Letter to the editor

Letter. New *Google Scholar* section with information on funded publications

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Abstract

Recently, *Google Scholar* added a new section to the *Google Scholar* Author Profiles called "Public Access", with information on funded (and unfunded) publications. This Letter to the editor discusses the advantages and disadvantages of the new section.

Keywords

Bibliometrics; Funding Information; *Google Scholar*; Researchers; *Google Scholar* profile; Research Evaluation.

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Conflict of interest
The authors declare that there are no conflicts of interest.

1. Introduction

Google Scholar Citations was introduced as a free online platform in 2012. The platform is viewed as an alternative to bibliographic databases such as *Web of Science* and *Scopus* (**Davis**, 2012). These databases are widely used for profiling authors with scholarly output and citation impact (**Gasparyan** *et al.*, 2017). Authors may use *Google Scholar* profiles to highlight their scholarly output in a simple manner and to easily check the citing papers, graph citations over time, and compute several citation metrics. Authors can make their profiles publicly available, which means that the profiles show up in *Google Scholar* results when other people look up their names.
https://scholar.google.co.in/intl/en/scholar/citations.html

Today, *Google Scholar* is a popular tool that faculty researchers, administrators, and external reviewers use to evaluate the scholarly impact of candidates for a number of different reasons, such as jobs, tenure, and promotion (**Jensenius** *et al.*, 2018). The tool can also be used for a group of authors (**Thoma**; **Chan**, 2019).

2. Section on funding

Very recently, *Google* added a new section to *Google Scholar* author profiles called "Public access", as shown in Figure 1 (**Van-Noorden**, 2021). It includes the papers that are designed to be made publicly accessible by funding agency mandates. The applicable mandates for each paper can be viewed, as well as whether the paper is not publicly accessible. A link named [PDF] or [HTML] appears if the paper has a publicly accessible version (see Figure 2). *Google Scholar* usually extracts the funding information from the acknowledgement sections of papers. *Google Scholar* automatically identifies when funding agencies are acknowledged as supporting a research with around 2,000 wording variations in a publication's text, such as "funded by" or "supported by" (**Van-Noorden**, 2021).

