by others. Therefore, it can be said that using the works of others to produce a new work has a history as old as science and quoting these works is a lifelong author (10). A citation represents the decision of an author who wants to show the relationship between the document he is preparing and another piece of writing. States that citation establishes a relationship between authors that can be considered as a unit of measurement of indirect authors' communication through text (12). According to Campanario (2003), the various functions of citations are:

1. Validation: such as introducing the predecessors and original works that have published a truth, idea, concept or principle for the first time.
2. Review of previous works: such as the introduction of documents related to the subject under discussion; Presenting past results or announcing the publication of a work in the future; explain, correct or analyse previous works; Identify research methods, tools, equipment, etc.
3. Existence of social factors: such as citing well-known researchers; Citing the work by scholars to show and dramatically increase their work; Casual and superficial citations (13).

Usually an article is considered that has complied with all the principles related to citation accuracy. False citation of articles and sources not only confuses readers and researchers, but also imposes heavy costs on researchers and libraries (11). Important factors in the citation accuracy of articles are: the correctness of the author's name, year of publication, article title, journal title, issue number, period and page number.

Citations may have deviations and challenges. False citations cut-off communication between the researcher and the source. With incorrect citation, the researcher cannot retrieve the

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required source. If the reference is incorrect or inaccurate, it will not be possible to link to the quote (link from a reference or quote in an online article to the item mentioned).^[1] Therefore, the problem of incorrect and incomplete citations is one of the issues that confuses researchers. Inaccurate or inaccurate citations lead to confusion in retrieving the desired resources, cutting off the citation chain, reducing the visibility of the works, and lowering the quality of the journals.

It seems that people who work in the field of Library and information Science, their publications have the least citation error, but in Rahmani and Asnafi^[2] research, it was found that publications in this field have a significant amount of error in citations. So, in current study the citation accuracy of the articles of twelve scientific journals in the field of librarianship and information in Iran is examined and also the rate of citation error occurrence of these journals is compared to determine the best journal in terms of citation accuracy.

The main purpose of current study is to identify the status of citation accuracy in Iranian scientific journals in the field of librarianship and information Science during 2015-2017. Other research objectives are as follows:

1. Identifying the citation status of the scientific-research journals under review based on the year of publication
2. Identifying the status of citation accuracy of the scientific-research journals studied based on the component type of citation document^[3]
3. Identifying the status of citation accuracy of the scientific-research journals examined based on the language of the citation document
4. Identifying the citation status of the scientific-research journals studied based on the number of authors

Literature Review

Behzadi and Sanji^[4] in a study examined the accuracy of citations to articles published in the Library and Information Quarterly in 2008. Findings showed that in 51.8% of citations to Latin articles, 39% of citations to articles in Persian magazines, 28.5% to citations to Latin books and 48% to citations to Persian books, there are errors. On average, 41.8% of citations made by authors to various sources contain errors, of which 21.4% are fundamental errors. Also, there is no statistically significant difference between the amount of errors made in citations according to the type of documents cited. On the other hand, at the 95% confidence level, it can be said that the type of language of the cited documents has no effect on the degree of error. The results of the research suggest that sharing efforts between authors, editors and judges, as well as evaluating and reviewing some citations of

articles as part of the process of accepting articles can help to solve this problem.

Davies^[5] in a study entitled "Citation accuracy of scientific journals of librarianship and information" reviewed the citation accuracy of four journals of librarianship and information. The research findings showed that the Journal of Information and Management has the highest percentage of citation error with 49.1%. Total error rate: The author is 56%, the page number is 22%, the title of the journal is 15%, the period is 3%, the year of publication is 2% and the title of the journal is 2%.

Azadeh and Vaez^[6] in a study entitled "The accuracy of citations in the dissertations of specialized medical doctoral courses of Tabriz University of Medical Sciences and the degree of their compliance with the Vancouver method" to examine the status of citations and their compliance with the method They paid the Vancouver letter. Findings showed that out of 347 citation articles reviewed, a total of 98.3% citation errors were recorded. The rate of large errors was higher than small errors. Only 164 citation articles (47.26%) did not contain any citation errors. There was no agreement with the Vancouver Code in terms of citation compliance.

In a study, Gupta^[7] examined the validity of citations in two Indian libraries and information journals (Annual Library and Information Research Magazine and Library and Information Technology Magazine). In total, 118 citations were collected to verify the citation accuracy. Only 39 (33%) citations were correct. Of these, 79 (67%) citations were erroneous, with a total of 151 errors, of which 71 (47%) were large errors and 80 (53%) were small errors. The average number of errors was 1.28.

Gupta^[8] (2019) examined the citation accuracy of Malaysian librarianship and information journals in issue 22 of 2017. The study found that 67% of citations in MJLIS were correct, and only 33% of citations were incorrect. A total of 33 errors, 51 errors and inaccuracies were detected, of which 26 were minor and 25 were major errors.

