Awareness of Altmetrics among LIS Scholars and Faculty

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Altmetrics track the attention paid to scholarship via mentions in social media, the press, and other non-traditional venues. For library and information science (LIS) faculty, altmetrics are also a new and important area for research and teaching. We conducted a survey of LIS faculty teaching in US and Canadian graduate LIS programs accredited by the American Library Association in which we asked about their familiarity with and awareness of measures of research impact, including altmetrics. Our results indicate that while most LIS faculty in our sample had some awareness of altmetrics, they reported greater familiarity with traditional measures of research impact such as citation counts and usage statistics. We also confirmed that, among our sample, there was a relationship between years of teaching experience and awareness of altmetrics, as well as among familiarity with altmetrics, familiarity with citation counts, and familiarity with usage statistics. Among the robust, global body of research related to the use of new measures of research impact among scientists and scholars, there are few studies that use survey methods and focus on faculty scholars within a specific discipline. The results of this study contribute new knowledge to the existing body of research on altmetrics and may contribute to the development of LIS graduate curricula devoted to measures of research impact and their application in practice.

Keywords: altmetrics, bibliometrics, faculty, library and information science, LIS education, research impact, survey

Stakeholders use measures of scholarly research impact across academia and the public sector for a variety of purposes. Journal publishers use them as a measure of the influence of their publications. Institutions of higher education use them to measure their research output and its impact. Librarians use them to measure the benefit of their collections to their users. Scholars use them to identify the impact of their own research and, often, to make the case for their promotion and tenure. Because of the widespread focus on measures of research impact in libraries and the institutions of which they are a part, the topic is one that should not be overlooked in LIS education.

Measures of research impact

Traditional measures of journal-level impact include the Journal Impact Factor (JIF) and journal-level usage statistics. Traditional measures of a scholar's research impact include citation counts, article-level impact, and the author h-index. Altmetrics are a relatively new type of data that can indicate journal, article, and author-level research impact, including the attention paid to research online ("What are altmetrics?," 2015).

Altmetrics are measures of mentions of research and scholars made in non-traditional venues such as social media (e.g., Twitter, Facebook, blogs, etc.), inclusion in reference managers (e.g., Mendeley), expert peer-review and recommendation services (e.g., Publons and Faculty of 1000 Prime), and mentions in mainstream media and public policy documents. Generally, altmetrics are portrayed as complementary to traditional measures of research impact (Costas, Zahedi, & Wouters, 2015; Priem, Taraborelli, Groth, & Neylon, 2010; Thelwall, Haustein, Larivière, & Sugimoto, 2013; "What are altmetrics?," 2015).

KEY POINTS

- For LIS scholars, measures of research impact like altmetrics are both a topic of research and an area of teaching expertise as well as having potential importance for career advancement.
- LIS scholars who responded to this survey are more familiar with more long-standing and widely recognized measures of research impact such as citation and usage counts than they are with altmetrics.
- More years of experience as LIS faculty is related to having greater familiarity with altmetrics.

Altmetrics have the advantage of providing impact data within days or even hours of the release of a publication and of measuring the influence of a wide variety of research outputs among many audiences (Priem et al., 2010). They are, however, relatively new and have not yet gained the same level of acceptance within academia as is afforded to more traditional measures of scholarly impact (Bonnici & Julien, 2013; Gruzd, Staves, & Wilk, 2011) such as citation counts and author h-index.

Significance of measuring research impact in library and information science

Library and information science (LIS) scholars who teach in LIS graduate programs have a somewhat unique position regarding measures of research impact. As is the case with scholars in other academic disciplines, measuring research impact is often important to LIS scholars' career advancement. But unlike most scholars in other disciplines, for LIS scholars, measures of research impact are also a topic of research and an area of

teaching expertise. While other disciplines may include measures of research impact as a curricular topic for graduate students seeking academic careers, LIS graduate students need instruction in the use of measures of research impact because they are likely to encounter them in professional practice. In addition to the possible need to use measures of research impact for career advancement, practicing librarians should recognize the usefulness of measures of research impact to collection development and how such tools can help them identify resources with the most impact in the disciplines and subject areas the library supports. They may also be called upon to identify measures of research impact as an area in which to expand services to scholars (DeSanto & Nichols, 2017; Reed, McFarland, & Croft, 2016; Tran & Lyon, 2017). Exposure to measures of research impact as a part of LIS graduate programs enhances the practitioner's ability to perform professional responsibilities. It is therefore incumbent upon LIS educators to include some coverage of measures of research impact in the LIS curriculum.

