

Citation Errors in Scholarly Communication: A Critical Evaluation

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Abstract

An ideal reference list is made up of reliable references, which are used and consulted during the research study, and is an inseparable part of a scholarly communication. Omissions and mistakenly transcriptions of various elements of citation in reference lists, viz. names of author(s) and/or editor(s), book title, journal title, article's name, volume number, year, pagination etc. can cause serious bibliographical problems, and such errors often exist in published reports, indexing and abstracting sources for a long time. The paper highlights the challenging key issues related to citation errors, peer review process and impact of peer review on citation errors. Possible solutions are also provided for maintaining the top level accuracy in citations.

Keywords: Citation Error; Reference Accuracy; Peer Review; Scholarly Communication.

Introduction

Citation is a quotation of or explicit reference to an information source for substantiation, especially used in a scholarly communication. According to online version of *Collins English dictionary*, meanings of citation includes, "citing of an author or book in support of a fact, a passage or source cited for this purpose, a listing or recounting, as of facts [1]." *Macmillan English dictionary* (2002) defines citation as, "a phrase or sentence taken from a piece of writing or speech, the process of citing something or of being cited" (p. 243) [2]. In general, the terms "reference" and "citation" are used synonymously and interchangeably. A bibliographical reference is defined by *British Standards BS1629: 1976 and BS5605: 1990* as "a set of data or elements describing a document, or part of a document, and sufficiently precise and detailed to enable a potential reader to identify and locate it [3,4]." In simple words, a citation

is a reference to a document or information source, which may be either published or unpublished, and it may be a primary, secondary or tertiary source of information. Generally, bibliographies, and similar lists, such as compilations of references, are not allowed to take place of citations because these bibliographies do not satisfy the real objective of the citations, that is, "deliberate acknowledgement by other authors of the priority of one's ideas [5]."

Citations, according to the opinion of Blaise Cronin (1984), are "frozen footprints in the landscape of scholarly achievement...which bear witness to the passage of ideas [6]." A citation is a medium of giving credit to persons for their creative works and intellectual ideas that are used to support in the research work. It may also be utilized to search specific information sources and fight against plagiarism. Normally, a citation may contain the author's name, editor's name, journal title, book title, chapter of a book, publication date, place of the publication, and/or Digital Object Identifier (DOI).

A perfect reference list is made up of reliable references, which are used and consulted during the research study, and is an inseparable part of any scholarly communication. Entries in "Reference List" or "Works Cited" are arranged alphabetically by surnames of authors, editors, translators, and/or by initial words of titles. References in an article of scientific journals may be divided into two parts. First

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part is the quotation, which appeared in the text; and second is the citation, which occurred at the end of the article. In the first necessary part, each section of article that is either quoted from, and/or based on an external information source is marked as such with an *inline citation*. The *inline citation* can be in the form of a footnote, parenthetical reference, or a shortened version of the citation known as *short citation*. An *inline citation* is any citation written and associated near to the words or idea it supports, for instance after the paragraph or sentence, generally a superscripted footnote numeral. The other second part of the reference or citation is the list of all references appeared at the end of the article in a "References" section, which gives full formatted details related to the information source, so that any individual who reads the article can retrieve it and check it. This part is arranged according to a specific order, which may be numerically by superscripted numbers as presented in the text, or alphabetically by surnames of authors, editors, translators, and/or by initial words of titles.

In all sorts of scholarly communications, a reference list is embedded with articles. So sufficient attention of authors, peer reviewers, and journal editors is needed while preparing, reviewing, and editing them for publication, respectively. Both the terms "reference" and "citation" are used synonymously in this article.

Scholarly Communication

The word "scholarly" is academically used in the field of research and development in higher education. Scholarly communication is often used to express how research findings are shared among academic and scientific community. Borgman (2000) illustrates the concept of scholarly communication as "the study of how scholars in any field (e.g. physical, biological, social and behavioural sciences, humanities and technology) use and disseminate information through formal and informal channels. The study of scholarly communication includes the growth of scholarly information, the relationships among research areas and disciplines, the information needs and uses of individual user groups, and the relationships among formal and informal methods of communication [7]." Scholarly communication, as defined by the Association of College and Research Libraries (ACRL), a division of world's largest and oldest association, the American Library Association (2004), is "the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use. The system includes

both formal means of communication, such as publication in peer-reviewed journals, and informal channels, such as electronic listservs [8]." The primary aims of scholarly communications are to disseminate the research findings to other researchers and academic community, to maintain the quality of research through proper evaluation by journal editors and peer-reviewers, and to conserve knowledge for future generations in both print and electronic media.