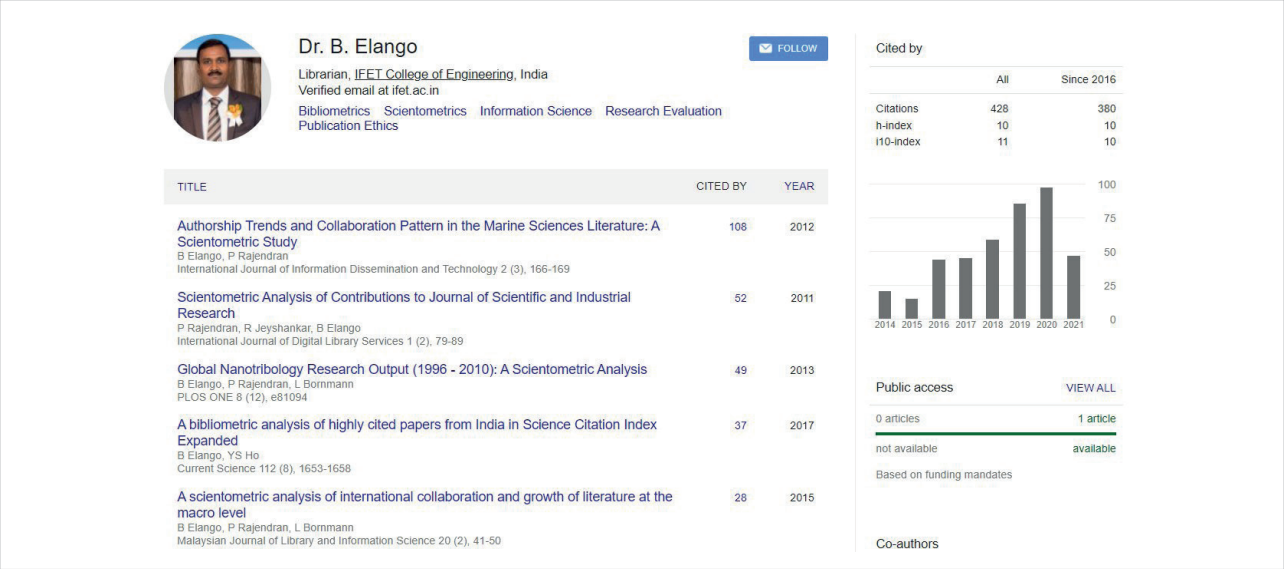

Figure 1. *Google Scholar* profile describing funded publications

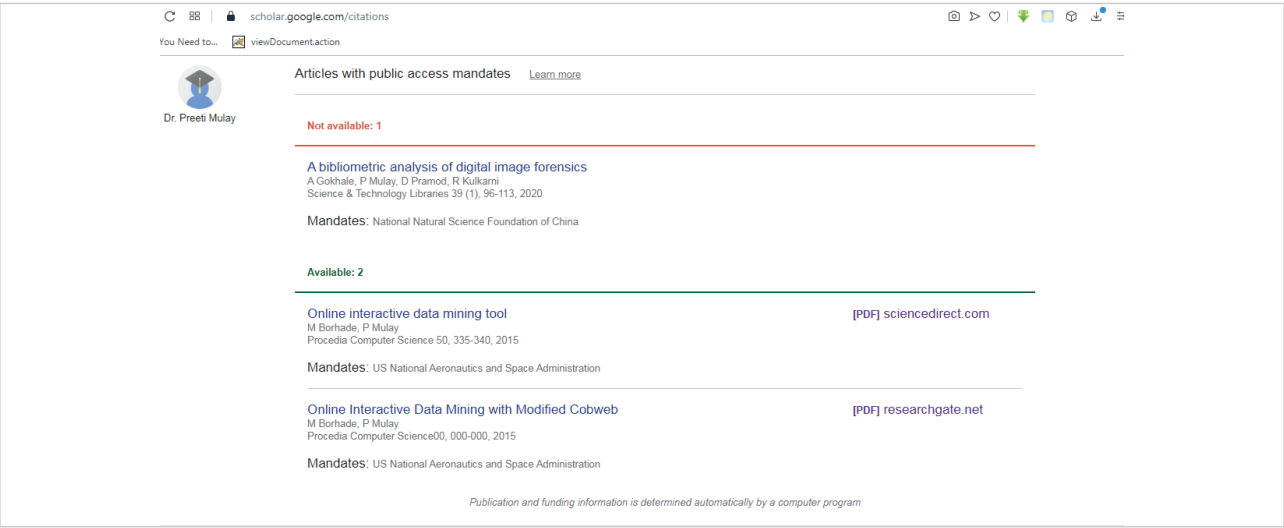

Figure 2. Link to mandated publications

There is an option for authors of certain publications to make a correction to the funding information. This involves three steps, from the review (see Figure 3) to making the corrections (see Figures 4 and 5).