There is a small body of literature devoted to examining scholars' beliefs about and uses of measures of research impact to gauge directions for adding library support services for scholars, such as information about the use of author identifiers (Tran & Lyon, 2017) and the creation and maintenance of scholarly profiles (Reed et al., 2016). This work points to the need to understand disciplinary differences in beliefs about and uses of measures of research impact. However, to date, such studies have often used different disciplinary units of analysis; some examine very broad disciplinary categories such as sciences, social science, and arts, while others drill down to more specific disciplines such as Romance languages, psychology, and political science, making cross-disciplinary comparisons difficult. Focusing an entire study on scholars within a single discipline like LIS will establish a clear picture of beliefs and uses of measures of research impact within the discipline, enabling future interdisciplinary comparisons.

Aims of the current study

The central aim of this study was to assess the awareness of research-impact metrics among LIS scholars teaching in ALA-accredited LIS graduate programs. The study examined LIS scholars' awareness of altmetrics while conducting their own research, while evaluating others' research, and while teaching. The questions we sought to answer through this study were the following:

1. What level of familiarity with and awareness of altmetrics do LIS scholars report themselves to have?
2. Are there relationships between their self-reported levels of familiarity with and awareness of altmetrics and their appointment type, tenure status, and teaching experience?

3. How do their familiarity with and awareness of altmetrics compare to their familiarity with, and awareness of, other measures of research impact?

Although there have been national and international bibliometric studies of LIS scholars' behavior with regard to research metrics, this study is one of the first to seek to understand US and Canadian LIS scholars' familiarity with and awareness of emerging research-impact metrics in the course of their teaching and research. We anticipate that this study will contribute not only to the body of literature on research metrics and their use by LIS scholars and researchers but also to the further development of LIS graduate curricula devoted to measures of research impact.

Literature review

Altmetrics is a relatively new topic, but there is a growing global body of literature associated with it. Much of this literature is rhetorical, perhaps because of questions related to the appropriateness of altmetrics as a measure of scholarly impact. However, another subset of the literature on altmetrics is research-based. Within the second set reside reports of research focused on LIS scholars' behavior toward and awareness of altmetrics, including both quantitative studies in the tradition of bibliometrics that seek correlations between and among measures of research impact including altmetrics, and qualitative studies that seek self-reports of awareness of altmetrics via surveys and interviews. The focus of this review of the literature is limited to altmetrics research, both quantitative and qualitative, focused on LIS scholars' behavior toward, and awareness of, altmetrics.

While not all quantitative studies bear it out, many have identified correlations between altmetrics measures of research impact and traditional measures of research impact among the work of LIS scholars. For example, Bornmann's (2015) meta-analysis of correlations between three altmetrics (Twitter, reference managers, and blogging) and citation counts demonstrated that there are different types of altmetrics and that reference managers have the most correlation with citation counts. Another such study suggested that "altmetrics may indeed reflect impact not reflected in citation counts" (Haustein, Peters, Bar-Ilan, Priem, Shema, & Terliesner, 2014, p. 4). Meho and Yang (2007) suggest that using citation counts from Scopus and Google Scholar together with citation counts from Web of Science provides a more accurate view of scholarly impact among LIS scholars. Supporting evidence appears in a study of articles published in *JASIST* (the *Journal of the American Society for Information Science and Technology*) between 2001 and 2011 (Bar-Ilan, 2012), a longer period than most studies of this type normally cover. This study suggests that there are significant correlations between Mendeley readership, an altmetric, and citations in Web of Science, Scopus, and Google Scholar. While many recent quantitative studies in the tradition of bibliometrics use citations as

their traditional measure of research impact, Martín-Martín, Orduña-Malea, Ayllon, and López-Cózar's (2016) research among scholars in bibliometrics, scientometrics, informetrics, webometrics, and altmetrics found strong correlations between altmetrics and citations, usage, and h-index.

