Acknowledgment of Libraries in the Journal Literature: An Exploratory Study

David E. Hubbard[†], Sierra Laddusaw

Texas A&M University, University Libraries, TAMU 5000 College Station, Texas 77843, USA

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Abstract

Purpose: This study examines acknowledgments to libraries in the journal literature, as well as the efficacy of using Web of Science (WoS) to locate general acknowledgment text.

Design/methodology/approach: This mixed-methods approach quantifies and characterizes acknowledgments to libraries in the journal literature. Using WoS's Funding Text field, the acknowledgments for six peer universities were identified and then characterized. The efficacy of using WoS to locate library acknowledgments was assessed by comparing the WoS Funding Text search results to the actual acknowledgment text found in the articles.

Findings: Acknowledgments to libraries were found in articles at all six peer universities, though the absolute and relative numbers were quite low ($< 0.5\%$). Most of the library acknowledgments were for resources (collections, funding, etc.), and many were concentrated in natural history (e.g. zoology). Examination of Texas A&M University zoology articles found that 91.7% of the funding information came from "acknowledgments" and not specifically a funding acknowledgment section. The WoS Funding Text search found 56% of the library acknowledgments compared to a search of the actual acknowledgment text in the articles.

Research limitations: Limiting publications to journals, using a single truncated search term, and including only six research universities in the United States.

Practical implications: This study examined library acknowledgments, but the same approach could be applied to searches of other keywords, institutions/organizations, individuals, etc. While not specifically designed to search general acknowledgments, WoS's Funding Text field can be used as an exploratory tool to search acknowledgments beyond funding.

Originality/value: There are a few studies that have examined library acknowledgments in the scholarly literature, though to date none of those studies have examined the efficacy of using the WoS Funding Text field to locate those library acknowledgments within the journal literature.

Keywords Acknowledgment; Bibliometric analysis; Libraries; Web of Science

1 Introduction

The study of journal article acknowledgments began in the 1970s (Chubin, 1975; Mackintosh, 1972), though it was the work of Cronin in the early 1990s that really established this field of study (Cronin, 1991). In an environment of increasing assessment of public supported research, it is no surprise that financial support has emerged as a major focus of many acknowledgment studies; however, acknowledgment studies have always reported on contributions other than just funding (Desrochers, Paul-Hus, & Pecoskie, 2017). More recently, a few studies have explored the contributions of libraries and librarians through acknowledgments (Finnell, 2014; Hubbard & Laddusaw, 2019; Hubbard et al., 2018; Scrivener, 2009; Stigberg, Guittar, & Morse, 2015).

Aside from individually consulting or extracting acknowledgments from source publications, there have been few options for researchers to locate and search acknowledgments. Over the last decade Web of Science (WoS) has begun providing funding information, and increasingly the entire “funding text” for all WoS citation indexes (Mangan, 2019). Several studies have now used the WoS Funding Text field (FT) to search acknowledgments and retrieve more than funding information (Costas & van Leeuwen, 2012; Diaz-Faes & Bordons, 2014; Paul-Hus & Desrochers, 2019; Paul-Hus et al., 2017).

Expanding on our work presented at the 17th International Conference on Scientometrics and Informetrics (Hubbard & Laddusaw, 2019), this study explores the following research questions using the WoS Funding Text: (1) Are libraries acknowledged in journal articles and what is the context? (2) How do acknowledgments to libraries differ across disciplines, peer institutions, and time? (3) How effective is the WoS Funding Text field search at locating acknowledgments to libraries compared to the actual acknowledgment text? In addition to significantly expanding on what was described previously (Hubbard & Laddusaw, 2019), this paper reports on new findings associated with the efficacy of using WoS Funding Text to locate general acknowledgments in journals articles.

2 Methods

2.1 Identification, categorization, and peer comparison of library acknowledgments

This study focused on acknowledgments in journal articles published by six universities, Texas A&M University (TAMU) and five randomly selected TAMU-designated peer universities (P1-P5) (Texas A&M University, 2019), for the years 2008–2018. WoS was used to identify the articles for each university (i.e. Science

Citation Index Expanded, Social Sciences Citation Index, and Arts & Humanities Citation Index). More specifically, articles were identified using Organization-Enhanced, refined to Article or Review document types, and limited to 2008–2018 publication years. The total number of articles with funding acknowledgments for the six universities were identified using the WoS Funding Text: FT=(a* OR b* OR c*...OR z* OR 1* OR 2* OR 3*...9*). The articles containing library acknowledgments were found using FT=(librar*). The WoS Funding Text mentioning libraries were then coded using the following categories outlined by Hubbard et al. (2018): facilities, people, resources, services, and general. It was also noted whether the libraries mentioned in the WoS Funding Text were associated with the university's library (Local) or an unaffiliated library (Other). Temporal changes of the combined library acknowledgments of all six universities were also examined.

