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INFLUENCE OF CITATION PRACTICES ON ACADEMIC ASSESSMENT

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Abstract:
In writing scientific papers, proper citation and referencing are crucial and thereby should be taught to graduate students and novice researchers as tools for counteracting the pervasive errors in citing, quoting, and referencing. Although the relevance of citation counts and derived indicators such as the h-index in assessing research performance is out of question, this emphasis has resulted in an "impact or perish" culture featuring post-production misrepresentation and related misbehaviors. Herein, I appraise the use of citations in academic assessment, citations in original vs. review articles, convenience and country of origin biases, and some related issues. The current landscape highlights that formal instruction on citation practices and their implications should be included in graduate programs and enduringly reinforced by mentors in laboratories.

Keywords: Citations, Referencing, Citation biases, Research assessment, Altmetrics
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Not citing relevant prior work constitute[s] a violation of the norms. H Zuckerman, 2018

BACKGROUND

In writing scientific papers, proper citation and referencing are crucial and thereby should be taught to graduate students and novice researchers. In real life, however, learning courses or lessons on citation practices in workshops on scientific writing are, if not neglected, usually not sufficient to counteract the prevailing errors in citing, quoting, and referencing [1, 2]. These damaging trends are pervasive and unlikely to be eliminated [3-5]. Indeed, deceptive citation practices are so common that otherwise honest academics feel compelled to incur in such mischiefs [6]. It should also be kept in mind that citations grant or deny credit and therefore should not be neutral acts, and even less so, misrepresentations of previous works [7, 8]. Accordingly, authors use internal and external criteria to choose which references are to be cited and which excluded [2, 8]. In this regard, Liárdet and Black [1] advocate for viewing referencing as an epistemological construction that increases the learners' skill to integrate evidence rather than as a measure to avoid plagiarism.

In addition, the relevance of citation counts and derived indicators such as the h-index in assessing research performance is out of question [9, 10]. Sadly, this emphasis has resulted in an "impact or perish" culture featuring post-production misrepresentation and related misbehaviors [11, 12]. Remarkably, the current digitization has prompted the emergence of article-level

metrics [13-15] to complement traditional author and journal metrics and thus achieve a better evaluation of the scientific and societal influence of research. These new article-level metrics or alternative metrics (for short, altmetrics), which include downloads, views, and social media impact, are increasingly gaining prominence [13-15].

Herein, I appraise the use of citations in academic assessment, citations in original vs. review articles, convenience and country of origin biases, and some related issues.

USE OF CITATIONS IN ACADEMIC ASSESSMENT

Despite decades of experience, the use of citations to gauge the quality or impact of any researcher's output is still contentious and open to innovation [9, 16]. Because the simple count of citations alone is unreliable, several other approaches to citation analysis have been proposed [16-18]. For instance, Zhao and Strotmann [19] tested the improved combination of removing all citations in the background and introduction with weighting the citations in the methods, discussion, and conclusions by in-text frequency. In their study sample of 3,681 articles on bibliometrics and citation analyses (including a sizeable fraction of systematic reviews and meta-analyses) with 176,065 references and a total of 265,444 in-text citations, these investigators singled out those essential papers with "a narrow and deep impact" authored by the top 500 researchers analyzed. A novel method to identify key references in articles of physical sciences simply focuses on those papers cited in the abstract [20]. However, this approach is unsuitable for biomedical papers whose abstracts usually lack references [21].

In addition to these and other unidimensional analyses, Bu et al. [22] have introduced a multidimensional approach to discriminate publications with a similar number of citations "in terms of the depth and breadth and the dependence and independence of their citation impact". Another novelty is the citation concept analysis [23] "intended to reveal the cognitive impact certain concepts have on the citing authors" and which only apply to publications that postulate an original and fundamental concept. Significantly, this method is unable "to measure the impact of conventional publications, those that do not introduce an important concept and that do not receive many citations" [23].

Notwithstanding the foregoing, the total number and mean or median count of citations per paper [9, 10] remain a useful indicator as they encompass references to editorials, letters to the editor, opinion articles, commentaries, and other papers. Incidentally, the popularity of the controverted h-index [24] (as of August 1, 2022, this publication accumulated 12,633 citations in Google Scholar) can be partly ascribed to such a global scope. Moreover, the continuous and still ongoing fascination exerted by the h-index is illustrated by the influence-primed h-index [16] and 37 other variants reviewed in 2011 among which only two were non-redundant [25].

Since a certain fraction of papers remains uncited within a predetermined period (say 5 years) after publication [26] and even with an open citation frame [27], it has been proposed —apparently without success — to also include the proportion of uncited papers in academic evaluations [28]. In contrast, the blind exclusion of self-citations is a more controversial issue. They are acceptable when used properly, that is, not to enhance the author reputation [3], and may even be more essential or applied citations than external ones for the citing papers [29]. Yet, their abuse represents a real threat and should not be overlooked.

Lastly, I refer to the San Francisco Declaration [30] and the Leiden Manifesto [31] as worthy efforts to fight against the prevailing avalanche of bibliometric indicators that supposedly measure the performance of scientists and have meretriciously seduced so many of us [32].