Bornmann (2015, p. 5) suggests that "studies of correlation appear to be frequently done because they are easily produced, not because the correlation between citation counts and altmetrics is the most pertinent question to examine." Luckily, several studies have explored LIS scholars' views of altmetrics. Some of them focus on LIS scholars' perceptions of and preferences among altmetrics tools. Haustein et al. (2014) surveyed the bibliometrics community of scholars about their use of social bookmarking services and reference managers. Mendeley and CiteULike were the most popular, and "although use of altmetric platforms was quite low among survey participants, 85.9% thought that altmetrics had some potential in author or article evaluation" (p. 8). Gruzd, Staves, and Wilk (2011, p. 4) interviewed 51 members of ASIST "among whom [online social media] tools are used as a complementary resource to traditional information resources . . . [and use] is mainly focused on finding information rather than disseminating it."

One of the reasons often given for the lack of uptake of altmetrics is that they don't "count" toward promotion and tenure. Building on the work of Gruzd et al. (2011), Bonnici and Julien (2013) surveyed LIS program deans, directors, and chairs. This study suggested that altmetrics had not been adopted as measures of research impact in promotion and tenure decisions. In a follow-up study, Bonnici and Julien (2014, p. 2) concluded "that altmetrics are a low priority for most faculty members in LIS, and are considered only supplemental to traditional metrics." Gruzd et al.'s (2011) study further suggested that untenured faculty use online social networking tools more often than tenured faculty and that untenured faculty are using online social media to build social networks and "creating a higher profile," a reversal of a previous trend for senior faculty to "embrace new technologies," presumably after they are tenured and feel safer in their positions (p. 6). Gruzd et al. suggest that the new trend of junior faculty adopting online social media will result in the adoption of altmetrics as indicators of research impact as they become more senior and have more say in setting standards.

Methodology

To assess LIS scholars' awareness and current usage of research metrics in the course of their work, we conducted a survey of LIS faculty in the US and Canada who were associated with American Library Association (ALA)–accredited master of library and information science (MLIS) and master of library science (MLS) programs. We obtained participants' email addresses from public institutional web pages. The survey population (n = 2,312) included both full- and part-time faculty

The survey was developed based upon a similar survey of academic librarians' awareness and use of research-impact metrics conducted in 2015 (Konkiel, Sutton, & Levine-Clark, 2015; Miles, Sutton, & Konkiel, 2016; Sutton, Miles, & Konkiel, 2017). The original survey was pilot tested for reliability on a random sample of 100 invited participants. Based on the results of the pilot test, several questions on the original survey were adjusted. The survey of LIS scholars was revised only so that job responsibilities would be pertinent to scholar/teachers rather than librarians. The study, including the survey instrument, was approved by the Institutional Review Board at Emporia State University. It consisted of 30 questions, not all of which were asked of every respondent because the survey employed skip logic to ask respondents only those follow-up questions that were relevant to their earlier answers.

We obtained 159 responses, which represents a 6.9% response rate. Because of this relatively low response rate and the consequent inability to establish goodness of fit between our sample and the population, we also examined confidence intervals (CIs) for some of our results. Data analysis consisted of both descriptive and non-parametric statistics. The use of surveys and descriptive statistics is consistent with similar studies in which faculty were asked to self-report familiarity with scholarly metrics (DeSanto & Nichols, 2017; Tran & Lyon, 2017). The chi-square test for independence was applied to the categorical data collected via Likert-scale–based survey questions about familiarity with research-impact metrics to identify relationships between those data and data describing respondents' years of experience, appointment type, tenure status, and years of teaching experience.

