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Does collaborative research published in top journals remain uncited?

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Edizioni **Efesto**



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PROCEEDINGS OF THE 17TH CONFERENCE OF THE INTERNATIONAL SOCIETY FOR SCIENTOMETRICS AND INFORMETRICS

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INTRODUCTION TO THE ISSI2019 CONFERENCE PROCEEDINGS

The 17th International Conference of the International Society for Scientometrics and Informetrics (ISSI2019) is held on 2-5 September 2019 in Rome, and is hosted by the Sapienza University of Rome. It is a major event with participants from 44 countries from all global regions.

The conference includes a special STI Indicators Conference Track organized in collaboration with the European Network of Indicator Designers (ENID). In this way, ISSI2019 represents a first experiment to bring together the two conferences in a particular year.

In a first round, around 420 submissions were made of full papers and research-in-progress papers. After an extensive peer review process, thoroughly conducted by over 200 reviewers, some 260 submissions were accepted for oral presentation, while the authors of another 80 submissions were invited to present their paper as a poster. Of these 80, about 60 per cent accepted this invitation. A second round of poster submissions was held, resulting in some 130 new poster submissions.

In the final acceptance decision, apart from the reviewer judgments, two additional rules were applied: for oral presentations of papers a one-presentation-per-presenter rule, and for papers and posters the rule that all contributions must be included in the conference proceedings. All in all, the Conference Proceedings contain 261 oral presentations of accepted papers, and 156 poster presentations.

The Conference Proceedings consist of four parts:

- » Table of contents
- » Keynotes
- » Papers (full papers and research-in-progress)
- » Posters
- » Author Index

Papers and posters are ordered by their submission number in EasyChair. The Author Index includes both the first author and co-authors of each indexed contribution. For each name, a list is given of the initial page numbers (in the conference proceedings) of the presented contributions.

Although the overwhelming part of the papers and posters comply with the format specified in advance on the conference website, there are several cases in which the final version sent by the authors does not have this prescribed format. To maximize the information content and usefulness of our conference proceedings, we decided to include such versions with deviant formats as well.

We first of all wish to thank the Magnifico Rettore of the Sapienza University of Rome, Prof. Eugenio Gaudio, and his university staff to make the university infrastructure available for the organization of this conference. Next, we thank all authors for their submissions, and the members of the Scientific Committee for their efforts in the peer review process. Special thanks go to all Committees and Program Committee members. In particular, we acknowledge Cassidy Sugimoto for the organization of the Doctoral Forum, Jacqueline Leta for the organization of the Poster sessions, Ed Noyons for his contribution to the organization of the Special STI-ENID Track, and Kevin Boyack for his collaboration to the Workshops and Tutorials organization. We wish to thank our Sponsors for their support that made an important contribution to the organization of this conference. Last but not least, we are grateful to Martina Gregori for her enormous efforts in the technical editing process of these Conference Proceedings and to Riccardo Cervelli for his contribution to the creation of the Author Index.

On behalf of the organizers and co-program Chairs of ISSI2019, Giuseppe Catalano, Cinzia Daraio and Giancarlo Ruocco,

Henk F. Moed
Program Chair ISSI2019

Does collaborative research published in top journals remain uncited?

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Abstract

This paper investigates whether collaborative research published in top journals remains uncited, and to what extent access type (open and closed) affects on citation of collaborative research published in top journals. It looks at publications including articles, conference papers, reviews, short surveys, editorials, letters, notes published between 2009-2016 with an affiliation from Chalmers University of Technology and indexed in Scopus. To give enough time to gather citation, two-year time frame is considered for the publication of the year 2016. The data is classified based on access types: closed and open access, and sub-classified as cited closed access, cited open access, non-cited closed access, and non-cited open access in SciVal. The top 25 percentile indicating the number of journals that are in the top 25% of the most cited journals indexed by Scopus is considered. The result shows that a small portion of collaborative research published in top journals remain uncited irrespective of types of collaboration. In case of international collaborative research, publications in closed access are more cited than in open access. Institutional collaborative research publications are more cited than national collaborative ones. Collaborative research is more cited than single authors' publications and single authored conference papers published in the top percentile do not remain uncited.

