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A study of citations to STEM databases: ACM Digital Library, Engineering Village, IEEE *Xplore*, and MathSciNet

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Abstract
Databases are the discovery mechanisms used for searching and browsing scholarly information. Citings to Science, Technology, Engineering, and Mathematics (STEM) databases used by computer scientists, engineers, and mathematicians were analyzed for coverage and impact in the literature. This study uses the Web of Science (WoS) database to conduct a cited reference search to ACM Digital Library, Engineering Village, IEEE *Xplore*, and MathSciNet. The respective citation counts were compared by document types, publication year, language, country, organization, WoS category, and source title. The resulting low citation counts and lack of reference formatting agreement to these databases were in line with the predicted hypothesis. The impact of STEM databases in citations appears to be undercounted since they are not often included in citations. This article is intended to spark debate on the practice of citing databases in scholarly publications.

Keywords STEM · Citation analysis · Databases · Scholarly communication

Introduction

Databases are the discovery mechanisms used for finding credible scholarly works. Researchers use databases as their first point of access for peer-reviewed sources when writing an academic paper, thesis, grant proposal, or any other work. Further, databases can be used to browse for ideas and information about a specific research field. Science, Technology, Engineering, and Mathematics (STEM) databases can also be used for laboratory work, providing access to experimental information such as standard physical property data, chemical property information, reaction chemistry, specific biochemical data, and industry standards.

Citation analysis is a methodology that simply counts the number of times sources are cited in a document, specifying quantitative data to the actual use of information in the scholarly literature (Qiu et al. 2017). The premise of citation analysis studies is that references direct researchers to useful sources. Citations to sources can therefore be used to measure the usefulness, value, and impact of a work. The citation analysis method can

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identify authors' journal publication practices from their institution, such as the degree of open access publishing. The number of citations to sources can determine the impact to research content, a specific journal or other source, authors, institution, country, discipline, and research area.

Citation data can be used to uncover, confirm, and affirm sufficient support of resource needs to new researchers. The data may become meaningful when updating or building new subject collections and degree programs. Citation analysis can be applied to identify new research topics and essential core journals in a discipline. Moreover, citation counts can pinpoint those journals where faculty are publishing and those journals citing faculty publications. Citation counts can validate the return of investment and continued subscription to a journal or resource by the organization. Since online and print subscription resources can be expensive, such evidence-based data may further support and justify library purchases. Consequently, quantitative numbers of cited references can help guide, align, and foster the decision-making process for selection or deselection of library material in collection development (Currie and Monroe-Gulick 2013; Gross and Gross 1927; Hoffmann and Doucette 2012). This can become all the more important when organizations need to maintain and control their library budget limits or during economic turmoils.

Citation studies methods have been used to analyze articles and theses from different disciplines, including STEM, such as the subject areas investigated in this research—engineering (Becker and Chiware 2015; Bharti and Bossart 2016; Brush 2015; Dotson and Franks 2015; Eckel 2009; Fransen 2012; Johnson 2014; Musser and Conkling 1996; Stephens et al. 2013; Williams and Fletcher 2006; Young 2014; Zhang 2018), computer science (Fransen 2012; Geetha et al. 2016; Salami and Olatokun 2018), and mathematics (Bandyopadhyay 1996; Flynn 2020; Kayongo and Helm 2012; Kelly 2015; Salami and Olatokun 2018; Sinn 2005; Verma and Soni 2011). However, these studies seldom mention citations to databases or web resources, and those that do, have determined that citations to online resources are low (Chen et al. 2009). The citation numbers are limited, such that the name of the database or website is often omitted.

There is little published literature where a cited reference search has been used to evaluate a specific resource. A search in the LISTA database using the Boolean string (STEM OR science OR technology OR math OR engineering) AND (cited reference search) yielded just 16 documents to which only three articles were related to the topic of cited reference searching to STEM resources. To that end, this offers an opportunity to explore, research, and address the impact and issues of citing specific resources in the scholarly literature. The 'Cited Reference Search' tool in Web of Science (WoS) provides one approach for finding citations to a specific source and evaluating its impact in scholarly publications. This tool has been used to study citations to chemistry handbooks (Tomaszewski 2017), chemical encyclopedias (Tomaszewski 2018), chemical databases (Tomaszewski 2019), specific conference proceedings (Cardona and Marx 2007), and industry standards (Rowley and Wagner 2019). These quantitative studies show that the number of citings to these resources is relatively low.