Results

The focus of this survey was to gauge LIS scholars' awareness of and familiarity with altmetrics. We examined the survey results through the lens of several factors that might influence awareness and familiarity: appointment type (whether respondents were employed in full- or part-time teaching positions), tenure status (whether they were tenured, on a tenure track, or neither), and teaching experience (measured by the number of years they had been teaching in LIS). We also examined our respondents' familiarity with, and awareness of, other research-impact metrics, because our previous attempts to identify and measure correlations between familiarity with and awareness of altmetrics and other bibliometrics had been inconclusive (Konkiel et al., 2015; Miles et al., 2016; Sutton et al., 2017), because promotion and tenure guidelines still focus most often on traditional metrics (Julien & Bonnici, 2014) and because we were interested in comparing familiarity with and awareness of altmetrics with familiarity with and awareness of other measures of research impact.

Awareness of altmetrics

We asked the respondents to identify their level of awareness of altmetrics on a five-point Likert scale. The results are illustrated in Figure 1.

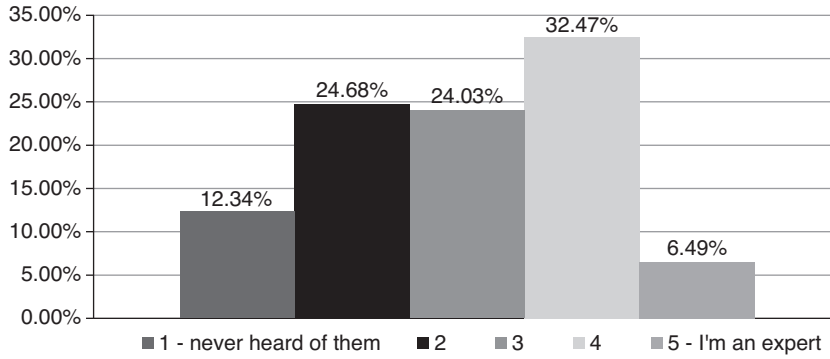


Figure 1: LIS scholars' and faculty awareness of altmetrics

Most of the survey respondents (87.7%, $n = 135$) had heard of altmetrics. Only 12.3% ($n = 19$) reported never having heard of them. Almost 7% ($n = 10$) considered themselves experts in altmetrics. The majority, 81.2% ($n = 125$), reported their awareness of altmetrics to be somewhere in the middle of the two extremes.

Influence of appointment type

Of the 154 respondents who identified themselves as being either full- or part-time faculty, the majority, 72% ($n = 111$), were full-time, and 28% ($n = 43$) were part-time faculty. Of the part-time LIS faculty, 60% (n = 26) reported that they held another full-time position besides a traditional faculty role. Eight worked in academic libraries, two in public libraries, one in a school library, and three in special libraries. Twelve respondents worked full-time in other types of positions, including higher-education administration, software design, and management. Figure 2 illustrates the differences in our respondents' familiarity with altmetrics depending on whether they were full- or part-time faculty. Although it appears that full-time faculty may be more familiar with altmetrics than their part-time counterparts, the difference in our data are not statistically significant (χ^2 (4) = 3.227, $p = 0.521$).

Influence of tenure status

Of the 111 respondents in full-time LIS faculty positions, 87% ($n = 97$) reported being in tenure-track positions, 10% ($n = 11$) reported not being in tenure-track positions, and 3% ($n = 3$) chose not to answer this question. Of tenure-track respondents, 43% ($n = 42$) reported their awareness of altmetrics at the two highest levels, 4 and 5 on the Likert scale, whereas only 18% ($n = 2$) of non–tenure-track respondents reported their awareness of altmetrics at level 4, and none reported an awareness of altmetrics at level 5. Figure 3 illustrates these results. While descriptive statistics suggest that there may be an effect of tenure status upon researchers' awareness of

