

Investigative Study about Errors in References and Citation in the Work of Students in Higher Education

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ABSTRACT

References and citations are mandatory for academic writing, however errors in referencing are common and frequent. Several studies have identified the types and numbers of errors in references, yet it is important to understand why errors persist. Using questionnaires and interviews with students and tutors, this paper reports research conducted within institutions of higher education to determine and highlight reasons for such errors.

Results from this research reveal shortcomings in the teaching of this skill, and suggest that students consider that their tutors do not guide them appropriately, whereas tutors tend to blame students for this inadequacy. Thus there is a need to revisit the pedagogy for teaching referencing skills and to make appropriate changes and remove this misunderstanding between the seekers and the providers of education.

Categories and Subject Descriptors

K.3.2 [Computer and Information Science Education]: Curriculum

H.4.m [Miscellaneous]

General Terms

Management, Documentation, Performance, Human Factors, Standardization

Keywords

References, Citations, Reference Management Software, Digital Libraries, Feedback, Pedagogy

1. INTRODUCTION

Newton said 'If I have seen further it is by standing on the shoulders of giants.' [14]. Thus existing knowledge is a stepping stone for the creation of new knowledge. For scientific research it is imperative to know, understand and build upon the existing work of others. Researchers reach the required existing knowledge by studying high quality articles in respected journals, which are currently identified as those with higher impact factors. Impact factor is a measure of the frequency with which the "average article" in a journal has been cited in a particular year or period [18]. Many other ranking procedures are also adopted and depend upon the number of times an article is cited.

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Thus it is necessary to have references and citations without errors so that these references can be accessed and high quality of research work is identified which will provide the foundation for future research. Further reasons for correct references and citations include avoiding accusations of plagiarism, providing credits for the idea and information used in an academic document, and allowing the readers of documents to access the cited information. However, literature reviews have indicated that despite the importance of correct references and citations, numerous errors exist [9, 10, 12]. The existence of erroneous references and bibliographies has been present in the past as well as in the current works of scholars and researchers. It has been found that articles published in high ranking (high impact factor) peer reviewed journals have errors in their reference lists [1], and in higher education, academic documents generated by students at both undergraduate and post graduate levels (including theses by PhD students) include errors. For example, there has been a case [5] where due to an incorrect author name the original discoverer of a diarrhea virus remained unknown for 32 years. Errors in references and citations are not specific to a certain domain of knowledge or the geographical location of researchers/students, and this is a global issue.

In this paper we report the results of research which highlights the type and frequency of errors that are encountered in academic writings. However the core issue is **why** we have these errors. We look into this fundamental question and present the results of research conducted in academic environments to establish reasons for the introduction of inaccuracies within references and citations in student work

2. RESEARCH BACKGROUND

As stated by Ziman [21], a scientific paper does not stand alone; it is embedded in the 'literature' of the subject. Thus to begin this research it is necessary to review existing literature that is pertinent to the area of investigation.

2.1 Digital Era and Referencing

The advent of the digital era has witnessed the introduction of several tools and software packages to facilitate researchers in finding, organizing and embedding references into their documents. Numerous citation databases and citation indices are available online to help researchers in finding relevant and high ranking articles. Digital libraries and next generation catalogs [3, 7, 13] hosted on web sites provide easy access to large amounts of information in the form of eBooks, eJournals, videos images and audio recordings as well as interactive contents. Thus enormous support and facilities are now available to conduct research and provide help in referencing and citation.

2.2 Problems Identified in the References and Citation for Current Scholars

Despite the facilities available, references and citations have never been easy, and get quite cumbersome at times [6]. Furthermore,

authors may, for example, hear about a reference in a conference and note the details incorrectly due to problems in hearing from a distance. Another important source for erroneous references and bibliographies consists of collections of reference data from a database that contains erroneous entries, since data in these databases are entered by humans. Other common reasons for errors stem from lack of interest by the authors or low importance for developing reference lists. Thus authors may not verify references from the actual papers/articles/books, or do not read the contents that are referred in the given document. In the worst case scenario authors may even make up fake references [6].

Due to the reasons listed above, many errors may be introduced into a paper, and common errors have been highlighted in the work of professional authors and scholars [11, 17, 19, 20]. These errors can be categorized under three main headings: inconsistent, incorrect and missing. Table 1 below indicates the types of errors that fall into these three categories.