Introduction

It is obvious that researchers would be happy to receive a citation instead of simply publishing. Some academic publications receive citation immediately after publication, while some are cited within 2-5 years, and some are never cited, and the percentage of non-cited publications vary by discipline (Burrell, 2002; Hu, Wu, & Sun, 2018; Liang, Zhong, & Rousseau, 2015; Van Noorden, 2017) and document types i.e. articles, conference papers, review articles, letters, and notes (Cano & Lind, 1991) book, book chapters, etc. (Bott & Hargens, 1991). Non-cited publication neither mean that there is no chance of being cited in the future, nor that the publication has never been read. Some publications may take many years to be recognized and to receive citations (Braun, Glänzel, & Schubert, 2010; Ke, Ferrara, Radicchi, & Flammini, 2015; van Raan, 2004, 2017; Zong, Liu, & Fang, 2018). If a publication is not cited in a citation database, for example, Scopus or Web of Science, it does not mean that it is uncited. It could be cited and available in other places, for example, google scholar. Simultaneously, it could be possible that a publication was uncited while the data was retrieved (Liang et al., 2015). Concurrently, funding agencies, promotion and recruitment committees use citation data to evaluate a researcher in addition to peer review evaluation (Meho, 2007) as well as the university ranking organizations (Waltman et al., 2012).

High quality research receive more citation than low quality research (Meho, 2007; van Raan, Visser, Van Leeuwen, & van Wijk, 2003). There are several factors like number of authors, title words, keywords, number of references, journal age, price, etc. that influence a publication being cited (Stern, 1990). Poor knowledge, lack of original contents, late discovery, bibliographic plagiarism, academic misconduct, etc. are listed by Garfield (1991) as reasons for a publication to remain uncited. Rousseau (1992) observes that multi-authored publications receive more citation than single authored ones. Journal impact factor, journal's age, average number of references per paper, number of issues of a journal also have influence on citation (Hu et al., 2018). On the other hand, it is quite common that many renowned scientists including Nobel laureates have uncited publications (Egghe, Guns, & Rousseau, 2011). Different number

of citations for different publications of a single author indicates the varying quality of the publications (Burrell, 2012).

Publication with international collaboration (international co-authorship) receives higher citation than national collaboration (single country inter-institutional co-authorship), and two times higher than institutional collaboration (single-country single-institution co-authorship) (Narin, Stevens, & Whitlow, 1991; Smith, Weinberger, Bruna, & Allesina, 2014). There is influence of the publication and collaboration habits in the different field (Coccia & Wang, 2016) and research productivity is influenced by the collaboration habits (Abramo, D'Angelo, & Di Costa, 2019). As far our knowledge, citation rate of collaborative research published in the top journals and effect of access types of those publications in receiving citation are still unexplored. Therefore, collaborative research published in top journals remain uncited or not is a legitimate object of research. Hence, we explored two research questions:

- i) To what extent collaborative research published in top journals remained uncited?
- ii) To what extent access type (closed and open) affected citation of collaborative research published in top journals?

Data and method

As a test case, we considered Chalmers University of Technology's (here after Chalmers) publications that were indexed in Scopus database. Chalmers conducts research in technology, science, architecture and maritime engineering. On an average, around 2200 peer reviewed publications contributed by Chalmers scholars per year were indexed by Scopus. The publications considered here, more specifically, were articles, conference papers, reviews, short surveys, editorials, letters, notes that were published in an 8-year window (2009-2016). The publication year 2017 and 2018 were not included to give enough time to gather citation for the publications of the last year (2016) considered. We downloaded the data with Scopus's own digital identifiers known as EID. As SciVal produces bibliometric analysis based on Scopus, we limited our dataset to Scopus only.

We found 17917 publications with Chalmers affiliation during the 8-years window. The data set was further classified based on number of times a publication has received citation. If a publication received at least one citation (including self-citation), we classified it as cited, otherwise non-cited. In addition, we also classified based on access types, i.e. open access and closed access. Altogether, we created four publication data set namely, cited closed access, cited open access, non-cited closed access, and non-cited open access using the corresponding EIDs (Table 1).

We explored the collaboration types as it indicates the extent to which a publication is of international, national or institutional co-authorship, and single authorship. When at least two authors from two different organizations co-authored in an article, we considered it as a collaboration. In the case of single authorship, we considered no collaboration even the author might have two affiliations. We used the default set up of SciVal to handle our data set for calculating collaboration.

For further analysis, we put articles, reviews, editorials and short surveys in one cluster and the conference papers in another cluster (see Table 2). We created these two-clusters due to default set up of SciVal for benchmarking. The first cluster covered the major documents types (excluding letter and note) and the second cluster covered all the conference papers.

Table 1 Publication profile of Chalmers University of Technology from 2009 – 2016 in Scopus.

