Evidence Based Library and Information Practice

Twenty Years of Business Information Literacy Research: A Scoping Review

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Volume 15, numéro 4, 2020

URI : https://id.erudit.org/iderudit/1088735ar
DOI : https://doi.org/10.18438/eblip29745

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Éditeur(s)

University of Alberta Library

ISSN

1715-720X (numérique)

Découvrir la revue

Citer cet article

Houlihan, M., Click, A. & Walker Wiley, C. (2020). Twenty Years of Business Information Literacy Research: A Scoping Review. *Evidence Based Library and Information Practice*, *15*(4), 124–163. https://doi.org/10.18438/eblip29745

Résumé de l'article

Objective – This study analyzes and synthesizes the business information literacy (BIL) literature, with a focus on trends in publication type, study design, research topic, and recommendations for practice.

Methods – The scoping review method was used to build a dataset of 135 journal articles and conference papers. The following databases were searched for relevant literature published between 2000 and 2019: Library and Information Science Source, Science Direct, ProQuest Central, Project Muse, and the Ticker journal site. Included items were published in peer reviewed journals or conference proceedings and focused on academic libraries. Items about public or school libraries were excluded, as were items published in trade publications. A cited reference search was conducted for each publication in the review dataset.

Results – Surveys were, by far, the most common research method in the BIL literature. Themes related to collaboration were prevalent, and a large number of publications had multiple authors or were about collaborative efforts to teach BIL. Many of the recommendations for practice from the literature were related to collaboration as well; recommendations related to teaching methods and strategies were also common. Adoption of the Framework for Information Literacy for Higher Education in BIL appears slow, and the citations have decreased steadily since 2016. The majority of the most impactful BIL articles, as measured by citation counts, presented original research.

Conclusions – This study synthesizes two decades of literature and contributes to the evidence based library and information science literature. The findings of this scoping review illustrate the importance of collaboration, interest in teaching methods and strategies, appreciation for practical application literature, and hesitation about the Framework.

Evidence Based Library and Information Practice

Review Article

Twenty Years of Business Information Literacy Research: A Scoping Review

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Received: 27 Feb. 2019 **Accepted**: 17 Aug. 2020

DOI: 10.18438/eblip29745

Abstract

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Introduction

Business librarians face unique challenges in the classroom. From faculty partner expectations to the diverse research skills required, this group must think creatively in order to achieve learning outcomes and demonstrate the value of information literacy (IL) on their campuses. This study, which is focused on the intersection of information literacy and the discipline of business, is important because business is the most popular undergraduate degree in the U.S. and has been for decades (National Center for Education Statistics, 2017). Business librarians can have a great impact on this large group of students with innovative and effective approaches to information literacy. This study uses the scoping review method in order to explore innovations and approaches to information literacy in business.

Two foundational documents from the Association of College & Research Libraries (ACRL) have guided information literacy practice over the last 20 years: The *Information Literacy Competency Standards for Higher Education* (2000) and the *Framework for Information Literacy for Higher Education* (2015). The *Standards* and *Framework* are built on the same principles, but the theory behind them and the implications for practice are quite different. The *Standards* include information literacy competencies and performance indicators, while the *Framework* includes knowledge practices and dispositions that can be harder to assess. The definition of information literacy has also evolved, and this change is reflected in the *Framework* document. This shift reflects a change in thinking in library and information science, but it has been met with some resistance. Survey results published in 2005 and 2018 demonstrate that business librarians have struggled with integrating them into their teaching practice for a number of reasons. In Cooney's (2005) survey of business librarians, only a third of survey respondents reported incorporating the

Standards into their instruction, and assessments of student learning in this area were rarely conducted. Cooney also discovered that business information literacy (BIL) instruction was still developing and that there was great room for improvement in collaboration between librarians and business faculty. Guth and Sachs (2018) recreated Cooney's survey by exploring implementation of both the *Standards* and the newer *Framework* and discovered several interesting points of comparison with the 2005 responses. Most notably, both the average number of information literacy sessions taught annually and the number of librarians with business as part of their job title decreased. Responses showed an increase in the use of online tutorials for BIL efforts. Guth and Sachs also found that more than half (58%) of their survey respondents had incorporated or were in the process of incorporating the *Standards* in 2015, which is a notable increase from Cooney's survey in 2005. However, 39% of the 2015 respondents had incorporated the *Framework* into their IL efforts.