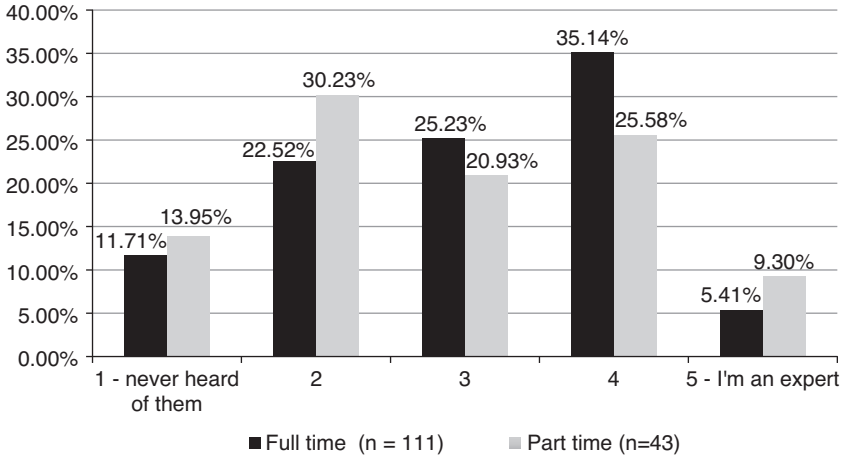


Figure 2: Familiarity with altmetrics by appointment type

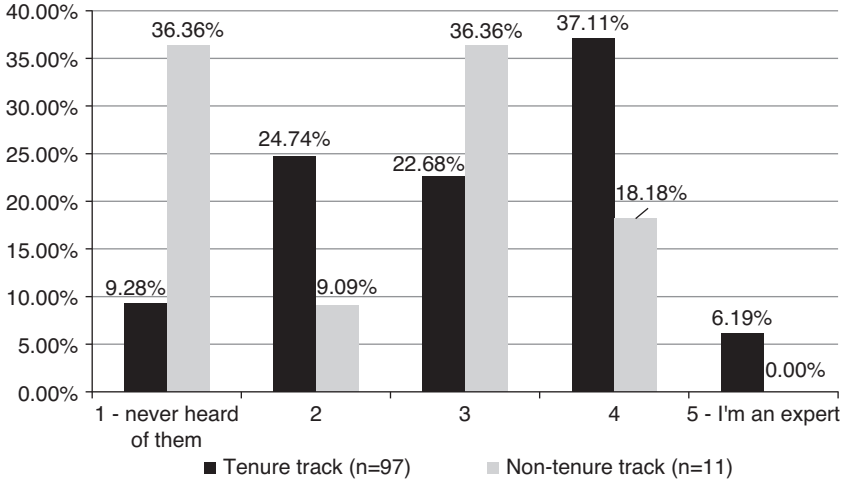


Figure 3: Familiarity with altmetrics by tenure status

altmetrics, because of the small number of non–tenure-track respondents, it was not possible to conduct an accurate chi-square test of independence to find a statistically significant relationship between the two.

Influence of experience as an LIS faculty member

The largest percentage of respondents (33.97%, $n = 53$) reported having one to five years of teaching experience (Table 1). However, the number of responses to self-reported familiarity with altmetrics ($n = 153$) was too small to conduct an accurate chi-square test of independence among other respondent categories. To address this problem, we collapsed years