Figure 3. Step 1 of funding agency correction

Figure 4. Step 2 of funding agency correction

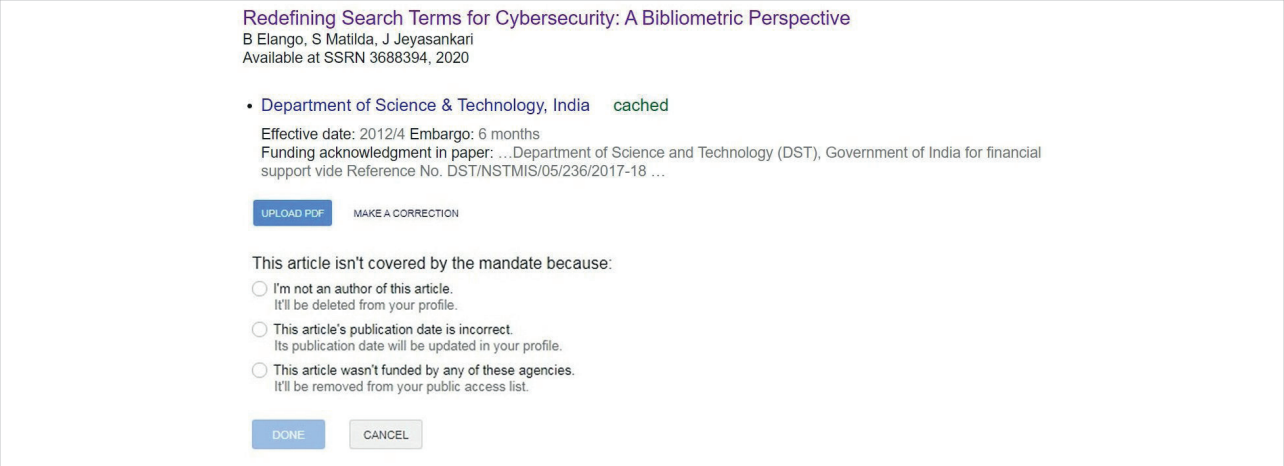

Figure 5. Step 3 of funding agency correction

In *Google Scholar*, the term "research funding" refers to any funding for scientific research in any field. Basically, there are two sources of funding:

(i) governments with various funding agencies such as the *Indian Department of Science and Technology* and the *US National Science Foundation*, and

(ii) non-government organizations with research and development departments such as the *Tata Group* or *Microsoft*. For many years now, there has been a broad debate around the fact that when public means are used to fund science, the results should be made publicly available (without any restrictions). For example, according to the *Agency for Healthcare Research & Quality* (*AHRQ*), scientists are expected to deposit their publications (from the funded research) in the *PubMed Central* database. A "mandate" (in case of research) is a regulation that mandates or recommends researchers (university faculty researchers, research staff or research grant recipients) to make their publications (peer reviewed journal articles and conference papers) open access.

There are different mandates for different funding agencies and institutions. The term "embargo period" indicates the time when a paper must be made available for open access after publication/completion. This period varies for different organizations. For example, it is twelve months for the *US National Institutes of Health* and six months for the *Indian Department of Science and Technology*.

In our opinion, the new service by *Google Scholar* is very informative and useful due to the fact that it identifies funded and non-funded publications. For example, three funded publications have been identified by *Google Scholar* and displayed for an author (see Figure 2) and it is found that all the three publications were not funded by any funding agency (**Gokhale** *et al.*, 2020; **Borhade**; **Mulay**, 2015). However, we found some inconsistencies with the new service that should be considered when using it:

(1) Identification of funding agencies for non-funded papers

Google Scholar identifies funding agencies that do not exist. For example, *Google Scholar* indicates a specific funding agency for **Bornmann**, **Wallon** & **Ledin** (2008), although the authors clearly state that there was no support or funding.

(2) Mistaken indication of funding agencies

Google Scholars' algorithm mistakes funding agencies (see Table 1). For example, the "*Health Research Council of New Zealand*" is the correct funding agency for **Theadom** *et al.* (2016); *Google Scholar* identified the "*Swedish Research Council*".

Google Scholar identified "*UK Research & Innovation*" as a funding agency for **Baggott** *et al.* (2020), which is in contrast to "Research for Life" mentioned in the paper.

In the same way, *Google Scholar* identified the "*Government of Spain*, *Autism Speaks Inc*, USA, *US National Institutes of Health*" as funding agencies for **Lee** *et al.* (2012), instead of the "*National Institute of Neurological Disorders and Stroke*" (*Ninds*), and the "*CHDI Foundation*".

Table 1. Mistaken indication of funding agencies

Funding agency identified by *Google Scholar*	Funding information given in the paper
Exploring the experience of sleep and fatigue in male and female adults over the 2 years following traumatic brain injury: a qualitative descriptive study [HTML] bmj.com A Theadom, V Rowland, W Levack, N Starkey, L Wilkinson-Meyers, ... BMJ open 6 (4), e010453, 2016 Mandates: Swedish Research Council	The parent study informing this work was supported by the *Health Research Council of New Zealand*, grant number 10/471.
Patient preferences for asthma management: a qualitative study [PDF] bmj.com C Baggott, A Chan, S Hurford, J Fingleton, R Beasley, M Harwood, ... BMJ open 10 (8), e037491, 2020 Mandates: UK Research & Innovation	The study was funded by a grant from *Research for Life* (2019/300) and the study sponsor was the *Medical Research Institute of New Zealand* (*MRINZ*). The *MRINZ* receives independent research organisation funding from the *Health Research Council of New Zealand*.
CAG repeat expansion in Huntington disease determines age at onset in a fully dominant fashion [HTML] nih.gov JM Lee, EM Ramos, JH Lee, T Gillis, JS Mysore, MR Hayden, SC Warby, ... Neurology 78 (10), 690-695, 2012 Mandates: Government of Spain, Autism Speaks Inc, USA, US National Institutes of Health	Supported by grants from the *National Institute of Neurological Disorders and Stroke* (*Ninds*) ("*Huntington's Disease Center Without Walls*"; NS016367), the *CHDI Foundation, Inc.*, and the *Huntington's Disease Society of America's Coalition for the Cure*.