Citing databases can provide evidence of quality, validity, credibility, reliability, and merit to the research by informing the reader of the resource's name. Information about the databases relevant to a publication communicates practical knowledge of available resources for finding discipline-specific information. Citation counts would further provide valuable usage statistics about researchers' information-seeking behaviors. Therefore, creating awareness of resources, presents proof of an effective and thorough undertaken literature review as well as share knowledge of searching tools to other researchers and librarians.

Capturing the number of citations to a resource provides a quantitative measure of its utility and importance to an academic discipline, a research field, or a specific institution. If resources are mentioned in a publication's reference list, it may be considered to bear more significance and be more of a meaningful statistic compared to e-resource usage statistics (Peters 2002). The data could, therefore, help improve evidence-based decision-making for subscription or renewal of library resources. The actual citations to resources can be used to analyze the citation patterns and behaviors by academics. To this point, a qualitative assessment of citation consistency and variations in the literature could be examined. Following studies on citations to chemical databases (Tomaszewski 2019), it was decided to further investigate and fill in the research gap of citations to well-known bibliographic databases used by computer scientists, engineers, and mathematicians. The subscription-based databases, ACM (Association for Computing Machinery) Digital Library, Engineering Village, IEEE *Xplore*, and MathSciNet were selected for the study.

ACM Digital Library

The ACM Digital Library is a product published by the Association for Computing Machinery (ACM 2020). This bibliographic database covers the fields of computing and information technology literature with searchable access to journals, magazines, conference proceedings, books, and ACM affiliated publications. ACM (n.d.) has stated that "The ACM Digital Library (DL) is the most comprehensive collection of full-text articles and bibliographic records in existence today…" A review of this resource is available for further information (Hennessey 2012).

Engineering Village

The Engineering Village database is maintained by Elsevier (Elsevier 2020a). Engineering Village is the primary platform for Compendex (COMPuterized ENgineering inDEX) covering information to engineering literature. The content includes journal articles, magazines, patents, conference proceedings, and books in engineering disciplines and applied sciences. According to Elsevier (2020b), "Ei Compendex is the broadest and most complete engineering literature database available in the world." An overview of the database provides more information (Dressel 2017).

IEEE *Xplore*

IEEE *Xplore* is a database from the Institute of Electrical and Electronics Engineers (IEEE 2020a) and Institution of Engineering and Technology (IET). This resource is used to discover and access information on computer science, engineering, and other related research fields. IEEE *Xplore* provides access to journals, transactions, letters, magazines, conference papers, Standards, books, and educational courses. IEEE (2020b) has stated that "IEEE *Xplore* provides web access to more than four-million full-text documents from some of the world's most highly cited publications…" A review of this product has been published by Wilde (2016).

MathSciNet

MathSciNet is a database from the American Mathematical Society (AMS 2020a). It is the leading abstracting and indexing resource for related mathematical information. The database contains all content from the journal *Mathematical Reviews* (MR) with links to MR entries, citations, and full journal access. MathSciNet searches journal articles, books, technical reports, and conference papers. AMS (2020b) has stated that “MathSciNet is your premier service for searching over 75 years of the world’s mathematical literature in the Mathematical Reviews (MR) Database.” Some of the key features include access to the Mathematical Subject Classification (MSC) and author profiles. Dommermuth (2017) provides an informative description of MathSciNet.

The objective of the study

The study’s objective is to evaluate the impact of STEM resources in the scholarly literature by examining the frequency of citation to four major databases. A longitudinal analysis is used to evaluate the citation impact between 2000 and 2019. The starting year of 2000 was chosen because the databases were launched just before or around that time. The study further aims to spark conversation on the practice of citing databases in scholarly publications.

Hypotheses and research questions

The study hypothesis proposes that citation counts to databases used by computer scientists, engineers, and mathematicians are low with little reference formatting agreement. The study attempts to explore and answer the following research questions (RQ’s),

RQ1 Are researchers citing ACM Digital Library, Engineering Village, IEEE *Xplore,* and MathSciNet?