Some examples of informal communication are exchange of personal communication, face-to-face discussion, sharing opinions and views etc. These are easy and fast channels of communication. Derek de Solla Price (1963) used the term "invisible college" to explain the "informal communication network [9]." Formal scholarly communication includes research articles in journals, research monographs, theses and dissertations, edited books, conference proceedings, technical reports, letters, memos, and so on. They all are permanent vehicles of knowledge [10].

Formal peer review is useful in making decisions about who should be promoted or hired, who should receive grant money, and which articles should be published. According to Armstrong (1997), most successful scholars and researchers find the journal peer review to be effective, because it decreases the quantity of errors in published work [11].

An articulation of research results is very necessary to enable Government funded R&D institutions, universities, and the other key players to develop a clear policy framework to support cogent scholarly communications as a strong foundation of influential high-impact and high-quality research and knowledge transfer.

Citation Error

Citation error is defined by Alfred Yankauer (1990) as, "errors of commission or omission in the printing of the reference [12]." In a study on "Citation Errors in Library Literature", Idrisa Pandit (1993) indicates that "errors focus on the citations themselves and exclude the extent to which authors correctly quoted a text or acknowledged an intellectual debt [13]." On the basis of "the ranked list of journals in ISI's *Journal Citation Reports* and selected studies that have identified core journals", Pandit chose the five library science journals including the *Library Trends* for analysis (p. 189). She also successfully compared the published references in articles against the original documents. Doms (1989) also defined an accurate, or correct reference as "one in which all included elements are identical to the source [14]."

A century ago in 1916, Frank Place, Jr. has pointed

out that bibliographical references are frequently “called upon to locate papers” not yet indexed [15]. Foreman and Kirchhoff (1987) stated that references “provide a method of evaluating the article; [and] assist in assessing an author’s credibility [16].” Place (1916) critically indicated that many esteemed scholars take “a reference from another’s bibliography as though it were thereby Gospel truth itself” (p. 699). In fact, various scholars don’t examine the original information sources before citing/quoting them. However, thoroughly checking of all published references with original sources is not possible. Because of the scholars’ libraries not having the cited sources, they acquire the cited sources by interlibrary loan facility and/or by any other way [17].

Most probably, the errors in citations and bibliographical references have appeared since the authors have started citing other authors. Generally, omissions and mistakenly transcriptions of various elements of citation in reference lists, viz. names of author(s) and/or editor(s), book title, journal title, article’s name, volume number, year, pagination etc. can cause serious bibliographical problems, and such errors often exist in published reports, indexing and abstracting sources for a long time.

The world famous example of such a citation error is the case of *Prof. Jaroslav Hlava* (1855-1924). In the annual volume 26, no. 5, 29 January 1887, *Journal of the Czech Physicians* published from Prague, a paper was written by the *Dr. Jaroslav Hlava*. This widely cited paper originally authored by *Prof. Hlava*, Czech Professor of Pathological Anatomy at Prague, entitled “*O Uplavici*” which means “*About Dysentery*”, got incorrectly attributed to a *Dr. O. Uplavici* [18]. This happened due to translation error from Czech (Bohemian) to German and English language. The author’s name was written in small letters, and the translator mistakenly wrote “*O Úplavici*” (*About dysentery* in Czech) in place of the author’s name and “*Predbezna Sdeleni*” (*Preliminary communication* in Czech) for the title “*About Dysentery*.” This mistake was repeated in many forms for more than 50 years until *Clifford Dobell* wrote about the true fact of this noted atrocity [19-20]. This disgraceful, and also comical, instance of citation error explains the two points. First is, any error in citation happens, albeit paper’s writer is a well known scholar. It is a very common phenomenon, existed in scholarly communications. Second, citation error can create problems in scholarly communications, becomes self-perpetuate, and later makes embarrassing situations. As such, miscitations or citation errors not only raise questions and create doubts about the credibility and integrity of the author; they also badly influence both

the validity of the important research outputs and the trustworthiness of the cited documents [21-23].