(3) Identification of the funding agency from an author biography

In some cases, *Google Scholar* appears to identify the funding agency from an author biography. For example, an author provided his biography in **Ali** and **Khan** (2017), which includes the following:

> "Earlier, he successfully completed 4 research projects funded by the *Department of Science and Technology* (*DST*) and the *Indian Council of Social Science Research* (*ICSSR*), and two by the *University Grants Commission*."

Google Scholar erroneously identifies the funding agency for the paper (see Figure 6) as being the Department of Science & Technology, India.

Figure 6. Identification of the funding agency from an author biography

(4) Identification of funding agencies from authors' affiliations

In some cases, *Google Scholar* seems to identify the funding agency from authors' affiliations. For example, in **Thelwall** *et al.* (2015), the following statement is provided which clearly indicates that some authors are employed at the *Wellcome Trust*.

> "Though no specific funding was awarded in support of this paper, KD and AD are employed by the *Wellcome Trust*."

Google Scholar identified the funding agency for the paper (see Figure 7) as the Welcome Trust.

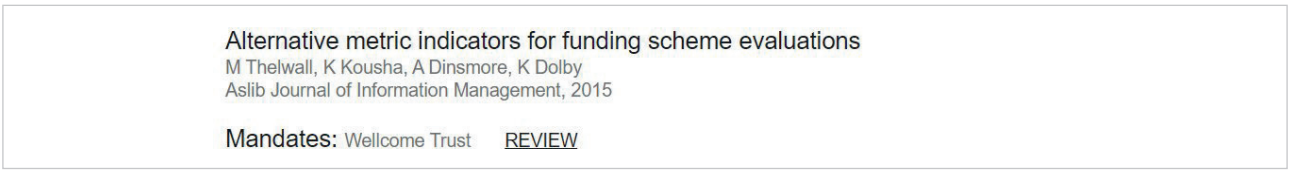

Figure 7. Identification of funding agencies from author affiliations

(5) Identification of funding agencies from acknowledgement sections for providing general help

In some cases, *Google Scholar* appears to identify the funding agency from acknowledgement sections for providing general help. For example, **Sharma** *et al.* (2018) acknowledged two institutions for providing the data for a study, as shown in Figure 8.

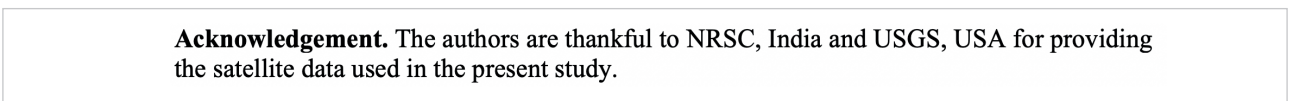

Figure 8. Acknowledgement section of **Sharma** *et al.* (2018)

However, *Google Scholar* identifies the *US Geological Survey* as being the funding agency (see Figure 9).


Discrimination of Satellite Signals from Opencast Mining of Mineral Ores of Hematite and Uranium Using Digital Image Processing and Geostatistical Algorithms
RNK Sharma, R Bhatnagar, A Ojha
International Conference on Advanced Machine Learning Technologies and …, 2018

Mandates: US Geological Survey REVIEW

Figure 9. Identification of funding agencies from acknowledgement sections for providing general help
sections for providing general help

(6) *Google Scholar* identifies funding agencies from acknowledgement sections although the paper has two sections: funding information and acknowledgements

In some cases, *Google Scholar* appears to identify the funding agency from acknowledgement sections, although the paper has two sections: funding information and acknowledgements. For example, **Pereira** *et al.* (2017) has two sections: funding information and acknowledgement (see Figure 10). *Google Scholar* erroneously identifies funding information in the acknowledgement section, although the information is in the funding information section.