These surveys provide valuable information on how business librarians are approaching information literacy, but these responses also prompt additional questions that may be answered through a scoping review of the literature. Examining the evidence available in the literature can provide deeper insight into these topics and serve as complementary evidence to inform the future direction of BIL.

Aims

This study utilizes the scoping review method in order to explore the following research question: How can the business information literacy literature be characterized regarding publication type, study design, findings, impact, and recommendations for practice? This scoping review aims to add to the evidence based literature in library and information science (LIS), report on the current state of BIL, and provide business librarians with insight that can be used to improve future information literacy efforts.

Methods

Scoping reviews are best used when the researcher wants to examine the nature of research activity in a particular field, summarize and disseminate findings, or identify gaps in the literature (Arksey & O'Malley, 2005). Thus far, this method is not common in the LIS discipline, aside from the health and medical librarianship subfield. It has, however, been used to explore mentoring programs for academic librarians (Lorenzetti & Powelson, 2015), implementation of Web 2.0 services (Gardois, Colombi, Grillo, & Villanacci, 2012), individualized research consultations (Fournier & Sikora, 2015), researchers' use of social network sites (Kjellberg, Haider, & Sundin, 2016), and generational differences in library leadership (Heyns, Eldermire, & Howard, 2019).

This method aims to "map the literature on a particular topic or research area and provide an opportunity to identify key concepts; gaps in the research; and types and sources of evidence to inform practice, policymaking, and research" (Daudt, van Mossel, & Scott, 2013, p. 8). They differ from systematic reviews in a number of ways. Scoping reviews may be designed around broader research questions. Research quality may not be an initial priority. These studies may or may not include data extraction, and synthesis tends to be more qualitative (Brien, Lorenzetti, Lewis, Kennedy, & Ghali, 2010). Arksey and O'Malley (2005) identify the following stages in their scoping study framework:

1. Identify the research question(s)
2. Identify relevant studies
3. Select the studies
4. Chart the data
5. Collate, summarize, and report the results

The following sections describe each of these scoping review steps in the context of this study as well as an additional step we took in completing the review.

Identify the Research Question

This study was designed to analyze the BIL literature in order to identify trends in authorship, method, theory, research topic, findings, impact, and recommendations for practice.

Identify Relevant Studies

In order to identify the databases to be searched, we used a list of the top 25 LIS journals (Nisonger & Davis, 2005) and added two business librarianship-specific titles: *Journal of Business and Finance Librarianship* and *Ticker: The Academic Business Librarianship Review.* We then identified the databases in which these 27 journals are indexed and conducted systematic searches. We searched the following databases for relevant literature published between January 2000 and December 2019: Library and Information Science Source, Science Direct, ProQuest Central, Project Muse, and the *Ticker* journal site. We searched for articles with "information literacy" and business or economics in the following fields: title, abstract, subject terms, and author-supplied keywords. We utilized database thesauri, when possible, as well as keyword searching.

Select the Studies

Items were included in the review if they were published in peer reviewed journals or conference proceedings and focused on academic libraries. Items about public or school libraries were excluded, as were items published in trade publications.

The LIS literature tends to include a great deal of articles that simply describe practice. For example, the publication might describe a teaching method, newly developed learning object, or outreach effort. This type of literature, which we have classified as "practical applications," may inform the practice of other librarians and thus was included in the scoping review. The goal of the study was to identify publication trends not to exclude non-rigorous work.

Chart the Data

The publication dataset was divided into three sections, and two of the three researchers coded each third. Coding disagreements were settled by the third researcher. Each publication was coded for publication title and type, document type, authorship and collaboration, study population, research methods, theories and models, topics, key findings, and recommendations. The dataset was stored in a spreadsheet that included document citations and fields for every item in Table 1, with the exception of key findings and recommendations. Qualitative data analysis software NVivo version 12 was used to code the publications, including key finding and recommendation text. Some codes were selected prior to coding, but others emerged from the data throughout the coding process. The same 30 codes were used for topic, key findings, and recommendations, a list of which can be found in Appendix A.

Models and theories were coded for each publication only if they informed the study design or interpretation of the findings. Merely mentioning a theory or model in a literature review without specific application was not enough to warrant coding. Thirty research topics were used to code every publication, and each publication was assigned up to three topic codes.