Table 1: Errors Highlighted in Referencing and Citations

Error #	Category: Inconsistency	Category: Incorrect	Category: Missing
1	Citation present in the text but not mentioned in the reference list	Incorrect spelling for author names and title	Missing one or more author names
2	Citation present in the reference list, but does not exist in the text	Incorrect author name/s	Missing an author's middle name
3	The reference cited in the text is inconsistent with that cited in reference list, such as the name and date etc.	Incorrect date	Missing date
4	The reference cited is not consistent with the topic or opposes the point that it is supposed to support	Incorrect volume number	Missing volume number
5	Inconsistent formatting style	Incorrect page number	Missing issue number
F6		Incorrect ISBN, DOI etc.	Missing publisher
7		Incorrect citation format	Missing editors
8		Incorrect web site addresses	
9		Incorrect formatting style	

In addition to the errors mentioned in Table 1, there have been incidents reported in which citation of non-existent references has occurred. The rate of citation errors is evident in all fields of study [6] A study was conducted to determine the amount of awareness and use of accurate citation of references by the PhD students

[19]. This study indicated that every third reference in a reference list of PhD theses had errors in it. Thus this research seeks to determine reasons for inaccuracies especially in educational institutes.

3. METHODOLOGY

To conduct this research a triangulation methodology [4] was adopted. Both quantitative and qualitative tools were used to gather data. Participants in this research were students in higher education institutions and the teachers. Tools used for quantitative data collection included questionnaires, and for qualitative data collection semi-structured interviews were conducted. Standard questionnaire and interview development methods were adopted [4, 15]

Participants

699 students from higher education institutes responded to the questionnaire while 21 staff members chose to answer the questionnaire developed for them. Distributions of the numbers of students and their domains of knowledge are shown in Figure 1.

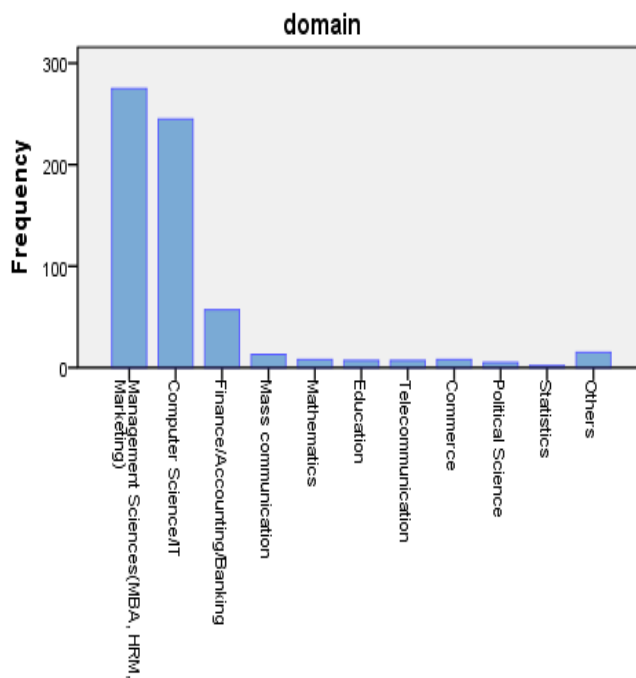


Figure 1: Distribution of students and their Domain of Knowledge Distribution of teachers according to the subject taught by them is provided in Figure 2 below.

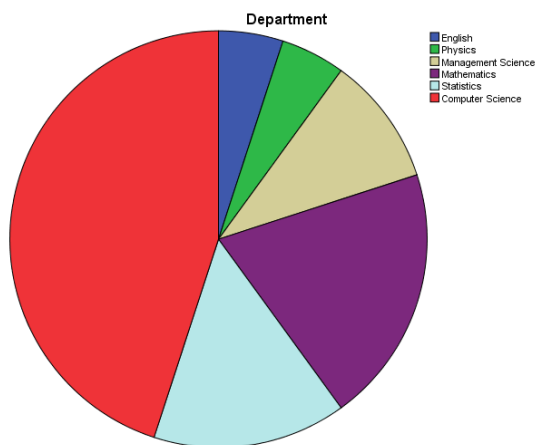


Figure 2: Teachers – domain of knowledge Distribution

The number of participants for the interviews was 11 and comprised 9 students and 2 staff.