RQ2 How does the citation count to these resources compare by year, language, country, organization, WoS category, and source title?

RQ3 Is there agreement to the reference formatting of these resources?

Methodology

The WoS database is a multidisciplinary resource from Clarivate Analytics (Clarivate Analytics 2020a). This resource is arguably the largest and most comprehensive indexing database of peer-reviewed journals and conference proceedings. Each journal is evaluated for 28 quality criteria before being added to the WoS database (Clarivate Analytics 2020b). The WoS Core Collection is an excellent data source for citation analysis as it covers over 25,000 quality high-impact journals and over 220,000 conference proceedings across 256 different disciplines in the sciences, social sciences, and arts & humanities (Clarivate Analytics, personal communication, 6 October 2020; Clarivate Analytics

2020c). WoS indexes items from the list of references in each document and captures all cited references regardless of age or document type. The WoS database contains almost 1.9 billion cited references, all of which are indexed and searchable with the ‘Cited Reference Search’ (Clarivate Analytics 2020c). For these reasons, the WoS database is ideal for citation analysis.

The WoS Core Collection contains eight citation indexes that search scholarly and peer-reviewed content [Science Citation Index Expanded (SCI-E), Social Sciences Citation Index (SSCI), Arts & Humanities Citation Index (A&HCI), Conference Proceedings Citation Index-Science (CPCI-S), Conference Proceedings Citation Index-Social Science & Humanities (CPCI-SSH), Book Citation Index-Science (BKCI-S), Book Citation Index-Social Sciences & Humanities (BKCI-SSH), Emerging Sources Citation Index (ESCI)]. The Core Collection contains different searchable document types such as journal articles, review papers, conference papers, books, and book chapters. In the ‘Cited Reference Search,’ all eight indexes were selected, and a search for each STEM database was performed under the field for ‘Cited Work’ and repeated under the field for ‘Cited Author.’ A customized year range of 2000–2019 was selected for each search. The search queries used for each database are shown below, where the asterisk (*) is used for truncation to help capture citation variants:

- ACM Digital Library* OR dl.acm.org
- Engineering Village* OR Compendex*
- IEEE *Xplore**
- MathSciNet*

After each search, the references were selected using the ‘Select Page’ or ‘Select All’ buttons, followed by clicking on the ‘Finish Search’ button to download the references. The database allows 1000 reference matches to be selected at a time. The search was repeated for more than 1000 references, and the references following the first 1000 were selected and downloaded. For each database search (i.e., ‘Cited Work’ and ‘Cited Author’ fields), the references were then combined in the ‘Search History’ tab of WoS. Figure 1 provides

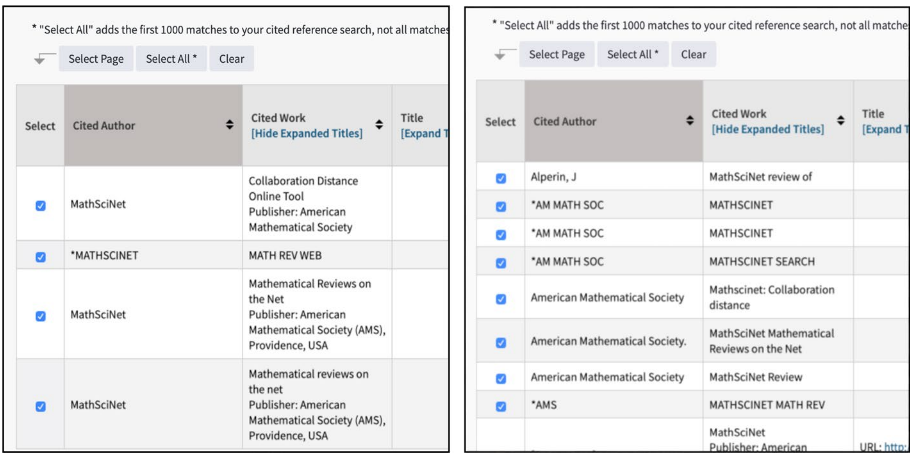

Fig. 1 Example of ‘Cited Author’ (left) and ‘Cited Work’ (right) results from a ‘Cited Reference Search’ in WoS

an example of a ‘Cited Reference Search’ conducted for MathSciNet* using the ‘Cited Author’ and ‘Cited Work’ field. The documents were refined to articles and conference papers. The resulting cited references were analyzed using the ‘Analyze Results’ tool to compare the data quantitatively by year, country, language, organization, WoS category, and source. Several of the citing references from the papers were also analyzed manually by opening the document’s PDF.