Collate and Summarize the Results

The dataset was analyzed to identify trends in topics, research populations, methods, and more. Findings and recommendations that could

Table 1
Publication Feature Types and Items

Feature Type	**Item**
Publication	Category (e.g., journal article, conference paper)
	Date of publication
	Research classification (e.g., original research, literature review)
Study Design	Theory or model (e.g., grounded theory, technology acceptance model)
	Methods (e.g., interviews, surveys)
	Population (e.g., undergraduate business students, librarians)
Content	Topics (e.g., assessment, information-seeking behavior, workplace information literacy)
	Key findings
	Recommendations

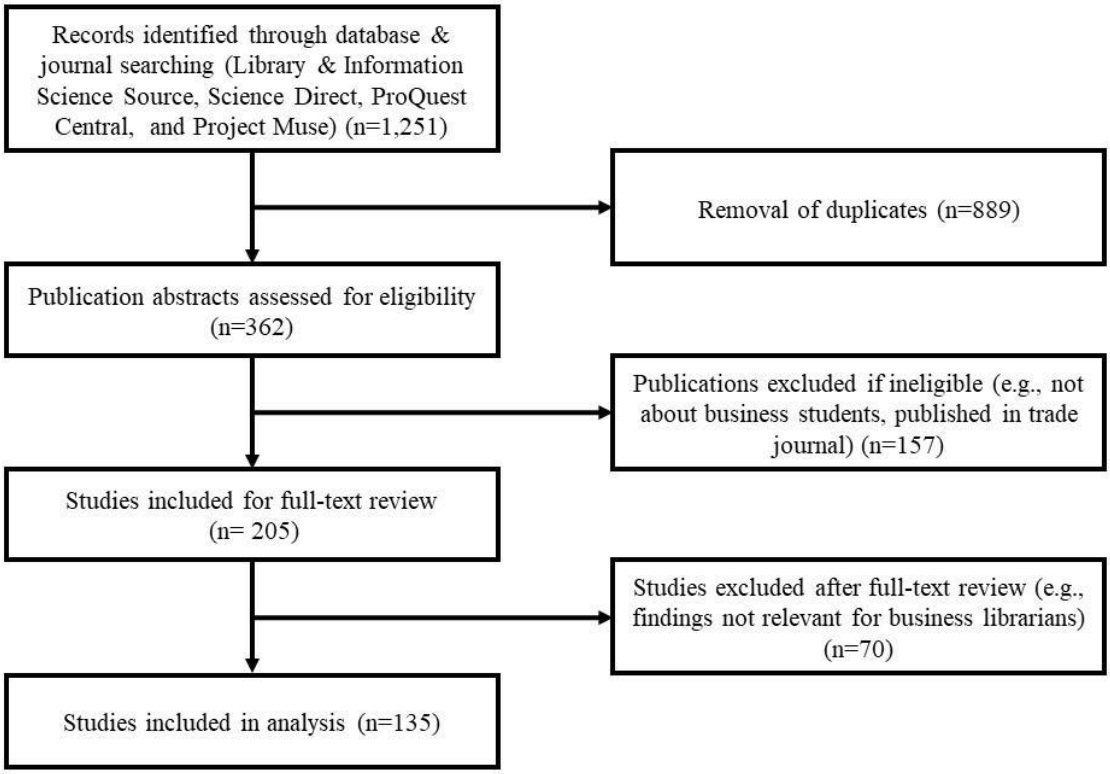

Figure 1
PRISMA flow diagram for BIL scoping review.

inform the BIL instruction practice of academic librarians were of particular interest.

Cited Reference Search

In order to explore the impact of the publications included in the scoping review, we conducted a cited reference search. We searched for each publication in Google Scholar and recorded the number of times each had been cited. Note that this part was an addition to the study design and not a step in the scoping review method.

Results

The original searches outlined in the methods identified more than 1,200 articles, but after removing duplicates and out-of-scope articles, the final dataset included 135 publications. These 135 publications met the criteria for inclusion and were further analyzed. Figure 1 provides more detail on the publication selection process in the form of a PRISMA Flow Diagram. See Appendix B for the list of all included publications.