4. ANALYSIS

Academic institutions (schools, colleges, universities etc.) aspire to produce skilled individuals. These individuals are expected to be equipped with all the necessary knowledge and practice to face challenges in their practical life [2, 16]. Since inaccuracies in referencing are predominantly significant among the professional scholars and authors it is necessary to determine how this skill is being imparted to them in educational institutes and what the level of comprehension of the students is in this regard. For this we analyzed the data collected from students and teachers and this is presented in the following sub sections.

4.1 Students

4.1.1. Perception and Understanding of Referencing Skills by the Students

Questions were put to students both in the questionnaire as well as during interviews to gauge their understanding and perception of referencing tasks. In the questionnaire a total of six questions were asked of the students to determine their understanding of the practices of references and citations. From the analysis it was found that 38.6% of the students did not know the meaning of the terms “reference” and “citation”. A substantial percentage of the students, i.e. more than 40%, are not clear about the purposes of references and citation. Statistical tests (including chi-square tests) revealed that such perceptions by students are mostly independent of the subject and level of education. Furthermore 43% of the respondents stated that they had never used references and citations in their coursework. This alone is an alarming statistic as all these students are at various level of education in their respective universities, and indicates that staff members or curriculum developers are ignoring this aspect of skill development. However those who did use references and citations in their work seem to deem this activity as important. The interesting information from the above data is the number of students who are never asked to perform this. Hence our next probe was how the knowledge of this skill was being imparted to the students.

4.1.2 Teaching References and Citations Skill

In order to look into this aspect questions were put both through questionnaires and interviews. In the questionnaire we asked

students if they had ever attended any academic writing course or workshop/session. More than 63% of the students stated they had never attended any session/workshop or course in this regard. This information alone is sufficient to highlight the fact that educational institutes are lacking in equipping their students with the necessary skills of referencing and citation. Furthermore a chi-square test indicates that the number of training sessions attended is not dependent on level of education, whereas the number of training sessions received by the students is dependent on domain of knowledge — i.e. the value of chi-square is 8.649 ($p < 0.013$) at $df = 2$.

Out of 699 students, 490 students responded to the question of how much feedback was received from their tutors/staff members. Nearly 50% of the students stated that they did not receive such feedback, indicating a severe shortage of attention given to this task.

4.1.3 Utilization of Technical Support

As discussed earlier reference management software and other tools are available to facilitate the management and generation of references. Some of these systems are free and can easily be used by students. However from the responses received it was found that 56.2% of the students were not aware about the existence of reference management software. Thus a gap exists between the existence of such tools and awareness of tools among students at higher level of education. Only 36% of the students stated that they have used reference management software,

Interviews with the students indicated that none of the students at Masters level used reference management software whereas the majority of PhD students do use this software. This indicates that that software is not being fully utilized by the students of higher education.

4.1.4 Problems while Referencing

The majority of the participants stated that referencing and citations is a difficult and cumbersome task but it has to be done.

Upon asking about the problems faced during referencing, participants highlight the following issues.

1. Difficulty finding page numbers or volume number of the journal for a certain article — especially when the referencing information is taken from online sources
2. A source that is relevant to the topic does not have a enough credentials to be cited, thus the issue occurs of whether or not to cite it
3. Problems managing time as this activity is done at the end
4. Difficulty finding sources that are in different languages
5. Problems with learning, how to cite archives etc.
6. Problems in formatting because it is difficult to remember how to format
7. Difficulty formatting references that are copied from different web pages and are in different formats
8. Organization of documents for referencing is difficult

The type of guidance required includes guidance about proper formatting for citations and references, and guidance on where to search for relevant material. Masters level students wished their teacher would have provided information about some existing software for referencing/citations. They further wished that their tutors would guide them about the things they do incorrectly.