Discussion and findings

Analysis by document types

Table 1 compares the different document types citing the four STEM databases. A quantitative analysis of the document types shows that proceedings papers and journal articles have the highest and similar citation counts to ACM Digital Library, Engineering Village, and IEEE *Xplore*, whereas MathSciNet is mainly cited in articles. This implies that conference proceedings papers and articles are equally important to these disciplines, particularly computer science and engineers. Moreover, the publication culture in computer science has made conference papers the preferred venue for research dissemination (Vrettas and Sanderson 2015).

Analysis by publication year

The study combined articles and conference proceedings papers for analysis. A conference proceeding paper is an academic paper published in the context of a conference. The conference proceedings are a collection of published papers from a conference. It is noted that a few records in WoS are indexed as both article and proceedings paper. Records covered in the two conference indexes are classed as proceedings papers. In contrast, the same records in the other three citation indexes (SCI-E, SSCI, and A&HCI) are classed as articles when published in a journal (Clarivate Analytics 2020d). Consequently, when both articles and conference papers are combined, the total number of records removes redundancies. Other abnormalities in WoS include the cited reference within the full-text article but not the reference list.

The predominant language of citations to these databases is English. Figure 2 compares the growth of cited documents (journal articles and proceedings papers combined) by

Table 1 Citations to STEM resources in different document types (# documents)

ACM Digital Library	Engineering Village	IEEE *Xplore*	MathSciNet
Proceedings Paper 51)	Proceedings Paper 13)	Proceedings Paper (1,116)	Article (37)
Article (45)	Article (8)	Article (1,071)	Proceedings Paper (5)
Book Chapter (6)	Book (1)	Review (83)	Book Chapter (2)
Editorial Material (2)	Editorial Material (1)	Book Chapter (48)	Editorial Material (2)
Review (2)	Review (1)	Editorial Material (10)	Other (1)
		Book (5)	
		Early Access (2)	
		Other (2)	

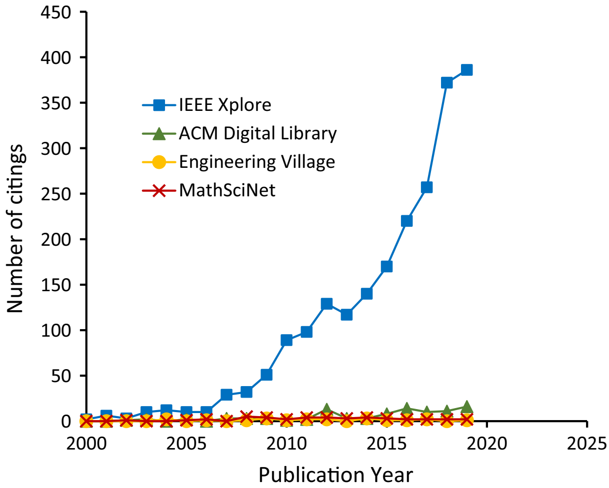

Fig. 2 Citations to STEM resources in journal articles and proceedings papers (combined) by year

publication year for each database. Between 2000 and 2019, citations to these databases are very low, ranging between 1 and 15 citings for three resources, and between 4 and 374 citings for IEEE *Xplore*. The IEEE *Xplore* database is significantly more cited with increasing numbers between 2000 and 2019. The high citation counts to IEEE *Xplore* (0–373) suggest that computer scientists are frequently using this resource in research. Figure 3 shows the growth of citings to IEEE *Xplore* in journals and proceedings papers. These document types follow the same growth path, thereby confirming conference proceedings papers' importance to the computer science and engineering profession. The sharp citation count drop with proceedings papers in 2019 may be due to recent papers not yet indexed by WoS. Although the other three resources are cited at a lower rate, it does not automatically imply that researchers do not use them. The citation practices by computer scientists, engineers, and mathematicians may well depend on the necessity of citing databases.