Luo, Molina, Andersen, *et al.* (2013)^[9] examined the accuracy of citations and transmissions in general foot and ankle surgery. The total citation error was 41% (103 out of 249 references) and the total citation error was 20% (80 out of 408 citations) for 5 orthopaedic journals. Citation errors were still relatively common in orthopaedic journals. While they did not identify any factors related to citation errors. Using technical editing may reduce citation errors.

Zasa^[10] examined the validity of citations in five scientific sports journals. The results showed that the overall error rate is 12%. The most common mistakes were in the names of the authors (6.5%), followed by the journal title (3.5%), the article

title (2%), the page number (1%) and the year of publication (0.5%).

It can be stated that the issue of citation accuracy has been studied in all scientific fields. In most studies, without exception, the degree of citation error and its type (small or large), as well as in some studies, the fields in which the error occurred have been identified. In addition, the research has compared the citations with the methods used, citation errors, and the correlation of errors with components such as: gender, type of degree, language of the degree. Therefore, it turns out that there was no source without error.

Research Methodology

The present study is based on a survey analytical method and its statistical population includes all articles of 12 scientific journals in the field of librarianship and information Science in Iran. The Krejci-Morgan table was used to determine the size of the statistical sample and 283 articles were calculated as sample. The stratified sampling method was random. The selected articles were randomly classified into eight items based on the components of the type of citation document (book, article, thesis, and internet sources) and the language of the citation document (Persian and English) to check the validity of the citation. The data collection method was direct observation and the data collection tool was a researcher's checklist that was prepared based on Rahmani's research (2015).^[2]

from each year, the publications were selected randomly, with a determined sample number of articles, and then according to the component of the type of citation document and the language of the citation document, the number of 8 citations (Farsi and Latin article, Persian and Latin book, end -Persian and Latin letters, and Persian and Latin internet sources) of each article were checked for citation accuracy. The method of data collection in this research was direct observation. The data set that emerged from this exercise was 2264 citations (283 articles * 8 citations) for examination of citation accuracy.

Table 1: The total number of citations examined by language and type of information source.

Type of information source	Number of English citations	Percent	Number of Persian Citation	Percent
Paper	230	43.60	224	39.85
Book	148	28	182	32.40
Thesis	59	11.17	111	19.75
Internet resources	91	17.20	45	8
Total	528	48.40	562	51.60

1090 citations were examined for citation accuracy, with 445 errors. Of these 445 errors, 139 errors (31.2%), large citation errors, and 306 errors (68.8%) were small citation errors.

Table 2: Number of citation errors by journals.

Number of studied citations	Number of Errors	Big Errors	Small Errors	Name of Journal
Ayeneh Mirath	26	1	27	45
Scientometrics Research Journal	20	17	37	58
Information Journal of Information Processing and Management	37	46	83	202
Library and Information Science Research	33	22	55	128
Information Research and Public libraries	7	6	13	125
Information Research and Public libraries	20	4	24	67
Human and Computer Interaction	36	15	51	60
Library and Information Science	29	9	38	69
Ganjineh Asnad	38	4	42	68
Information Management	27	4	31	39
Library studies and Information Science	26	8	34	90
National studies on Librarianship and Information Organization	7	3	10	139
Total	306	139	445	1090

Table 3: Average comparison based on journal titles.

Sum of squares	Degrees of freedom	Significance level	Variable statistical test
Paper	0.000	11	131.40

However, due to reasons cited below only 1,090 citations were reviewed. Some of these reasons include:

- Blind citation: citation that could not be recovered with any of the citation components.
- Magazines whose citations were in one language, such as "Human-Information Interaction," were only in English.
- Magazines that were mostly in one language, such as Mirror Heritage, were mostly in Persian.

In this study, descriptive statistics indicators were used to analyze the data, including frequency, percentage, mean, and inferential statistics including Mann-Whitney and Kruskal-Wallis tests. The data gathering method in this study was direct observation. First, the selected citations were searched in Persian and Latin databases and public search engines (such as Google) in order to have or lack the original document. After retrieval, the bibliographic information of the original documents was compared with the citations examined. Then, according to the citation method of each publication, small and large errors of each citation were entered and recorded separately in the checklist.

Table 4: Average citation errors in journals.

Name of Journal	Number of studied citations	Average of errors
Ayeneh Mirath	45	634.41
Scientometrics Research Journal	58	629.76
Information Journal of Information Processing and Management	202	556.72
Library and Information Science Research	128	560.54
Information Research and Public libraries	125	424.18
Information Research and Public libraries	67	526.91
Human and Computer Interaction	60	774.75
Library and Information Science	69	604.32
Ganjineh Asnad	68	594.29
Information Management	39	662.55
Library studies and Information Science	90	528.66
National studies on Librarianship and Information Organization	139	408.46

Table 5: The total number of citations examined by language and type of information source.