4.2. TEACHERS

4.2.1 *Teachers' Perspective on Students Referencing Skills*

The preceding sections highlight students' views and experience regarding references and citations. Since teachers form one of the major stakeholders in a teaching environment, they were approached through questionnaires and interviews to gain a deeper understanding of the causes of inaccuracies among the reference lists of students. The majority of teachers rejected the notion that referencing is a difficult task for students or that students do not have sufficient resources to do referencing. More than 50% of participants in the staff questionnaire stated that students do not consider this activity as an important one, and this fact was further elaborated by tutors during interview as they stated that students leave referencing as a last minute task as the priority of this task is lower than the contents of the assignments. Another reason provided was that students think that no one will read their list. or "Some students see no need for it, hence they just copy and paste it from the internet" because (as per interviewee 2) "they copy and then get away with it". The majority of the teachers also endorsed the information that there are very few training sessions for teaching this skill. From the responses it was clear that tutors do not pay attention to the referencing task of their students since they were not aware about the various types and frequencies of errors made by students. Students rarely consulted their teacher regarding this task except to know about the number of references needed and the grades they may get for this work. Hence a response from this enquiry indicates that the quality of references is compromised due to its priority level being low (as perceived by the students). Furthermore, motivation for this task is not fully understood by the students hence either they think it is not worth it or they seek benefits such as grades for this task. Therefore (as per interviewee 2), the true spirit of referencing is absent from today's students.

4.2.2 *Teachers' Perspective on Methods of Teaching Referencing Skill.*

As seen above, tutors are of the view that students do not think it is important, therefore the next question is then what methods are adopted to teach this skill that lead to such sentiments and attitudes of students toward referencing and citations. During interviews with the teachers, interviewee 1 stated that in their course ('Academic Writing Skills') they devote an entire seminar on referencing skills and teach them its importance as well as provide them with a sample referencing sheet that indicates how various types of references can be cited — thus this knowledge is formally provided to them. Interviewee 2 stated that during their modules teachers do encourage students to do referencing and provide guidance material to them — but they further stated that "it does not mean they will follow it".

In terms of grading this activity, interviewee 1 stated that they do grade this work as it is part of their course. They were satisfied with the grading mechanism and thought it was quite comprehensive. Interviewee 2 said that in *Computer Science* there are no separate grades for referencing. In their opinion "it does not make any sense", because referencing is a part of the solution — hence collective grades are given for "the entire solution provided by the students". No separate marks are allocated for referencing. Interviewee 2 further emphasized the fact that they are not really in the favor of providing grades for referencing

tasks. Responses from the staff questionnaire support this fact since 42.8% of the staff stated that they provide grades for the task of referencing 'very'/'quite often', while 57.1% of the teachers stated that they either provide grades 'occasionally' or 'never'.

Feedback is an important component in teaching a concept, hence we asked our participants 'Do they provide any feedback to the students?' Both interviewees stated they do provide feedback. However their mechanism for providing feedback varied a little. For the course of 'Academic Writing Skills', Interviewee 1 stated that for the first assignment in particular, they look at the references very closely and give students feedback as notes on their returned assignment documents — but it is discouraging the next time that students have the same errors in their reference list. They said that they also have a feedback form on which students are informed about their mistakes including references along with the grades. In their opinion, students either do not look at the feedback, or they look at the feedback but forget about it next time they do referencing. Interviewee 2 stated that they provide feedback to the students while discussing their work with them. They stated that they try to guide students about referencing so that they 'do a better job next time'. Interviewee 2 mostly asked their students about the academics papers they have cited and what are the primary sources for information. Interestingly, interviewee 2 does not think reference styles are of any importance and thus does not advocate adherence to the styles. Responses from the questionnaire were in-line with those from the student questionnaire as 57.1% of the staff members stated that they provide feedback 'very'/'quite often', while 42.9% stated that they provide feedback 'occasionally'/'very seldom'. These responses indicate that more than 40% of the higher education students are not regularly provided with feedback about referencing.

Interviewee 2 thought that there is always room for improvement in teaching references. Students should be taught the ethical and moral obligations for referencing as a motivation factor instead of providing them incentive with grades.