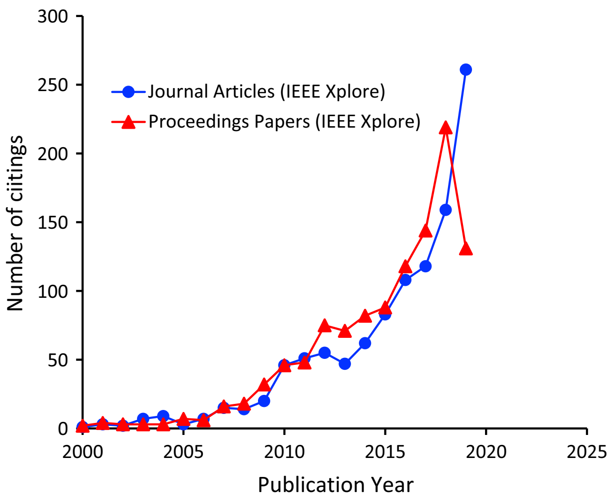

Fig. 3 Citations to IEEE *Xplore* by year

Analysis by country

Table 2 represents the highest incidence of citings to these resources by a country where ACM Digital Library lists all countries with three or more citings, while Engineering Village and MathSciNet list all countries with two or more citings. The highest number of citations to ACM Digital Library and Engineering Village has the USA barely leading. IEEE *Xplore* has India and the People's Republic of China leading the citation counts. This is somewhat surprising given that three of the products are US-based. The highest citation counts to MathSciNet comes from the USA. Although some developing countries cite these four databases, Northern American and European countries are the major contributors, in line with countries with the largest economies and highest GDP worldwide. The total number of countries citing each resource is IEEE *Xplore* (99), ACM Digital Library (30), Engineering Village (23), and MathSciNet (16).

The study's low citation phenomenon, particularly to ACM Digital Library, Engineering Village, and MathSciNet may be partly due to a lack of stipulation to database citation in submission guidelines for journals and conference proceedings. Other reasons could be attributed to authors not understanding the significance of citing a database. Further, authors may not be trained in the correct citation format, or they may not fully understand the concept of databases. The absence of library resources due to subscription costs, especially in developing countries, may also contribute to low citation counts. Interlibrary loan service can play a role too, where the pay per article option may have become an economically viable approach for organizations, replacing database subscription. In some countries, scholars may not necessarily be aware of source databases because they may not access them in a way facilitated by a library. Non-library access mechanisms may affect citations to databases where scholars use pirate websites like Sci-Hub and LibGen or other places to find academic papers without knowledge of the original source. These conjectures are, however, not based on the observed data from the study.

Analysis by organization

Each author's institutional organization in a publication can be captured and standardized by the authority of the controlled 'Organization-Enhanced' field after selecting the

Table 2 Countries with the highest incidence of citings to STEM resources (# documents)

ACM Digital Library	Engineering Village	IEEE *Xplore*	MathSciNet
USA (29)	People's Republic of China (7)	India (387)	USA (15)
India (25)	USA (6)	People's Republic of China (325)	France (4)
South Africa (7)	Sweden (3)	USA (265)	India (4)
England (6)	Australia (2)	Malaysia (96)	Italy (4)
Italy (6)	France (2)	Italy (91)	Spain (4)
Brazil (3)	Germany (2)	Germany (90)	Brazil (2)
Canada (3)		England (79)	Germany (2)
Malaysia (3)		Australia (72)	Russia (2)
South Korea (3)		Iran (63)	Wales (2)
		Canada (62)	

'Analyze Results' link. Table 3 contains the most frequent organizations that cite the four databases in the study. Universities predominantly use these databases. Interestingly, many of these resources are being cited by non-US affiliated institutions, such as the Indian Institute of Technology, Aalborg University, and Computing Center of Gansu Province. Although this does not conclude that US institutions are not using these databases, it is likely that authors simply do not see the need to cite a database.