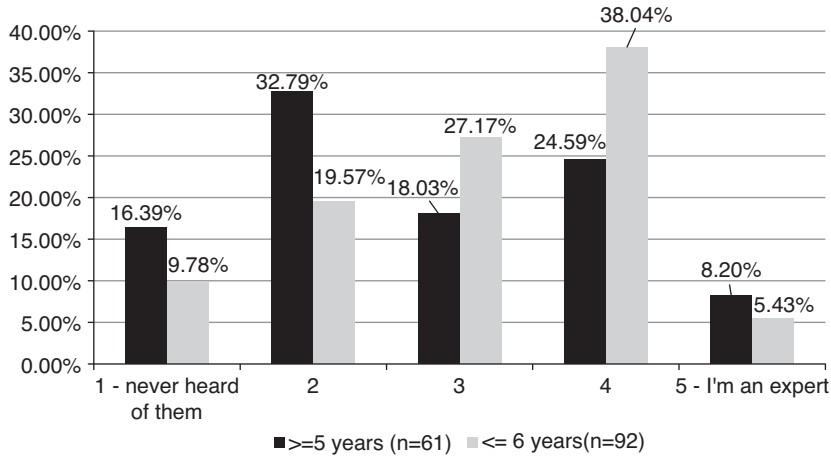


Figure 4: Familiarity with altmetrics by years of teaching experience

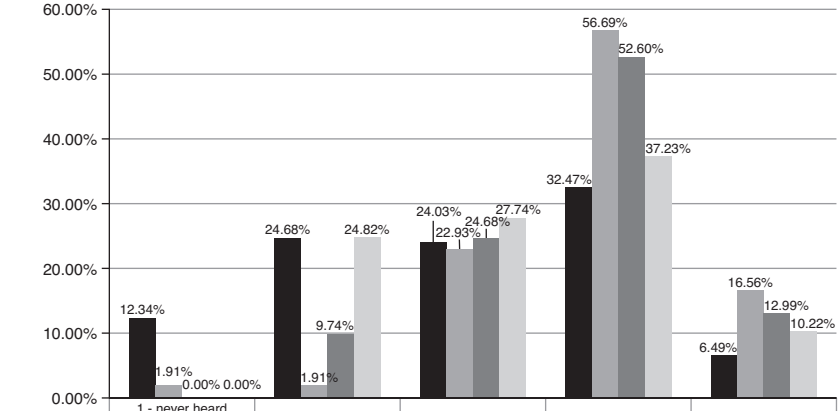
Table 1: Years of teaching experience

Years of experience	Number of faculty	Percent of total
< 1 year	10	6.41%
1–5 years	53	33.97%
6–10 years	34	21.79%
11–20 years	31	19.87%
> 20 years	28	17.95%

of faculty experience from five categories to two: less than or equal to five years' faculty experience, more than or equal to six years' faculty experience as depicted in Figure 4. In this form, the data met the assumptions of the chi-square test of independence and the results indicate a statistically significant relationship between having more years of faculty experience and familiarity with altmetrics (χ^2 (4, n = 153) = 7.635, p = 0.106 at alpha = 0.1), although the effect size is low (Cramer's V = 0.106).

Familiarity with other metrics

We went on to explore LIS faculty members' familiarity with other measures of research impact. Figure 5 depicts respondents' ratings of their familiarity with citation counts, usage statistics, and the author h-index as measures of article-level impact. Of the respondents 73% (n = 115 of 157 responses) reported expert or almost expert levels of familiarity with citation counts. Almost 66% (n = 101 of 154 responses) reported expert or almost expert levels of familiarity with usage statistics. Some 44% (n = 65 of 147 responses) reported expert or almost expert levels of familiarity with



	1 - never heard of them	2	3	4	5 - I'm an expert
Altmetrics	12.34%	24.68%	24.03%	32.47%	6.49%
Citation counts	1.91%	1.91%	22.93%	56.69%	16.56%
Usage counts	0.00%	9.74%	24.68%	52.60%	12.99%
Author h-index	0.00%	24.82%	27.74%	37.23%	10.22%

Figure 5: Familiarity with types of research-impact metrics

the author h-index. Only 38% (n = 60 of 154 responses) reported expert or almost expert levels of familiarity with altmetrics. These results suggest that our respondents were more likely to be most familiar with citation counts and usage statistics and that they also were more familiar with the author h-index than with altmetrics.

To test for statistically significant relationships among familiarity with altmetrics, citation counts, usage statistics, and author h-index, we again collapsed the data to compensate for small numbers of responses. In this case, we collapsed responses for lower levels of familiarity with all metrics, 1 (never heard of them) and 2. We found statistically significant relationships between familiarity with altmetrics and familiarity with citation counts (χ^2 (3, n = 154) = 38.849, p = 0.00, Cramer's V = 0.441) and between altmetrics and familiarity with usage statistics (χ^2 (3, n = 154) = 23.28, p = 0.00, Cramer's V = 0.341). We did not find a statistically significant relationship between familiarity with altmetrics and familiarity with author h-index (χ^2 (3, n = 154) = 3.988, p = 0.263).

Discussion

Given the response rate to our survey, generalizing based on our results should be undertaken with care. Because of the relatively low response rate and the consequent inability to establish goodness of fit between our sample and the population, we also examined CIs for some of our results. In most cases, at a 95% level of confidence, CIs for our results were broad, averaging plus or minus five percentage points. However, our results lend support to other studies on this topic, as will be apparent in the discussion below.

