

Collaboration in publication a study of collaboration rates and citation rates

[Business](#)



Abstract

This paper looks at scholar collaboration and how it affects the quality of authored journals. The impact of collaboration will be measured in terms of citations received by the six journals. For the purpose of this research, citations will serve as endorsements by other researchers. This research analyses six journal articles by measuring the number of citations received by each article and then drawing conclusions depending on the outcome by answering the research questions. The findings reveal that there is a positive relationship between collaborations and the number of citations a journal article receives.

Introduction

Scientific research is increasingly becoming collaborative in nature because collaboration is an essential facet of scientific research. The magnitude and nature of collaborations often vary in different disciplines depending on factors like the environment of the research, research problem and the demographic factors. Napoli & Aslama (2011, p. 86) claims that there is a positive correlation between collaboration and production in research and between research collaboration and financial support. This paper looks at the rate of collaboration in six journals, assesses whether there is a significant difference in quality of research and then finishes by assessing whether the pattern of collaboration has changed over time.

Literature Review

International Workshop on Groupware et al (2010, p. 33) define scientific collaboration as researchers working together as a unit to achieve a common objective of generating new scientific knowledge. Collaboration is important to the scientists as it helps them in sharing workloads, generating new ideas and combining their experiences and skills. These are the basic reasons why scientists collaborate although it is never easy because collaboration comes with some difficulties like seeking for proper research partners, negotiating the objectives of research, which methodologies to use, the final results, cultural differences, managing communication among different organizations, distance constraints among others (Anandarajan & Anandarajan, 2010, p. 41 and Bessant, & Venables, 2008, p. 97). Researchers are increasingly starting to pay close attention to the performance of research and its determinants. Collaboration stands out as a determinant factor for researchers that want to achieve better quality output. Many researchers agree that collaborative research generates better quality and significant results compared to the ones carried out by single researchers. These researchers are motivated by the assumption that synergy generates better results, and that is why organizations and other financiers prefer to support collaborative research. Arden (2010, p. 66) claims that this happens because each researcher comes with his knowledge and the diversity of collaboration acts as an extra resource that reinforces the quality of research.

Various bibliometric studies exploring the relationship between collaboration and research performance reveal that collaboration is positively correlated to higher productivity. This is also supported by Pardede (2011, p. 47) who notes that there is a positive relationship between cardinality of the author

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set and peer quality and citation impact of the research. Other studies by Valentine et al (2009, p. 45) equally reveal the same relationship as they corroborate that there is a positive relationship between research collaboration and peer quality of the research. The practice of collaboration particularly international collaboration is increasingly becoming popular among scholars (Niedergassel 2011, p. 44 and International Conference on Knowledge Management, et al 2010, p. 73). This explains why the number of journals with international collaborations is increasing exponentially. The increase is an indication that co-authorship is an important facet of an ideal working environment and is receiving support from policy makers and other financiers. Ekins, Hupcey, & Williams (2011, p101) assert that the number of documents and citations has a positive correlation to the extent of international collaboration by a researcher. This paper analyses six journal articles by measuring the number of citations received by each article and then drawing conclusions depending on the outcome by answering the following questions:

Is there a significantly different rate of collaborative work amongst different journals

Is there a significant difference in quality of research (as measured by the number of citations) set against number of collaborators

Has the pattern of collaboration changed over time

Methodology

Data collection

In order to investigate the above relationships, this research analyses the six journal articles produced by different authors in 2009 and 2012. Six journal articles are a small sample, so the search was manually done on Google Scholar. The journals were picked at random in order to eliminate any form of bias in the final results. Different aspects of the articles were recorded like the number of authors, number of citations, and the year of publication. Once the data is collected, it was then used to answer the research questions. The six journal articles are listed below as follows:

(Journal A). Zhong-Zhi Bai & Jun-Feng Yin 2009. Modified incomplete orthogonal factorization methods using Givens rotations. Springer-Verlag