CITATIONS IN ORIGINAL VS. REVIEW ARTICLES

According to the analysis of > 14 million papers published in 2000-2015, including > 600,000 review articles, the latter exhibit a steady increase in many research areas and receive three times as many citations as original articles [33]. It has been argued that such a practice unfairly diverts the credit from the original to the secondary literature [34]. Actually, an analysis of citations in 217 original reports to 22 review articles published in ecology journals [35] disclosed that "22% of citations were inaccurate [misrepresented the cited authors' findings], and another 15% unfairly gave credit to the review authors for other scientists' ideas". However, the total number of citations to original papers in biomedical research is unaffected by whether those reports were cited, early or not so early in their lifetime, by a review article [36].

CONVENIENCE AND COUNTRY OF ORIGIN BIASES

The not so uncommon malpractice of referencing papers that one is familiar with or are easy to find, the so called "citation for convenience" [3, 37], entails several biases: they do not accurately represent the literature, favor English-language most popular journals and more recent articles retrieved from the main databases, and undermine the reward system and the research record. Moreover, some of the prevalent quotation errors [4] might be accounted for convenience citations. By the way, the reader might wonder if such citations also occur in this paper.

The bias of mentioning predominantly papers authored by researchers from the same country or region as the citing authors has been known for several decades. First documented for U.S. and British authors, this skewed pattern appears to be universal, even if currently it may be less pronounced (except for China), and widespread across disciplinary fields [3, 38]. It should also be noted that author and journal self-citations partly account for such a national parochialism while the language of the articles appears to have no influence on the observed trend [38].

COROLLARY

The outlined landscape emphasizes that formal instruction on citation practices and their implications should be included in graduate programs and enduringly reinforced by mentors in laboratories. As a minimum, young researchers' awareness on these matters can be enhanced by requiring them to read already available guidelines and other documents on how to cite properly and ethically [2, 3, 8] and thus avoid the trap of metrics-enabled fraudulent procedures [11]. Obviously, such awareness should encompass altmetrics which can also "be manipulated by artificially increasing views, downloads, and social-media mentions" [14].

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The author was involved in the conceptualization, literature search, drafting, and editing of the manuscript.

CONFLICTS OF INTEREST

The author has completed the ICMJE Disclosure Form (http://www.icmje.org/disclosure-of-interest/) and has no potential conflicts of interest to declare.

DISCLAIMER

No part of this article is copied or published elsewhere in whole or in part.

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АКАДЕМИЯЛЫҚ БАҒАЛАУҒА ДӘЙЕКСӨЗ КЕЛТІРУ ПРАКТИКАСЫНЫҢ ЫҚПАЛЫ

Түйіндеме

Ғылыми мақалаларды жазуда дұрыс дәйексөз келтіру мен сілтеме жасаудың маңыздылығы жоғары, сондықтан магистранттар мен жас зерттеушілерге әдепті дәйексөз келтіруді кеңінен таралған қателерге қарсы тұру құралы ретінде оқыту керек. Зерттеу нәтижелерінің тиімділігін бағалау үшін дәйексөзді және h-индекс сияқты туынды көрсеткіштерді есептеудің орынды екендігі күмән тудырмайды, бұл үрдіс өндірістен кейін фактілерді бұрмалау және соған байланысты жосықсыз әрекеттерді қамтитын «ықпал ет немесе жойыл» мәдениетіне алып келді. Бұл мақалада мен академиялық бағалауда дәйексөз келтіруді, түпнұсқа мен шолу мақалаларында дәйексөз келтіруді, таралған қате түсініктерді, сондай-ақ онымен байланысты кейбір сұрақтарды пайдалануды бағалаймын. Ағымдағы жағдай дәйексөз келтіру тәжірибесі бойынша формалды нұсқамалар бітірушілердің бағдарламаларына енгізіліп, зертханаларда тәлімгерлері үнемі нығайту керек екендігін көрсетеді.

Түйінді сөздер: дәйексөздер, сілтеме жасау, дәйексөз келтірудің ағат пікірлілігі, зерттеуді бағалау, баламалы көрсеткіштер

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ВЛИЯНИЕ ПРАКТИКИ ЦИТИРОВАНИЯ НА АКАДЕМИЧЕСКУЮ ОЦЕНКУ

Резюме

При написании научных статей правильное цитирование и ссылки имеют решающее значение, поэтому практики корректного цитирования следует преподавать аспирантам и начинающим исследователям в качестве инструментов для противодействия распространенным ошибкам. Хотя уместность подсчета цитирования и производных показателей, таких как h-индекс, для оценки эффективности исследований не вызывает сомнений, данная тенденция привела к культуре «влияй или погибни», включающей искажение фактов после производства и связанное с этим недобросовестное поведение. В данной статье я оцениваю использование цитирования в академической оценке, цитирования в оригинальных и обзорных статьях, распространенные предубеждения, а также некоторые связанные с этим вопросы. Нынешняя ситуация подчеркивает, что формальные инструкции по практике цитирования должны быть включены в программы для выпускников и постоянно подкрепляться наставниками в лабораториях.

Ключевые слова: цитаты, ссылки, предвзятость цитирования, оценка исследований, альтернативные показатели

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