Analysis by WoS category

Document types such as journals, conference proceedings, and books in the WoS are assigned to at least one of 256 subject categories (Clarivate Analytics 2020e). The total number of different WoS categories from citations to the four databases were 155

Table 3 Organizations with the highest incidence of citings to STEM resources

Organization (# documents)
ACM Digital Library
University of California, Berkeley (6)
University of California System (6)
Stellenbosch University (5)
Thapar Institute of Engineering Technology (5)
University System of Maryland (4)
Engineering Village
Computing Center of Gansu Province (2)
University of Southern Queensland (2)
Zhengzhou University of Light Industry (2)
IEEE Xplore
Indian Institute of Technology System (43)
Aalborg University (35)
Chinese Academy of Sciences (26)
University of Electronic Science Technology of China (26)
University of California System (24)
Harbin Institute of Technology (19)
Leibniz Institute of Photonic Technology (19)
Centre National de la Recherche Scientifique (18)
Polytechnic University of Bucharest (15)
Qatar University (15)
MathSciNet
California Institute of Technology (3)
Indian Statistical Institute (3)
Indian Statistical Institute, Kolkata (3)
Rovira i Virgili University (3)
Louisiana State University (2)
Louisiana State University System (2)
Swansea University (2)
University of Pisa (2)

(IEEE *Xplore*), 44 (ACM Digital Library), 20 (Engineering Village), and 16 (MathSciNet). Table 4 lists the highest incidence of database citations to WoS categories. The nature of the category is related to the content of the resource. Not surprisingly, the most popular category with MathSciNet is mathematics. The subject areas of computer science, engineering, and physics are evident in citations from all databases, suggesting that all four databases are essential to those discipline areas. IEEE *Xplore* contains more emphasis on technology (e.g., food science technology, construction building technology, transportation science technology, nuclear technology, biotechnology—applied microbiology) compared to the other three databases. The subject coverage in

Table 4 WoS categories with the highest incidence of citings to STEM resources

WoS Category (# documents)
ACM Digital Library
Computer Science, Theory Methods (30)
Computer Science, Information Systems (23)
Computer Science, Artificial Intelligence (21)
Engineering, Electrical Electronic (20)
Computer Science, Interdisciplinary Applications (17)
Information Science & Library Science (9)
Telecommunications (9)
Computer Science, Software Engineering (8)
Computer Science, Cybernetics (7)
Education, Scientific Disciplines (5)
Engineering Village
Computer Science, Information Systems (5)
Computer Science, Artificial Intelligence (4)
Computer Science, Theory Methods (4)
Engineering, Electrical Electronic (3)
IEEE Xplore
Engineering, Electrical Electronic (971)
Telecommunications (264)
Computer Science, Theory Methods (242)
Computer Science, Artificial Intelligence (225)
Computer Science, Information Systems (218)
Energy & Fuels (148)
Physics, Applied (131)
Computer Science, Interdisciplinary Applications (125)
Automation & Control Systems (118)
Optics (117)
MathSciNet
Mathematics (23)
Mathematics, Applied (11)
Information Science & Library Science (8)
Computer Science, Information Systems (4)
Computer Science, Artificial Intelligence (3)
Computer Science, Interdisciplinary Applications (3)

IEEE *Xplore* expands into other disciplines as evident from the WoS categories in business (e.g., business, business finance, management, operational research management), humanities (e.g., art, archaeology, library science, political science), and health (e.g., dermatology, nursing, healthcare sciences services, surgery).

Analysis by source title

The highest incidence of citing to the STEM databases by source title is presented in Table 5. The number of citations is low with five or less to ACD Digital Library, Engineering Village, and MathSciNet. The IEEE *Xplore* database has the highest number of citings in *Proceedings of SPIE* (40), *Lecture Notes in Computer Science* (32), and *AIP Conference Proceedings* (28). To this end, it appears that computer scientists have a higher tendency to cite this resource. However, the number of databases citings in the study to journals and conference proceedings is lower than that of other source types like industry standards (Rowley and Wagner 2019).