2.2 Efficacy of acknowledgment identification

To assess the efficacy of using the WoS Funding Text field search to locate acknowledgment content beyond funding, the full text of articles associated with the WoS Category containing the largest number of TAMU articles with library acknowledgments were examined. This was accomplished by first identifying all the articles associated with that one WoS Category for TAMU (2008–2018), then examining the article full text and categorizing the acknowledgments found based on the acknowledgment sections (General, Funding, General and Funding, or None). The acknowledgments in the articles were searched for mentions of libraries, and then categorized as described earlier (i.e. facilities, people, etc.) The acknowledgments to libraries in the article full text were then compared to the ones found using the WoS Funding Text search.

3 Results

3.1 Analysis of library acknowledgments and peer comparison

The number of articles, funding acknowledgments (FAs), and library acknowledgments (LAs) found for each of the six universities are summarized in Table 1. Many of the LAs identified using FT=(librar*) were determined to be false hits upon closer inspection. On average, only 33% (49 of 148) of the LAs initially identified were considered relevant. Many of the false hits referred to biological libraries (e.g. a DNA library) and not a library as traditionally defined. Of those that were determined to be relevant LAs, almost 60% of those were for providing open access (OA) article processing charges. In order to provide a more appropriate peer comparison, subsequent analyses exclude LAs that only mention libraries for OA

funding from the home university as shown in the last column of Table 1. There was considerable variation in the number of LAs ($M=29$; $SD=10$; $CV=34\%$), as well as the percentage LAs ($M=0.08$; $SD=0.02$; $CV=25\%$)

Table 1. Summary of articles and acknowledgments by peer universities (2008–2018).

Univ.	Article Number	FAs Number (%)	FAs with FT=librar* Number (%)	LAs with OA Funding Number (%)	LAs without OA Funding Number (%)
TAMU	45,066	28,785 (63.9)	182 (0.63)	107 (0.37)	19 (0.07)
P1	62,820	41,216 (65.6)	126 (0.31)	35 (0.08)	33 (0.08)
P2	49,983	34,906 (69.8)	167 (0.48)	36 (0.10)	36 (0.10)
P3	59,079	38,306 (64.8)	136 (0.35)	30 (0.08)	24 (0.06)
P4	42,663	29,046 (68.1)	91 (0.31)	19 (0.07)	19 (0.07)
P5	57,792	39,336 (68.1)	186 (0.47)	67 (0.17)	44 (0.11)
Average	52,901	35,266 (66.7)	148 (0.42)	49 (0.14)	29 (0.08)

Figure 1. Categories of LAs by university.

Figure 2. Library acknowledged (local or other).

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Figure 1 summarizes LAs based on the following categories: facilities, people, resources, services, and general. There was a total of 175 LAs from the six universities, but it should be noted that each LA may contain more than one acknowledgment to a library. Selected examples of LAs include: (1) “Maps were generated with help from the Map and GIS Collections and Services at [TAMU] Libraries...and bathymetry data are from Tobin Global Planner...” [Service, Resource]; (2) “Archival research was facilitated by...Herbarium Library of the [P1] Museum of Natural History.” [General]; and (3) “[P3] Library Data Learning Centre for the statistical analysis and interpretation.” [Service]. The resources category (78 total mentions), which includes funding from libraries except local OA funding, was the most frequent type of LA across all six universities. Services (74 total mentions) and people (71 total mentions) categories were also frequently mentioned. Figure 2 shows the number of LAs by library type (Local or Other). The combined number of LAs for the six universities increased 10-fold from 2008 to 2018. For context, the combined number of articles and WoS funding acknowledgments for the six universities increased approximately 0.5-fold and 4-fold over the same period, respectively.

Table 2 shows the WoS categories assigned to the journals associated with the LAs in Figure 1. There were 97 of 252 WoS categories represented among the 175 articles containing LAs. Table 2 is limited to WoS categories that received 5 or more counts overall. The WoS categories associated with natural history were well represented among LAs (i.e. zoology, environmental sciences, ecology, plant sciences, and water resources).

Table 2. Web of Science categories of LAs.