4.2.3 *Teacher Perspective on Utilization of eResources for Education of Referencing Skills*

As discussed above, several software tools and electronic contents are available online to facilitate education of references and citations, the most prominent being reference management software. However information from students has revealed that the majority of students are not using this facility, therefore we inquired about the role and influence of teacher in creating awareness about this software system. Questionnaires indicated that 35.7% of the teachers think that students use reference management software quite often, and only 21.4% of the teachers stated that they guide their students use reference management software quite often. Hence responses to the staff questionnaire indicated that the majority of teachers do not encourage students in this regard. This information is verified by the response of teachers during interviews, Interviewee 2 stated that they does not know if his students use this software, he further stated that he never asked their students use it. Interviewee 1 was also of the opinion that using reference management software is a complicated task for the students. Interviews with students had indicated that the academic writing skill courses do not inform them about any reference management software. Interviewee 1 further stated that even they have never used such software to build their own reference lists and bibliographies. Data from

questionnaires indicates that about 50% of teachers do not themselves use these systems for referencing. This indicates that teachers do not guide students to use these tools and perhaps they themselves refrain from using them — as stated by interviewee 1 “there are errors and complications in using such tools”. Regarding access to other online material for teaching referencing skills 50% of participants of the staff questionnaires stated that they do not refer students to these online facilities.

This aspect highlights a very important point and that is that teachers are not using electronic and online facilities to impart the knowledge of referencing. There is a need to work on this aspect. Universities and colleges should look into these shortcomings and help their students in becoming proficient in referencing.

5. DISCUSSION

Analysis of the data from the teachers and students have raised important points regarding the way the subject of references and citations is being taught in higher education institutes. First and foremost is the perception by the students and teachers. Students are of the view that although students think this task is important their teachers do not consider this to be so. This is an important point since students learn a lot through observation and reactions/gestures of their teachers. Reasons for this impression can be inferred to be due to the lack of training sessions or tutorial for referencing, lack of feedback on this task by their teacher and most importantly lack of grades provided for this activity. The perception of the teachers on the other hand is that students do not consider it to be an important work and leave it as a last minute activity. They think that students do not want to read others’ work and thus just copy past the references from internet or others sources without reading them.

The above perceptions by the students and teachers are based on sound reasons. At the same time the reality is that there are errors in referencing and citations among the work of students in higher education, and the perceptions are the symptoms of the root problem. The problems are that students are not sensitized to this task. There are very few training session for referencing skills and students generally have these session at the start of their degree program. After that session these skills are not reinforced by their tutors who teach other modules. Students do not get sufficient (or any) feedback on their references by their teachers. This indicates lack of interest of the teachers in higher education to referencing. Teachers, especially in the technical subject do not provide grades for this activity. For students a real incentive is grades since grades as per their perception leads to better jobs and brighter future. There is a school of thought that denounce the mechanism of grades [8] though mostly this is what students want.

Thus the contents for teaching this skill need to be improved. Students and teachers, during interview sessions, have highlighted the way a session for referencing is conducted during their academic writing skill program. Students are provided with the sheets containing the template of formats for referencing books, articles journals etc but they are not informed about the reference styles and why it is important. Furthermore use of technological advances in the subject of references and citations are mostly not forwarded to the students of undergraduate or Master levels. Students wish that their teachers guide them to these facilities i.e. reference management software, digital libraries, next generation catalogs. An interesting point discovered during this research was that 50% of the teachers do not venture to use these tools and thus they do not advocate them to their students. Students who do use

reference management software complain about errors that seep into their references due to the issues with the referencing databases and management software.

Through this research we have also come to know that staff members do not have sufficient time to provide feedback and guidance on each reference in a reference list. Therefore they browse the list and may provide comments on the formatting of the list. This indicates that teachers need support in providing feedback on students’ work. Furthermore teachers should be sensitized about referencing so that they start are better able to inculcate the importance of referencing in their students’ minds.

As stated earlier, references and citations are the essential components in the building of knowledge. However the frequency of errors is numerous. This indicates that even if they ever received any training during their academic tenure they were not able to fully retain it. Due to the importance of this activity, special measures need to be taken to increase the retention power of students for references and citations.

6. CONCLUSION

Since educational institutes are the training ground for scholars, a comprehensive and thorough training needs to be imparted to the students for referencing, and doing so will ensure that the future knowledge is based on sound footing. With a greater number of accurate references, bibliometric measures such as impact factors of journals and ranking of articles will yield better results. Thus we need to improve the pedagogy for this skill to overcome all the shortcomings highlighted during this research work and utilize software tools and services available in the market to take full benefit of the advances in the field of computer and information system.