Why Citation Error

To err is human. To self-repair fortunately is also. In the publication process of journal articles, citation errors generally appear due to carelessness of authors, peer reviewers, and journal editors. All three are equally responsible for inaccuracies in bibliographical references. First and primary responsibility of an article’s author(s) is to make sure that they have not done any mistakes in the final manuscript. Anyhow author(s) should cross check the references with original sources, and make them completely accurate and error free. In any scholarly communication, citation errors occur due to lack of proper proofreading of an article by peer reviewers and editors. But now-a-days, typos and editing errors are common, because editors work on tight deadlines and schedules.

In spite of critical appraisals performed by peer reviewers and journal editors of articles’ texts, bibliographical references or citations are often under-evaluated [24]. As such, many lacunas are there in peer review process. For example, this process can be time consuming and slow; misunderstanding or biasing may be showed by the reviewers’ side; it cannot be completely sufficient; at all times, it is not successful at detecting inaccuracies, plagiarism or academic theft; and it may be used destructively by opponents and competitors.

Due to variety of reasons, errors in citations can be occurred in scientific writings. So many referencing standards and guidelines are available; some of them are *MLA Referencing Style*, *APA Referencing Style*, *Chicago Manual of Style*, *Turabian Style*, *Harvard Style*, *Vancouver Style*, etc., which are to be followed by researchers while writing articles or any piece of research work. Main reason behind citation errors is that authors fail to follow such standard styles and guidelines.

The key format of reference of various journals is different due to the differences among the various citation standards and styles. If such styles and guidelines are not carefully followed by authors, then errors in references are inevitable. Furthermore, these errors create difficult situations in searching references when needed. Citation errors may be identified to a lack of similarity in citation styles, misunderstanding and misconception of non-native languages, failure to check the information source cited, and normal human inability to imitate big strings of information correctly, coupled with a

normal lack of practicing the rules of citation styles. The actual difficulty, the failure to trace and rectify citation errors, is due to a scattered onus in the publishing cycle of scholarly communication.

Categories of Citation Errors

Citation errors are generally categorized in two classes, viz. major errors and minor errors. Various types of errors in bibliographical references are found or detected by many authorities. For an article of a journal reference, some of them are misspelt authors' name, article's name, journal's title, incorrect volume and issue number, wrong year of publication, and page number in reference list. Similarly for book reference, errors may be in author's name, editor's name, title of book, name of author of book chapter, publication place, publishers, page numbers, and year of publication.

A major error "prevent immediate identification of the source of the reference [17]." While a minor error in citation does not stop the reader to trace and retrieve the original information source or article without too much inconvenience. Minor errors are, though not serious in articles, includes format errors and punctuation errors. They break the uniformity and consistency of the pattern of references.

Doms (1989) made two broad categories of all references as "correct or incorrect." He defined both of them as "A correct reference was a reference that was identical to the source. An incorrect reference was a reference that deviated from the source [14]." In this analytical study of five peer reviewed dental journals, errors "involved names or initials of authors, title of article, name of journal, volume number, year of publication, page numbers, punctuation, [and] spelling [14]."

Trost and Mulhall (2014) categorized citation errors in three classes, namely, "incorrect errors", "errors of interpretations", and "suboptimal errors." First, "incorrect errors", which includes unrelated references, duplicate reference, unverifiable statement, and wrong reference. Second class "errors of interpretation", which contains discrepant data or conclusions, overstatement/understatement of findings, and third "suboptimal errors" includes inappropriate reference, reference to review article in lieu of source publication, inactive or indirect websites [24].

Impact of Peer Review on Citation Errors

Peer-review process undoubtedly enhances the quality of an article. Few journal publications, for

example the *Library Trends* and the *Archives of Physical Medicine and Rehabilitation*, have hired review professionals to examine the correctness of bibliographical references in papers that they received for publications. Two such professionals named Key and Roland (1977) checked the references of 129 papers submitted for publication to the *Archives of Physical Medicine and Rehabilitation* and concluded that "54% of the 1,867 references examined were incorrect, and 6% could not be verified [25]." They did not further analyze the same 129 papers after they were published. In citation errors studies, if any cited document that could not be traced by any means, may be classified as "unverifiable [17]."

Pandit (1993) examined 335 references, in which 177 (52.8%) found errors in the manuscript, and only 14 (4.2%) errors were trace after publication. Checking of references by the review staff in the manuscript before final publication indicates that errors in references significantly decreased the quantity of errors [13].