<i>Document type</i>	<i>Closed access</i>	<i>Cited</i>		<i>Total</i>	<i>Non-cited</i>		<i>Grand Total</i>
		<i>Open Access</i>			<i>Closed access</i>	<i>Open Access</i>	
	<i>a</i>	<i>b</i>	<i>c = a + b</i>	<i>d</i>	<i>e</i>	<i>f = d + e</i>	<i>g = c + f</i>
Article	8054 (74%)	2387 (21%)	10441 (95%)	423 (4%)	81 (1%)	504 (5%)	10945
Conference Paper	4214 (67%)	327 (5%)	4541 (72%)	1659 (26%)	99 (2%)	1758 (28%)	6299
Editorial	28 (19%)	21 (14%)	49 (34%)	63 (43%)	34 (23%)	97 (66%)	146
Letter	19 (56%)	9 (26%)	28 (82%)	4 (12%)	2 (6%)	6 (18%)	34
Note	22 (42%)	16 (30%)	38 (72%)	11 (21%)	4 (8%)	15 (28%)	53
Review	286 (69%)	107 (26%)	393 (95%)	19 (5%)	–	19 (5%)	412
Short Survey	14 (50%)	12 (43%)	26 (93%)	2 (7%)	–	2 (7%)	28
Grand total	12637 (71%)	2879 (16%)	15516 (87%)	2181 (12%)	220 (1%)	2401 (13%)	17917

This default cluster in SciVal is one of the limitations to not include letters and notes for this investigation while calculating collaboration. To cover this limitation, we considered all the document types (all publication in SciVal) too as a part of analysis to see how the entire set of data responded in the analysis.

The publications in top journal percentiles indicates the number of publications that have been published in the world's top journals (the most-cited journals indexed by Scopus database). Here, we considered the top 25 percentile that indicates the number of journals that are in the top 25% of the most cited journals indexed by Scopus. In SciVal, we can also find top 1%, 5% and 10% journal percentile. The top 25 percentile covers all the share of the top percentiles. Therefore, the focus was given on only the journals that are in the top 25 percentile where Chalmers has publications.

The most-cited journals are defined by the journal metrics that have a CiteScore percentile (using citation data from the Scopus database to rank journals), SNIP (Source-Normalized Impact per Paper) or SJR (SCImago Journal Rank) (Elsevier, 2018). Fields with low citation numbers are penalised in CiteScore and SJR ranks publications by weighted citations per document and weighting depends on subject field and prestige of the citing publications. (Elsevier, 2018). While “SNIP corrects for differences in citation practices between scientific fields, thereby allowing for more accurate between-field comparisons of citation impact” – stated by the Centre for Science and Technology Studies (CWTS, 2019). Therefore, we choose SNIP value for retrieving data as we focused on the top 25 percentile journals. We analysed the data based on international collaboration, national collaboration, institutional collaboration and single authorship. A publication could fall in international collaboration, national collaboration, institutional collaboration through its affiliation.

Table 2 Comparison between publications in the top 25 percentile journals and collaboration.

Category	Cluster 1: Articles, reviews, editorials, short surveys					Cluster 2: Conference papers				
	Top 25% of Scopus Source	International Collaboration	National Collaboration	Institutional Collaboration	Single author	Top 25% of Scopus Source	International Collaboration	National Collaboration	Institutional Collaboration	Single author
All publications	8199 (95%)	4704 (57%)	1361 (17%)	1760 (22%)	374 (5%)	419 (5%)	168 (40%)	113 (27%)	128 (31%)	10 (2%)
Cited	7998 (98%)	4591 (56%)	1336 (17%)	1731 (22%)	340 (4%)	382 (91%)	153 (37%)	104 (25%)	115 (27%)	10 (2.4%)
Cited closed access	6108 (74%)	3257 (40%)	1071 (13%)	1509 (18%)	271 (3%)	303 (72%)	139 (33%)	68 (16%)	87 (21%)	9 (2%)
Cited open access	1890 (23%)	1334 (16%)	265 (3%)	222 (3%)	69 (0.8%)	79 (19%)	14 (3%)	36 (9%)	28 (7%)	1 (0.2%)
Non-cited	201 (2%)	113 (1%)	25 (0.3%)	29 (0.3%)	34 (0.4%)	37 (9%)	15 (4%)	9 (2%)	13 (3%)	0
Non-cited closed access	156 (2%)	87 (1%)	19 (0.2%)	25 (0.3%)	25 (0.3%)	28 (7%)	15 (4%)	3 (0.7%)	10 (2%)	0
Non-cited open access	45 (0.5%)	26 (0.3%)	6 (0.07%)	4 (0.05%)	30 (0.1%)	9 (2%)	0	6 (1%)	3 (0.7%)	0

Further, we classified all the publications that fall in the top 25 percentile of the Scopus source in two major categories: cited and non-cited, and both the categories were sub-categorised as closed access and open access (Table 2).