Publication Categories

Of these 135 included publications, 132 (98%) were published in peer reviewed journals. Although, it is important to note that not all of these articles presented original research, despite their peer reviewed status. Forty-two different journal titles and two conference proceedings were represented. Only four journals published five or more articles that met the study criteria, including *The Journal of Academic Librarianship* (5 articles), *Journal of Information Literacy* (8 articles), *Reference Services Review* (15 articles), and *Journal of Business & Finance Librarianship* (49 articles). Three papers published in conference proceedings met the study criteria and were included. Two papers were published in *Procedia - Social and Behavioral Sciences* and one in *Qualitative & Quantitative Research Methods in Libraries*. A list of all titles can be found in Appendix C.

Date of Publication

As demonstrated in Figure 2, there has been a continued but irregular growth in the number of BIL publications per year between January 2000 and December 2019. The average number of publications per year is 6.75, and publications on the topic peaked in 2012 and 2016, with fifteen publications each year.

Research Classification

Of the 135 publications included in the study, 85 were identified as research articles (63%), 37 as "practical applications" publications (27%), nine as think pieces (7%), and four literature reviews (3%). Any publication with a methods section was considered to be original research, although exceptions were made for non-U.S. publications that used alternative research paper terminology or format. If a methods section was clearly present but not labeled as such, it was included in the dataset. "Practical applications" publications typically described a successful lesson plan, collaboration, or learning activity implemented by a library. Think pieces are publications that usually include an extensive review of the literature but also the author's analysis of or opinion on the topic. Figure 3 shows the number of each document type published by year.

Study Population

Publications were coded for study population if appropriate, including populations like undergraduate business students and business faculty. Populations were identified in three publication types: original research, practical applications, and think pieces. For example, a practical applications publication might describe a new BIL initiative that focused specifically on MBA students, and so it would be coded with a

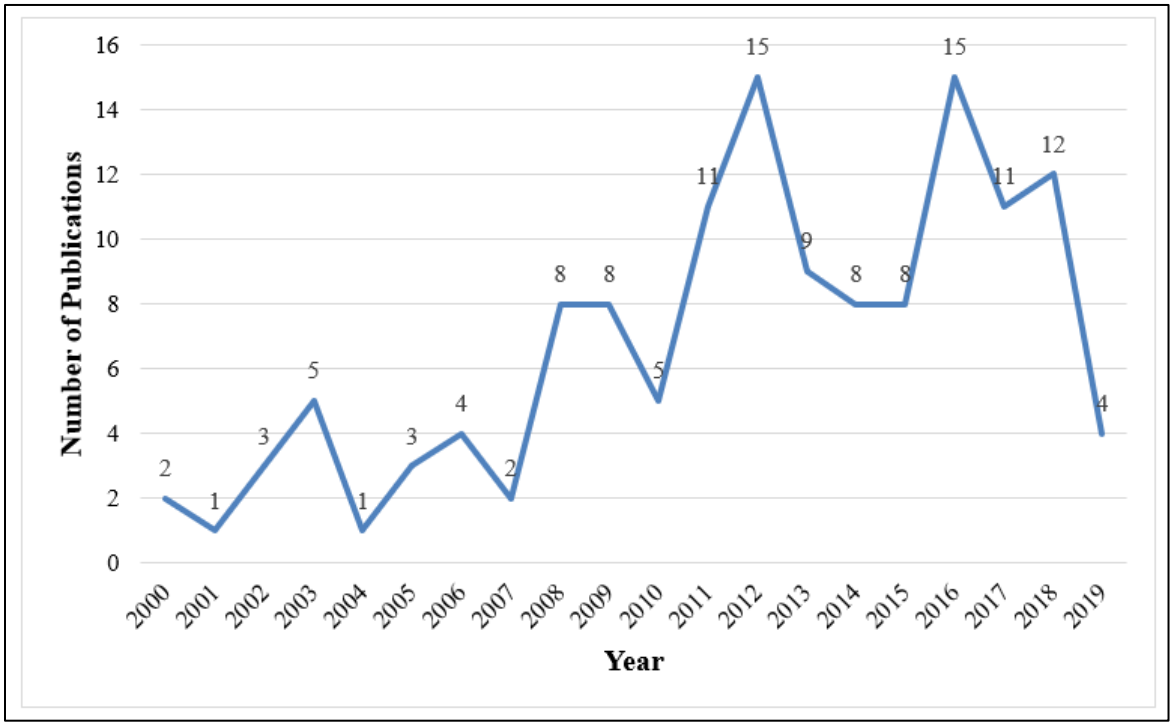

Figure 2
BIL publications per year, 2000–2019.