Bradley (1981) conducted an author survey of 361 psychologists and statisticians, and concluded that 260 (72%) authors opined that "The net effect of refereeing upon the quality of the article was to improve it [26]." In another study conducted by MacNealy, Speck & Clements (1994), 72 (80%) of the total 96 scholars responding argued that they felt the peer-reviewers' advised revisions to be "reasonable [27]."

Onwuegbuzie, Frels, and Slate (2010) did a study based on mixed research methods. In this study, they checked 150 manuscripts of articles submitted to the journal *Research in the Schools*. These manuscripts counted about 60% of all article's manuscripts submitted to this journal over the period of 7 years, from 2003 to 2010, which made their results generalizable to the population of manuscripts submitted to the journal *Research in the Schools* (p. 3). Astonishingly, 91.8%, which is a major part of authors, who submit articles to journal *Research in the Schools* make citation errors [28].

Accuracy is an important criterion of quality measurement. It means the proximity of calculated values, observations, measures to the true value, or to a value which is accepted as being true. Accuracy of bibliographical references is necessary to the success of scholarly communications, citation analysis, bibliometrics studies, interlibrary loan (ILL), document delivery services (DDS), database management, evaluation of an author's work, etc. [13]. Correct references make easier all of these works and activities. Errors in references directly influence the

results of bibliometrics and citation studies.

Possible Solutions

Apart from verifying quotations, accurate citations are essential to avoid plagiarism, and to facilitate readers to trace and consult any original document to follow-up a cited author's arguments. Presently the most used method for disseminating research results to the academic community is through peer reviewed journals. In the peer review process, various subject experts carefully read and advise authors to rectify the article, and also decide if it is of sufficient quality. Authors should never cite a reference that they have not read. Authors should verify all citations just before the submission of final copy of manuscript. Harinarayana along with his team (2011) conducted a study, assessing the citation accuracy in five doctoral dissertations in the field of psychology submitted to the University of Mysore, India and suggested for imparting training for new research scholars to specialize in suitable citation styles and advised Indian universities to take active role in imparting Information Literacy (IL) skills for researchers to maintain the citation accuracy. They found massive error rate in references in psychology theses. Out of total 923 references assessed, only 210 (22.75%) were accurate, while a huge proportion of references 713 (77.25%) contained citation errors [29].

Maintaining the top level accuracy in citations is one of the good qualities of an author. Author(s) should consistently follow only one citation style or method throughout in his article. While author should try to record citations accurately, what matters most is that author(s) give sufficient information to trace and retrieve the original document.

Notwithstanding, journal editors and peer-reviewers should not deny their duties and responsibilities regarding accuracy of citations in articles. For instance, they can publish sample references from each paper decided for publications. When any error is traced in the references in article, it could be immediately sent back to authors giving instructions to rectify references again. This procedure may be strengthened by alerting the authors that publication would now be deliberately delayed and that the same process would be applicable if a further inaccuracy was detected in manuscript after resubmission [17]. Journal editors require to make judgement of the peer-reviewers' work to the equal standards that they want and demand from authors and researchers.

Conclusion

A citation, or a reference, uniquely identifies a source of information. Accuracy in citations in research studies are essential for the dissemination of all kinds of knowledge to academia, so it is very important that citations should be jotted down flawlessly to make searching convenient. Accurate citations further help the readers in learning new areas of knowledge. Such readers consult the reference list to get the original information sources for a study earlier proved to be effective. Nothing can be more painful and frustrating for those readers than to discover an unidentifiable reference. In addition, through accurate citations, the quality and credibility of the research studies, the authors, and the journal itself are augmented [30-31]. Indubitably, bibliographic references or citations make a major part of all sorts of scholarly communication. As such, a collective endeavor and sufficient attention is required to eliminate the cyclic process of citation errors and develop an error free citations culture. This culture encompasses many components of academia, viz. higher educational premier institutions, R&D institutions, university-level guides and instructors, members of the research (dissertation/thesis) committee, supervisors/chairs, team members of publication agencies, and journal editors. In a nutshell, care must be taken by all concerned academics at their own level to improve the quality of published articles. Finally, error free citations always prevent creating critical problems for librarians and readers who later on make efforts to identify and retrieve information sources.

References

1. <http://www.collinsdictionary.com/dictionary/english>.
2. Macmillan English dictionary for advanced learners. International Student ed. Oxford: Macmillan Education; 2002.
3. British Standards BS1629: 1976.
4. British Standards BS5605: 1990.
5. Gibaldi J. *MLA Handbook for Writers of Research Papers*. 7th Ed. New York: Modern Language Association; 2009.
6. Cronin B. *The citation process: the role and significance of citations in scientific communication*. London: Taylor Graham; 1984.
7. Borgman CL. Digital libraries and continuum of scholarly communication. *Journal of Documentation*. 2000;56(4):412-30.