Year	Small Errors	Big Errors	Number of Errors	Number of studied Citation
2015	78	47	125	314
2016	121	48	169	375
2017	107	44	151	401

Table 6: Comparison of the average citation error based on the year of publication.

Variable statistical test	Degrees of freedom	Significance level	Sum of squares
Citation Error	2	0.216	3.068

Findings

In total, 21 citations were not retrieved and the citations were blind. There were also 1153 citations. Thus, a total of 1,090 citations were examined for citation accuracy. Table 1 presents the total number of citations examined by language and type of information source.

Table 2 shows the amount of citation errors based on journals. From Table 2, it can be seen that the highest citation errors are related to the magazine "Ganjineh Document" and the lowest citation errors are related to "National Studies on Librarianship" magazines, and Information Organization and Information Research and Public It was libraries.

The Kruskal-Wallis test was used to statistically determine whether the difference between citation errors and information sources was statistically significant.

Table 7: Average citation error based on the year of publication.

Year	Average of errors	Number of studied citations
2015	535.83	314
2016	564.28	375
2017	535.51	401

Table 8: Number of examined citations based on language and type of information source.

Type of Information resource	Small Errors	Big Errors	Number of Errors	Number of studied Citation
Paper	203	48	251	454
Book	74	7	81	330
Dissertation	16	35	51	170
Internet	13	49	62	136

Table 9: Comparison of the average citation error based on the year of publication.

Variable statistical test	Degrees of freedom	Significance level	sum of squares
Citation Error	3	0.000	38.6

Table 10: Average citation errors based on Information source type.

Type of Information resource	Average of errors	Number of studied Citation
Paper	594.3	454
Book	488.2	330
Dissertation	504.9	170
Internet	571.9	136

According to Table 3. The significance level of citation errors is zero, so there is a significant relationship between citation errors and publications. However, to determine which journals had the most errors, the average citation error of the journals was examined.

Table 4 shows the average errors for the National Library and Information Studies Journal (with an average of 408.46), and the Journal of Information Research and Public Library (with an average of 424.18), respectively, in terms of citation accuracy. The Journal of Human-Information Interaction (with an average of 774.75) has the worst status in terms of citation accuracy. The 341 citations included a variety of citation errors with 445 errors. However, the share of the number of citations examined and the citation error based on the year of publication are as follows; in 2016, 314 citations were reviewed and its errors were equal to 125 errors. In 2016, 169 errors were counted and in 2017, 151 errors were counted. Also, 749 citations did not have a citation error.

Table 5 presents the number of citations and citation errors based on the year of publication.

The Kurskal-Wallis test was used to evaluate the significance of the difference between citation errors and information sources based on the year of publication. The results of the Kurskal-Wallis test are presented in Table 6.

As shown in Table 6. The significance level of citation errors is 0.216; in other words, there is no significant relationship between the mean of citation errors based on the component of the year of publication. However, the average citation error in Table 7 shows that the articles published in 2017 are in a better position in terms of citation accuracy.

Table 8 shows the status of citation accuracy in the articles of twelve scientific journals of Iranian librarianship and information in 2015–2017, based on the type of citation document.

1090 citations were examined, of which 341 citations had a variety of master errors and a total of 445 errors were obtained.

Based on this, the share of different citation documents from errors is as follows: books include 81 errors (18.2%) out of 445 errors, articles include 251 errors (56.4%) out of 445 errors, dissertations include 51 errors (11.5%) out of 445 Errors and Internet resources included 62 errors (13.9%). Of the 749 cases, there was no citation error.

To examine the significance of the difference between citation errors and information sources based on the type of

Table 14: Number of examined citations, error and percentage error by number of authors.

Number of Authors	Small Errors	Big Errors	Number of Errors	Number of studied Citation
1	65	28	93	225
2	100	26	126	303
3	59	37	96	253
4	76	43	119	281
5	3	2	5	16
6	3	3	6	12
Total	306	139	445	1090

Table 15: Comparison of the average citation error based on the number of authors.

Variable statistical test	Degrees of freedom	Significance level	sum of squares
Citation Error	5	0.94	1.212

Table 16: Average citation errors by number of authors.

Number of Authors	Average of errors	Number of studied citations
1	544.95	225
2	543.31	303
3	537.24	253
4	557.20	281
5	509.94	16
6	558.79	12

Table 11: Number of citations examined based on language and type of information source.

Language	Small Errors	Big Errors	Number of Errors	Number of studied Citation
English	134	67	201	528
Persian	172	72	244	562
Total	306	139	445	1090

Table 12: Mann-Whitney test to investigate citation errors based on source language.