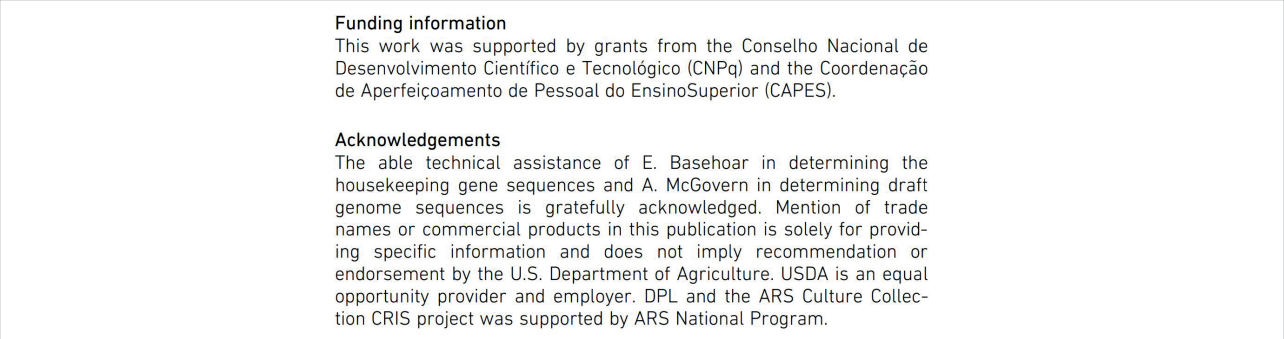
Funding information

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Figure 10. *Google Scholar* identifies funding agencies from the acknowledgement section although the paper has two sections, funding information and acknowledgements

(7) Identification of funding agencies from the body of a paper

In some cases, *Google Scholar* appears to identify the funding agency from the body of a paper. For example, **Pathak** *et al.* (2017) was not supported by any agency. However, from the body of the paper, *Google Scholar* identifies the funding agency as being the *Department of Science and Technology*. The agency was mentioned in a table (see Figure 11).

Table-9
Funding Agencies

Sl. No.	Funding Agencies	Articles	Percentage
1	Department of Science and Technology (DST)	280	33.7
2	University Grants Commission	209	25.2
3	Department Of Biotechnology (DBT)	96	11.6
4	Council of Scientific and Industrial Research (CSIR)	61	7.3
5	Worldwide LHC Computing Grid (WLCG)	50	6.0
6	Grid Centres; Worldwide LHC Computing Grid (WLCG)	45	5.4
7	State Committee of Science; World Federation of Scientists (WFS)	30	3.6
8	Science and Engineering Research Board	29	3.5
9	Indian Council of Medical Research	19	2.3
10	A.I. Alikhanyan National Science Laboratory (Yerevan Physics Institute) Foundation (ANSL)	11	1.3
	Total-	830	100.0

Figure 11. Identification of funding agencies from the body of a paper.
Source: **Pathak**, **Mishra** & **Verma** (2017).

(8) Identification of single funding agencies for multiple agencies mentioned in a paper

In some cases, *Google Scholar* appears to identify single funding agencies for multiple agencies mentioned in a paper. For example, **Dharmani** *et al.* (2009) has acknowledged more than one funding agency that has supported their research:

> Research in Dr. Chadee's laboratory is supported by grants from the *Canadian Institutes for Health Research*, the *Crohn's and Colitis Foundation of Canada*, the *Canadian Foundation for Innovation*, the *Natural Sciences and Engineering Research Council of Canada* and the *Canadian Association of Gastroenterology-Astra Zeneca-CIHR Research and Fellowship Awards*. Dr. Chadee holds a Tier 1 Canada Research Chair in gastrointestinal inflammation.

However, *Google Scholar* identifies the funding agency (see Figure 12) for the paper as being the *Canadian Institutes of Health Research* only.


Role of intestinal mucins in innate host defense mechanisms against pathogens
P Dharmani, V Srivastava, V Kissoon-Singh, K Chadee
Journal of innate immunity 1 (2), 123-135, 2009

Mandates: Canadian Institutes of Health Research REVIEW

Figure 12. Identification of single funding agencies for multiple agencies that supported the research

3. Conclusion

Since our unsystematic use of the new *Google Scholar* service revealed many erroneous entries, we strongly suggest that the identification of research funding from papers should be significantly improved. When using the service, we noticed that *Google Scholar* appears to be in the process of improving the identification of funding information. Only with optimized data can the provided information/service be used for research evaluation purposes.

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