(Journal B) Lili Sun, Jian Li & Lijuan Wang 2012. Electromagnetic interference shielding material from electroless copper plating on birch veneer. Springer-Verlag

(Journal C) Isar Nejadgholi, Seyyed Ali Seyyedsalehi & Sylvain Chartier, 2012. A Chaotic Feature Extracting BAM and Its Application in Implementing Memory Search. Springer Science+Business Media

(Journal D) Panda · S. Saha · M. Basu, 2009. Optimal production stopping time for perishable products with ramp-type quadratic demand dependent production and setup cost. Springer Verlag

(Journal E) Kanjilal · S. Saha 2009. Electric field distribution and simulation of avalanche formation due to the passage of heavy ions in a parallel grid avalanche counter. Pranama Journal of Physics

(Journal F) Md R Islam*, S Saha, N B Manik and A N Basu 2012. Transient current study in safranin-T dye based organic photo-electrochemical cell

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using exponentially distributed trap assisted charge transport model. Indian Journal of Physics

Research Findings

Table of findings

JOURNALABCDEF

YEAR OF PUBLICATION

2009

2012

2012

2009

2009

2012

NUMBER OF AUTHORS

2

3

3

3

2

4

NUMBER OF CITATIONS

4

1

1

10

0

1

Analysis

Question 1

Is there a significantly different rate of collaborative work amongst different journals

Solution

The findings reveal that there is no significant different rate of collaborative work amongst the six different journals. Three journals have been authored by three authors each, whereas the sixth journal has four authors. The remaining two journals have two authors each. The sample reveals most of the authors preferred working in groups of three. In terms of geographical locations, the authors preferred to work with researchers from the same

geographical locations. Article C all the authors are from Canada, in A and B they are all from China, in D, F and E they are all from India.

Question 2.

Is there a significant difference in quality of research (as measured by number of citations) set against number of collaborators?

Solution

There is a significant difference in quality of research when measured by the number of citations. One article with two authors got 4 citations and it was published in 2009, the other one published in the same year with the same number of authors got 0 citations. The other article published in 2009 has 3 authors and higher citation rate of 10. Two of the remaining articles were both published in 2012 and both have three authors and one citation each. The last article published in the same year has 4 authors and 1 citation. Going by the findings when the number of authors is the same the articles tend to have the same number of citations but when the number of authors differs, then the number of citations also differ. The citations of 2009 were higher for the article with 3 authors by a margin of 6 citations. This implies that article D was of a higher research value than article A and E. article B & C both have the same number of authors and citations but lower than both A and D. The difference between the two sets of years in terms of citations is partly because the 2012 articles are very recent and as such very little or no research has been published on the same topic after they were published. However, the trend is clear in 2009 because article D got more reviews than article A and E. This is an indication that researchers prefer using

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publications with more authors compared to the ones with a single or two authors (Becerra-Fernandez & Leidner, 2008, p. 47).

Question 3

Has the pattern of collaboration changed over time

Solution

The sample indicates that the pattern of collaboration has changed over time. In the year 2009, two journals were authored by two authors and the other one was authored by three authors. In 2012, the situation was different as two journals were authored by three authors and the other one by 4 authors. This indicates a change in the pattern of collaboration as researchers seem to like working in groups of three and above in 2012 which is slightly different to 2009 where some preferred to work in a group of two. This can be attributed to the fact that articles with more collaboration attract more citations as is evidenced by the difference in citations between article A and D.

Conclusion

The research findings reveal a positive relationship between collaboration in research and citation impact. The articles with fewer authors seem to get less citation compared to the ones with more citations. When the articles had a different number of authors in 2009, the article with more authors got more citations. In 2012, the articles had the same number of authors and citations meaning that when the number of authors is the same then the quality of research is considered as being equal. Additionally, there is an

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increase in the number of authors collaborating in research from the year 2009 to 2012 implying that more authors have started to appreciate the importance of collaboration in research.

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