WoS Categories	Zoology	Environmental Sciences	Information Science & Library Science	Multidisciplinary Sciences	Ecology	Plant Sciences	Public, Environmental & Occupational Health	Genetics & Heredity	Health Care Sciences & Services	Nutrition & Dietetics	Toxicology	Water Resources
TAMU	5	2	–	–	4	1	2	–	1	2	1	1
P1	5	1	–	2	3	3	–	–	–	–	–	–
P2	5	2	8	2	2	1	1	3	–	1	1	1
P3	–	3	1	4	1	1	1	–	–	1	1	–
P4	–	–	2	–	–	3	–	–	1	1	1	3
P5	1	7	2	5	1	–	3	3	3	–	1	–
TOTAL	16	15	13	13	11	9	7	6	5	5	5	5

3.2 Analysis of acknowledgments in TAMU zoology articles

Among the WoS categories, zoology contained the most LAs overall and for TAMU. During 2008–2018, TAMU published 523 WoS zoology articles. WoS indicated that 385 (73.6%) of those articles contained “funding acknowledgments.” After examining the full text of the 523 articles, it was found that 452 (86.4%) contain general acknowledgments, 13 (2.5%) contain a funding acknowledgment, 22 (4.2%) contain both general and funding acknowledgments, and 36 (6.8%) contain no acknowledgment. Of the 385 WoS funding acknowledgments, 353 (91.7%) were actually general acknowledgments and not specifically “funding acknowledgments.” WoS included the full text of 78.1% of the 452 general acknowledgments. There were 9 LAs found via a manual search of acknowledgments in the article text. Those 9 LAs were then categorized into the five LA categories described earlier: facilities (0), people (0), resources (3), services (10), and general (2).

4 Discussion

4.1 Library acknowledgments and peer comparison

The WoS Funding Text search of FT=(librar*) found LAs in articles from all six universities examined; however, the absolute number and percentage of LAs relative to articles are quite low. While the number and percentages of the acknowledgments for the six universities appear similar, there was actually considerable variation ($X=29$ $SD=10$ $CV=34\%$; $X=0.08$ $SD=0.02$ $CV=25\%$), respectively. As mentioned previously, on average only 33% of the initial LAs were considered relevant since the term “library” can represent entities other than how a library is traditionally defined. This would be the case when searching acknowledgments for other general terms, even in cases involving names of people or institutions.

The number of LAs has increased more than can be attributed to overall increase in articles and FAs for the period studied, though this increase may be due to more thorough full-text indexing of acknowledgments versus an emerging trend to acknowledge libraries. Among the six universities, LAs were found more frequently in the WoS categories associated with natural history. Upon closer inspection of the natural history articles, some of the LAs from these five subject areas corresponded with libraries associated with unique natural history collections, in addition to interlibrary loan services, technical assistance, and library funding found throughout many of the LAs. It was surprising not to see more LAs in the humanities since libraries are their “labs.” As shown in Figure 2, most of the libraries acknowledged in LAs are not affiliated with the author’s university, though they could be affiliated with a co-author’s institution. This suggests the need to search more broadly than one’s own institutions for LAs.

4.2 Acknowledgments in TAMU zoology articles

One of the main findings of this study is that the acknowledgment text being extracted by WoS is primarily coming from general acknowledgments and not exclusively from “funding acknowledgments.” For the TAMU WoS zoology publications in this study, WoS contained the text of general acknowledgments for 353 of 452 (or 78.1%) of the articles.

There were a total of 9 LAs found in the full text of the 523 articles compared to 5 LAs found using the WoS Funding Text search (Table 2), so despite 78.1% coverage of general acknowledgments WoS missed almost half of the LAs. The LAs missed by the search were due to the fact that the acknowledgments did not contain funding information. While not specifically designed to search general acknowledgments, the WoS Funding Text search covers a large percentage of the general acknowledgments, and is therefore a useful exploratory tool.

5 Limitations

This study has several limitations. The corpus for this study was limited to journal literature, though the main scholarly output of some disciplines is not journals (e.g. humanities). This study only examined six universities in the United States, a larger more diverse sample may give different results. There was also only one truncated term used to search for LAs, additional related terms and those in other languages may yield more LAs (e.g. archives, bibliotheque, etc.).

6 Conclusion

The absolute number and percentages of LAs were low, but LAs were found in journal articles at all six peer universities examined. The LAs mention resources most often, followed by services and people. Most LAs found were in natural history journals despite the fact that libraries are the “labs” for many in the humanities. The term searched in this study was slightly ambiguous and resulted in a large number of false hits. The number of LAs increased 10-fold from 2008 to 2018, but this may be an artifact of more thorough full-text indexing by the database producer. The WoS Funding Text search captured the majority of the general acknowledgments in this study and was moderately effective at locating the LAs, only missing those LAs in acknowledgments that did not contain funding information. Using WoS to search acknowledgments offers a novel approach to search acknowledgment text for various terms, institutions/organizations, or individuals, though if used for that purpose it may better to consider it as an exploratory tool. In this study, WoS was used to explore contributions of libraries in the research process with the expectation of finding additional information to create richer qualitative impact narratives for libraries, institutions, and individuals.

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Author contributions

David E. Hubbard (hubbardd@library.tamu.edu) and Sierra Laddusaw (sladdusaw@library.tamu.edu) jointly developed the research questions and experimental methods. Both authors were equally involved in data collection and analysis. David Hubbard drafted the paper and both authors revised the manuscript collaboratively.

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