8. Association of College and Research Libraries. Principles and strategies for the reform of scholarly communication. 2004. Available: <http://www.ala.org/ala/acrl/acrlpubs/whitepapers/principlessstrategies.htm>.
9. De Solla Price DJ. Little science, big science. New York: Columbia University Press; 1963.
10. Mukherjee B. Scholarly communication: a journey from print to web. *Library Philosophy and Practice (e-journal)*. 2009; Paper 285.
11. Armstrong JS. Peer review for journals: evidence on quality control, fairness, and innovation. *Science and Engineering Ethics*. 1997;3(1):63-84.
12. Yankauer A. The accuracy of medical journal references. *CBE Views*. 1990;13:38-42.
13. Pandit I. Citation errors in library literature: a study of five library science journals. *Library & Information Science Research*. 1993;15(2):185-98.
14. Doms CA. A survey of reference accuracy in five national dental journals. *Journal of Dental Research*. 1989;68:442-4.
15. Place F, Jr. Verify your references. A word to medical writers. *New York Medical Journal*. 1916 Oct 7;104: 697-9.
16. Foreman MD, Kirchhoff KT. Accuracy of references in nursing journals. *Research in Nursing and Health*. 1987 June;10:177-83.
17. De Lacey G, Record C, Wade J. How accurate are quotations and references in medical journals? *British Medical Journal*. 1985 Sep 28;291(6499):884-6.
18. Sassen CJ. Citation accuracy in the journal literature of four disciplines: Chemistry, psychology, library science, and English and American literature (English literature). Unpublished doctoral dissertation, University of North Texas, Denton, TX. (1992).
19. Dobell C. Dr. O. Uplavici (1887-1938). *Parasitology*. 1938;30:239-41.
20. Sweetland JH. Errors in bibliographic citations: A continuing problem. *Library Quarterly*. 1989;59(4): 291-304. doi:10.1086/602160.
21. Spivey CA, Wilks SE. Reference list accuracy in social work journals. *Research on Social Work Practice*. 2004;14:281-6. doi:10.1177/1049731503262131.
22. Herson P, Metoyer-Duran C. Literature reviews and inaccurate referencing: An exploratory study of academic librarians. *College & Research Libraries*. 1992;53:499-512.
23. Faunce GJ, Job RFS. The accuracy of reference lists in five experimental psychology journals. *American Psychologist*. 2001;56:829-30. doi:10.1037//0003-066X.56.10.829.
24. Trost L, Mulhall JP. Frequency of citation errors among male sexual medicine publications in high-impact urology journals. *The Journal of Urology*. 2014;191(4S):e330-e331.
25. Key JD, Roland CG. Reference accuracy in articles accepted for publication in the Archives of Physical Medicine and Rehabilitation. *Archives of Physical Medicine and Rehabilitation*. 1977 March;58:136-7.
26. Bradley JV. Pernicious publication practices. *Bulletin of the Psychonomic Society*. 1981;18:31-4.
27. MacNealy MS, Speck BW, Clements N. Publishing in technical communication journals from the successful author's point of view. *Technical communication*. 1994;41(2):240-59.
28. Onwuegbuzie AJ, Frels RK, Slate JR. Editorial: Evidence-based guidelines for avoiding the most prevalent and serious APA error in journal article submissions- the citation error. *Research in the Schools*. 2010;17(2):1-24.
29. Harinarayana NS, Chikkamanju, Vasantha Raju N. A study of citation accuracy in psychology theses submitted to the University of Mysore. *Annals of Library and Information Studies*. 2011;58(4):326-34.
30. Roach VJ, Lau TK, Ngan Kee WD. The quality of citations in major international obstetrics and gynecology journals. *American Journal of Obstetrics and Gynecology*. 1997;177(4):973-5. doi: [http://dx.doi.org/10.1016/S0002-9378\(97\)70303-X](http://dx.doi.org/10.1016/S0002-9378(97)70303-X).
31. McLellan MF, Case LD, Barnett MC. Trust, but verify. The accuracy of references in four anesthesia journals. *Anesthesiology*. 1992;77(1):185-88.