What level of familiarity with and awareness of altmetrics do LIS faculty report themselves to have?

Among the LIS faculty responding to our survey, 87% (n = 135, 95% CI [82.82, 92.69]) report having at least heard of altmetrics. DeSanto and Nichols (2017) surveyed faculty at a single institution on their familiarity with scholarly metrics but reported their results by large groups of faculty in the sciences and social sciences; 73% of their respondents had at least heard of altmetrics. Reed et al. (2016, p. 90) interviewed a small number of faculty also at a single institution and reported that "the term 'altmetrics,' and associated tools, were new to most participants." Our results suggest that LIS faculty may have greater familiarity with altmetrics than do faculty in the social sciences and faculty as a whole. This could be because the topic of measuring research impact is of greater interest to and more central to the discipline of LIS than it is to other disciplines. Further research is needed to confirm whether the trends found in our data hold true across a more representative sample of LIS faculty.

Our respondents were significantly more familiar with traditional measures of article-level research impact such as citation counts and usage statistics than they were with altmetrics. This may be because altmetrics are nascent, or because the use of altmetrics is not yet as well established for purposes such as promotion and tenure (Bonnici & Julien, 2014). This supports the idea that even among members of a discipline that has a strong focus on metrics as a topic of research, altmetrics do not have the established credibility that more traditional metrics enjoy. Again, more research is needed to confirm our initial findings in a larger and more representative sample of LIS faculty.

Are there relationships between respondents' self-reported levels of familiarity with and awareness of altmetrics and their appointment type, tenure status, and teaching experience?

Our results suggest that there is no relationship between familiarity with altmetrics and appointment type within our sample (χ^2 (4) = 3.227, p = 0.521). However, because our response rate among part-time faculty was low, the number of responses from part-time faculty may not accurately reflect this sub-group's familiarity with altmetrics—at best, our results are inconclusive.

Because of the small number of non–tenure-track respondents, it was not possible to conduct an accurate chi-square test of independence to determine the existence of a significant relationship between tenure status and familiarity with altmetrics. However, our results suggest support for those of Gruzd et al. (2011, p. 6), who found that untenured LIS scholars use altmetric sources to "create a higher profile." Because most of our respondents (87%) were on the tenure track, these results lend additional support to the notion that "most faculty learn about scholarly metrics

when scholarly metrics become important to their career advancement" (DeSanto & Nichols, 2017, p. 157).

Among our sample, our results indicate a statistically significant relationship between years of faculty experience and familiarity with altmetrics (χ^2 (4, n = 153) = 7.635, p = 0.106 at alpha = 0.1), although the effect size is low (Cramer's V = 0.106). The distribution of familiarity with altmetrics by years of teaching experience, as illustrated in Figure 4, suggests that LIS researchers with five or fewer years of teaching experience have less awareness of altmetrics than do those with six or more years of teaching experience. This is the opposite of what Gruzd et al. (2011) suggested might be the case when they commented that the new trend of junior faculty adopting online social media would result in the adoption of altmetrics as indicators of research impact as they become senior and have more say in setting standards. Bonnici and Julien (2013, 2014) concluded that there is little support for the use of altmetrics in promotion and tenure decisions and that altmetrics are considered supplemental at best. This might suggest that even senior faculty struggle to effect change in the academy's view of appropriate measures of research impact. Again, all initial findings among our respondents require study using a larger, more measurably representative sample of LIS faculty.

In analyzing these survey results, we make some assumptions about the impact of promotion and tenure requirements on faculty's familiarity with and use of altmetrics. Haustein et al. (2014) suggest that even though researchers' reported use of altmetrics was low, many of their respondents believed that article downloads or views could be useful in the evaluation of impact.

How do respondents' familiarity with and awareness of altmetrics compare to their familiarity with and awareness of other measures of research impact?