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8. REFERENCES

- [1]. Al-Benna, S., Rajgarhia, P., Ahmed, S. and Sheikh, Z. 2009. Accuracy of references in burns journals. *Burns*, **35**(5), pp. 677-680
- [2]. Bowen, W. M. and Schwartz, M. 2005. *The Chief Purpose Of Universities: Academic Discourse And The Diversity Of Ideas (Mellen Studies in Education)*. Lewiston :E. Mellen Press.
- [3]. Christensen, A. 2013. Next-generation catalogues: what do users think? [Online]. (URL <http://www.univie.ac.at/voeb/blog/?p=28384>). In: Chambers, S., ed. *Catalogue 2.0. The future of the library catalogue*, Facet Publishing. CH 1, Accessed on 20/11/2013
- [4]. Cohen, L., Morian, L. and Morrison, K. 2007. *Research Methods in Education*. 6th Ed. New York: Routledge.
- [5]. Garfield, E. (1970). Citation Indexing for Studying Science. *Essays of an Information Scientist*, **1**, pp. 133-138

- [6]. Garfield, E. 1990. Journal Editors Awaken to the Impact of Citation Errors. How We Control them at ISI. *Essays of an Information Scientist*, **13**, pp. 367-375.
- [7]. Gilmour, R. and Cobus-Kuo, L. 2011. Reference Management Software: a Comparative Analysis of Four Products. [Online]. (URL <http://www.istl.org/11-summer/refereed2.html>). *Issues in Science and Technology Librarianship*, Accessed on 20/11/2013.
- [8]. Guskey, T. R. 2011. Five Obstacles to Grading Reform, *Effective Grading Practices*, **69**(3), pp. 16-21
- [9]. Harinarayana, N., Chikkamanju, S. and Vasantha, R. N. 2011. A study of citation accuracy in psychology theses submitted to the University of Mysore. *Annals of library and information study*, **58**, pp. 326-334.
- [10]. Harzing, AW. 2002. Are our referencing errors undermining our scholarship and credibility? The case of expatriate failure rates. *Journal of Organizational Behavior*, **23**(1), pp. 127-148.
- [11]. Kendall, M. 2005. Tackling student referencing errors through an online tutorial. *Aslib Proceedings*, **57**(2), pp. 131-145.
- [12]. Lee, D., Kang J., Mitra, P., Giles. C. L., and On, BW. 2007. Are your Citations Clean? *COMMUNICATIONS OF THE ACM*, **50**(12), pp. 33-38.
- [13]. Markey, k. 2007. The Online Library Catalog Paradise Lost and Paradise Regained? [Online] (URL <http://www.dlib.org/dlib/january07/markey/01markey.html>). *D-Lib Magazine*, **13**(1-2), Accessed on 22/9/2013.
- [14]. Maury, JP. 1992. *Newton: Understanding the Cosmos (New Horizons)*. London: Thames & Hudson.
- [15]. Radhakrishna, R. B. 2007. Tips for Developing and Testing Questionnaires/Instruments. [Online]. (URL <http://www.joe.org/joe/2007february/tt2.php>). *Journal of Extension*, **45**(1), Accessed on 20/11/2013.
- [16]. Ryan, K. and Cooper, J. M. 2010. *Those Who Can, Teach*. 12th Ed. Boston: Wadsworth Cengage Learning.
- [17]. Sweetland, J. H. 1989. Errors in bibliographic citations: A continuing problem. *The Library Quarterly*, **59**(4), pp. 291-304.
- [18]. Thomson Reuter (2014). The Thomson Reuters Impact Factor. [Online]. (URL <http://wokinfo.com/essays/impact-factor/>). Accessed on 10/01/2014.
- [19]. Waytowich, V. L., Onwuegbuzie, A. J. and Jiao, Q. G. 2006. Characteristics of doctoral students who commit citation errors. *Library Review*, **55**(3), pp. 195-208.
- [20]. Wright, M. and Armstrong, J. S. 2008. The Ombudsman: Verification of Citations: Fawltly Towers of knowledge. *Interfaces*, **38**(2), pp. 125-139.
- [21]. Ziman, J. M. 1968. *Public knowledge: an essay concerning social dimension of science*. Cambridge: Cambridge University Press.