Table 5 Source titles with highest incidence of citings to STEM resources (# documents)

Source Title (# documents)[1]
ACM Digital Library
Journal of Informetrics (5)
Lecture Notes in Computer Science (4)
Advances in Intelligent Systems and Computing (3)
Beyond Capital: Values, Commons, Computing, and the Search for a Viable Future (3)
Routledge Advances in Sociology (3)
IEEE Xplore
Proceedings of SPIE (40)
Lecture Notes in Computer Science (32)
AIP Conference Proceedings (28)
IEEE Access (20)
IEEE Transactions on Power Electronics (20)
Advances in Intelligent Systems and Computing (18)
IEEE Transactions on Industrial Electronics (16)
Communications in Computer and Information Science (15)
IET Power Electronics (15)
MathSciNet
Bulletin of Mathematical Sciences (2)
Compositio Mathematica (2)
Differential Geometry and its Applications (2)
DML 2008 - Towards Digital Mathematics Library (2)
Linear Algebra and its Applications (2)
Scientometrics (2)

[1]Engineering Village was cited once in 29 source titles

Analysis by citation

A qualitative analysis of citations to databases revealed little consistency with the way authors are citing the four databases. Some inconsistencies with citations arise from issues such as using the acronym (e.g., American Mathematical Society or AMS or both), italicizing the resource (e.g., ACM Digital Library or *ACM Digital Library*), deciding on the resource name (e.g., Engineering Village or Compendex or both), placement of resource in the citation (i.e., start, middle, or end), formatting and deciding whether to add the URL (e.g., MR number or webpage or both; URL to the resource).

Adding the name of the database into a citation can pose some issues. Database aggregators such as EBSCO*host* and ProQuest contain computer-generated citations that capture the database's name in the URL of the citation. However, these computer-generated citations are not always accurate. Moreover, database aggregators search over a collection of multiple databases such that it may not always be clear which database retrieved the document. The fact that journal coverage in a database can change over time poses a reluctance to naming a database in a reference. Other citation discrepancies include works that are widely available from many databases or only available through a database.

As standard citation styles are updated, the requirement to incorporate the name of the database can change [e.g., APA 6th ed. (URL or database included) vs. APA 7th ed. (URL or database not included)]. On the other hand, other citation styles continue to recommend using a URL, database information, or permalink, especially when a DOI is not available (e.g., Chicago, Harvard, MLA 7th ed., MLA 8th ed.). Further, many academic journals and conference proceedings regularly use variants of standard styles or have their own citation style. Likewise, academic disciplines often have their own unique discipline-specific citation style guides [e.g., Institute of Electrical and Electronics Engineers (IEEE), American Society of Mechanical Engineers (ASME), American Society of Civil Engineers (ASCE), American Mathematical Society (AMS), American Institute of Physics (AIP), American Chemical Society (ACS)]. To this end, it is encouraged for the creators of style guides, journal editors, publishers, sponsoring academic societies, and journal owners to arrive at some collective agreement that addresses citations to resources. It is recommended that the elements of citing a resource be concise so that the information is sufficient to understand, locate, and access, e.g.,

Vendor Name. (Year). *Resource Name*. Resource link

Limitations and future research

The study is limited to documents indexed in the WoS database. Thus, articles that are not indexed in WoS, but are indexed in other databases, were not analyzed. For that reason, future studies could consider performing a similar analysis with different databases like Scopus. STEM databases that were not analyzed in the study present an opportunity for further investigation. It is hoped that this project may serve as a catalyst for discussion on citations to databases and other Web-related resources.

Conclusions

The impact of STEM databases in citations appears to be undercounted since they are not regularly incorporated in citations. The citation counts to ACM Digital Library, Engineering Village, and IEEE *Xplore* come from academics worldwide in journal articles and conference proceedings papers, while citations to MathSciNet are mainly in journal articles. These resources are predominately cited in computer science-related sources. The citation analysis of WoS categories points to the multidisciplinary and interdisciplinary nature of these databases.

Knowledge of citations to resources may help assist in evidence-based decision making for collection management. Identifying academic resources used in research publications would be of value to scholars and subject librarians. The idea that journals and conference proceedings request authors to state or select the resources used in writing their papers (similar to when authors specify a set of keywords to describe their research during the manuscript submission process) could enable scholarly communication. The absence of conformity on citation format to STEM resources is worthy of further discussion by the academic and publishing community.

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