Test	Citation Errors
Mann-Whitney	143061
Wilcoxon	282717
Z	1.2-
Level of Signification	0.21

Table 13: Average citation errors based on source language.

Citation Language	Average of Errors	Number of citations
English	535.4	528
Persian	554.9	562

citation document component, Kruskal Wallis test was used. A comparison of the average citation error based on the type of citation document is presented in Table 9.

Table 9 shows that the significance level of citation errors is zero, so there is a significant difference between the average citation errors based on the type of citation document.

Table 10 shows that citations to articles with an average of 594.3 had the highest citation error and citation books with an average of 488.2 had the lowest citation errors.

Table 11 shows the status of citation accuracy in the articles of twelve scientific journals in librarianship and information in Iran in 2015–2017, based on the language of citation.

In Table 11, the number of citations examined and the errors based on the language of the citation document are presented. Table 11 shows that 201 citation errors are related to the sources examined in English and 244 errors are related to Persian sources.

The Mann-Whitney test was used to check whether the difference between citation errors and information sources

was significant based on the language component of the citation document.

In Table 12 the significance level is 0.21, so the null hypothesis is confirmed, in other words, there is no significant relationship between the mean of citation errors based on the language component of the citation document. However, by comparing the mean errors based on the language component of the citation document (Table 13), it was found that English sources are in a better position in terms of citation accuracy.

Table 14 shows the status of citation accuracy of the articles of twelve scientific journals in the field of librarianship and information in Iran during the years 2015–2107, based on the number of authors.

Articles with four authors had the most citation error. Most errors are related to articles with two authors and most large errors are related to articles with four authors.

The Kurskal-Wallis test was used to check whether the difference between citation errors was significant or not based on the number of authors.

As can be seen from Table 15, the significance level of the citation error average is 0.94, so the null hypothesis is confirmed, in other words, there is no significant relationship between the mean citation errors based on the number of authors. However, the average citation errors (Table 16) show that articles with five fewer authors have committed citation errors and articles with six more authors have committed citation errors.

CONCLUSION

In the current study, the citation accuracy of Iranian publications in the field of librarianship and information was studied. The two journals, National Librarianship and Information Organization, and Information Research and Public Libraries, were the best in terms of citation accuracy. One of the most important reasons for the favorable status of citations in these journals is the greater emphasis on authors in observing citation accuracy and the existence of correct citation methods for the articles they publish. The results also show that some journals are not in a good position and should take steps to reduce citation error.

Among the causes of documentary errors in these publications, the following can be mentioned:

- Lack of attention from some publications due to lack of strictness in this regard;
- Authors carelessness and impatience in preparing the source;
- Lack of cooperation between authors in preparing the source list;

- Lack of access to the original source;
- Lack of uniform citation method among journals;
- Purchase of articles from article writing companies.

The present study showed that there was no significant relationship between the year of publication and citation errors. But a comparison of the averages showed that over time the status of citations has improved. The reason for this can be more attention to citation as well as the prevalence of citation software among authors and better authors' access to resources.

The results showed that there were the fewest citation errors about dissertations and books. The results of current research section were consistent with Rahmani and Asnafi's researches and Rahmani.^[11] In these researches, articles had the most errors and books had the least citation errors. The most common errors in the articles were related to not mentioning or misrepresenting the course, journal number, and page number. Issues such as the authors' carelessness and indifference to these two sections, the lack of indexing of articles in internal journals in databases, and the difficult access to foreign databases can be the most important causes of citation errors in articles. The most common citation errors in Internet resources were related to the incorrect address of the site, not mentioning the creator, and the recovery date. One of the most important reasons for the citation error of Internet resources is the change of site address and the carelessness of authors in the correct transmission of information. This study showed that there is no significant relationship between citation errors in articles and the number of authors. Cases such as: lack of cooperation between authors, writing articles by one person and bringing other names in an honorary manner, buying an article from an article writing company can be the reasons for this. In this study, it was found that there is no significant relationship between the average citation errors and the scientific level component of the author responsible. Therefore, by comparing the averages, it was found that the responsible author with the scientific level of the professor has the best situation in terms of citation accuracy and the author with the scientific level of associate professor has the worst situation in terms of citation accuracy. Rahmani's research also examined the relationship between citation accuracy and the component of the academic degree, and the results showed that the status of citation accuracy of senior students is better than the doctorate. Weakness in quoting works is due to ignorance, neglect, or laziness. It is the author's job to ensure that the sources of his work are accurate. But journals are not indifferent to spelling and correct spelling, and they do take steps to reduce the number of citation errors. It is recommended that journals that do not have the correct way to cite articles in the articles they publish include the correct

way to cite the article. Evaluate and review citations to articles as part of the admissions process. Authors of articles need to carefully study the citation method of their journal. They also need to use citation software such as Mendeley, Endnote, etc. to set up their list of resources.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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