When we collapsed the categorical data for familiarity with altmetrics, citation counts, usage statistics, and author h-index, we found statistically significant relationships between familiarity with altmetrics and familiarity with citation counts (χ^2 (3, n = 154) = 38.849, p = 0.00, Cramer's V = 0.441) and between altmetrics and familiarity with usage statistics (χ^2 (3, n = 154) = 23.28, p = 0.00, Cramer's V = 0.341) among our respondents. We did not find a statistically significant relationship between familiarity with altmetrics and familiarity with author h-index (χ^2 (3, n = 154) = 3.988, p = 0.263). This supports the conclusion that our respondents are more familiar with more long-standing and widely recognized measures of research impact such as citation and usage counts than they are with altmetrics. While the author h-index is considered a traditional measure of research impact in this study, anecdotal evidence suggests that it is less easily obtained and understood than citation counts or usage counts, which may contribute to our respondents' reported lack of familiarity with it.

Limitations

In analyzing the results of our survey, we recognized several limitations that should be considered in the interpretation of our results. Although we took care to exclude non-LIS faculty working in hybrid programs, some of the responses indicated that we were not entirely successful in this effort. It was also apparent from those responses that part-time faculty in particular did not understand that we were interested in responses from part-time faculty. This misunderstanding is potentially why there were relatively few responses from that group.

In an effort to compare the demographics of our respondents to the population, the survey included questions in which the respondents were asked to select their areas of teaching and research interest from the LIS Research Areas Classification Scheme (ALISE, 2016), which we planned to use to identify goodness of fit between our pool of respondents and the population of LIS faculty. Unfortunately, the small number of respondents, combined with the large number of areas in the classification, made this impossible. For this reason, along with the overall small number of respondents, our results cannot be generalized to the population of LIS faculty, and consideration of CIs for each finding should be interpreted with care.

Conclusion

For LIS scholars, measures of research impact are both a topic of research and an area of teaching expertise as well as having potential importance for career advancement. The literature suggests that altmetrics are complementary to traditional measures of research impact and should be used to supplement rather than replace them. Traditional measures of research output are often already covered in courses related to collection development and user services. The literature also suggests a growing interest among practicing librarians to provide user services related to measuring research impact. Since the majority of LIS faculty in our survey report at least having heard of altmetrics, it would not be unrealistic to incorporate instruction in altmetrics into those courses alongside instruction in other measures of research output. Given that the results of our study suggest that LIS faculty with six or more years of experience have greater familiarity with altmetrics, it is these faculty who are positioned to take the lead in this endeavor.

However, it is also clear that there are a great many questions still to be answered with regard to LIS faculty awareness of scholarly research metrics. Our study examined one discipline's familiarity and awareness, but there is evidence in the literature of disciplinary differences in the use of altmetrics, which suggests the need for studies of other disciplines' awareness and familiarity with altmetrics. The lack of consistent use of similar units of analysis related to academic disciplines restricts the comparison of one study to another. Therefore, we recommend further

examination of cross-disciplinary differences in familiarity with and awareness of altmetrics.

It is also clear from previous studies that a strong influence on faculty awareness and use of altmetrics is promotion and tenure (DeSanto & Nichols, 2017; Reed et al., 2016; Tran & Lyon, 2017), just as it influences more traditional measures of research impact. Reed et al. report that low institutional value on research corresponded to lower "incentive to track influence" (p. 91). This, combined with Julien and Bonnici's work (Bonnici & Julien, 2013, 2014; Julien & Bonnici, 2014, 2015a, 2015b), suggests that one fruitful follow-up to the current study would be a longitudinal study of LIS faculty promotion and tenure guidelines, particularly upon which measures of research impact they mention, if any, both at the institutional and departmental levels.

Unlike the research from which the survey instrument was drawn (Konkiel et al., 2015; Miles et al., 2016; Sutton et al., 2017), in the current study we did not ask respondents if they covered measures of research impact in their teaching. However, the question of whether a correlation exists between scholars' familiarity and awareness of altmetrics and whether they teach in the area of measures of research impact would clearly also make an excellent follow-up study.

Sarah W. Sutton has 17 years of experience in libraries. She has published and presented in multiple venues on the topic of altmetrics and currently teaches in the School of Library and Information Management at Emporia State University.

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Stacy Konkiel is the Director of Research & Education at Altmetric, a data science company that uncovers the attention that research receives online. Stacy has written and presented widely about altmetrics and library services.

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