Analysis and Results

We found 15516 (87%) publications with at least one citation (including self-citation) whereas 2401 (13%) publications remained uncited from a range of 2 to 9 years (see Table 1). Articles (95%), reviews (95%) and short surveys (93%) were mostly cited. Closed access (71%) publications were more cited than the open access (16%) publications, while in the case of non-cited publication, open access publications (1%) were less than the closed access (12%) publications. A small percentage (5%) of the articles did not received citation while it is 28% for the conference papers, editorials (66%), letters (18%), notes (28%), reviews (5%), short surveys (7%). Other than editorials, the larger share of cited and non-cited publications were published as closed access.

A larger share of conference papers (28%) remained uncited where the majority was published in closed access (26%). Editorials (66%) were the largest share among the non-cited document types that would not usually get cited (Van Noorden, 2017). According to Scopus (2017), review articles were defined as a ‘significant review of original research’ and considered short surveys similar to reviews (but usually are shorter). We found that none of these two document types remained uncited while published as open access.

We found 1112 (6%) publications were single authored and 8618 (48%) publications were published in the top 25% journals out of 17917 publications. Table 2 indicates that in cluster one (Articles, reviews, editorials, short surveys), 8199 (95%) publications published in the

world's top 25% journals, while only 419 (5%) for the cluster two (Conference papers). In cluster one, 98% cited publication and 2% non-cited publications fall in the top 25% journals. Further, international collaboration (56%), national collaboration (17%) and institutional collaboration (22%) were higher in cited publications than non-cited publications (1%, 0.3% and 0.3% respectively). In addition, single author cited publications (4%) was higher than single author non-cited publications (0.4%).

Cited open access had less international collaboration (16%) than cited closed access (40%). Similarly, non-cited closed access publications (1%) were higher than non-cited open access (0.3%). At the same time, national collaboration in cited closed access publications (13%) was higher than cited open access publications (3%). Institutional collaborative research (22%) is more cited than national collaborative research (17%).

Table 2 also indicates that in cluster two (conference papers), the percentage of publication in the top 25% were very low (5%) in both cited and non-cited categories. Remember that the Table 1 indicates that conference paper was the second large set in our retrieved data. The international collaboration (33%) was higher than the national (16%) and institutional (27%) collaboration in cited closed access but lower in cited open access. Both in cited and non-cited cases, institutional collaboration (21% and 3%) was higher than the national collaboration (16% and 2%) for conference papers. All the single authored conference papers received citation.

Discussion and Conclusion

In the dataset, 13% publications remained uncited from a range of 2 to 9 years. That is, only a small portion of the articles, reviews and short surveys remained uncited. As a Science and technology university, most of the departments of Chalmers participate in their respective flagship conferences but nearly one-third of the conference papers remain uncited. In many cases, conference papers are foundations to the creation of journal articles (Drott, 1995). While recent conference papers are primary source of new research as needed by technology related researchers, these are less citable when older (Young, 2014). Based on research field or discipline, the same document type takes different meaning, and even the journals of the same discipline have different structure and distinguish document types (Sigogneau, 2000). In our data set, most cited and non-cited publications were published as closed access. Further, the closed accessed publications were more cited than open access which supports the finding of Craig, Plume, McVeigh, Pringle, & Amin (2007). In addition, most of the uncited conference papers were published as closed access. However, reviews and short surveys were more cited while published as closed access.

We conclude that a small portion of collaborative research published in top journals remain uncited irrespective of types of collaboration. Collaborative research is more cited than single author publications. In our data set, closed access publications are cited more than open access publications. Publication in open access top journals are less cited than closed access top journals while the research is collaborated internationally.

This paper includes a data set which is less than 20 thousand publications due to the limitation of Scopus and SciVal data handling process. An investigation with wider window like 10- or 20-years data from both 'science and technology' and 'social science and humanities' and not just within an institution's publications also different open access publishing models (green, gold or hybrid), and additional data sources like Web of Science citation index and Google scholar will facilitate to retrieve information that might allow the result to generalize. In addition, breaking down the various indicators by disciplinary and sub-disciplinary categories,

and the country of publication of the journals may provide insightful information about why some collaborative research published in top journals remain uncited.

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