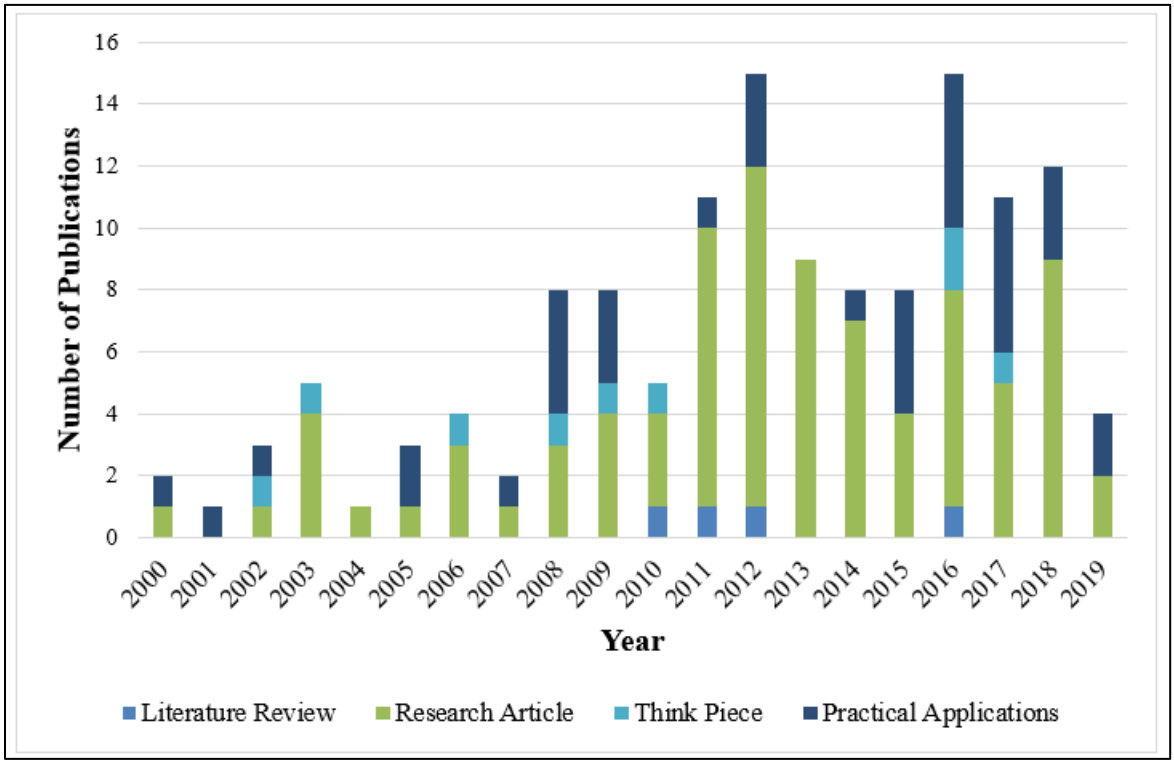

Figure 3
Document type by year, 2000–2019.

Table 2
Study Populations with Total Number and Percentages of Appearances

Study Populations	Total Number of Publications	Percentage of Publications
Undergraduate business students	83	61%
Graduate business students (master's level)	26	19%
Business faculty	8	6%
Business librarians	5	4%

population even though it was not a research study. Sixty-one percent of the publications in the dataset studied undergraduate business students. Some specified subgroups, such as first-year business students (14 publications), undergraduate marketing students (six publications), and undergraduate management students (six publications). Twenty-six articles focused on master's level graduate business students, and 15 of these 26 studied MBA students specifically. Of the 85 original research articles, 68% studied undergraduate business students and 20% studied graduate business students. The most common populations are listed in Table 2. All population types outside of these four (e.g., corporate librarians, PhD business students) appeared fewer than five times.

Authorship

A total of 263 authors from various disciplines and positions are represented in the study. Author position (e.g., business librarian, LIS faculty) was not always clear. Authors were only coded when positions were specified in the article or in the database record, resulting in some authors being coded as unknown. Fifty-two publications were published by a single author, and 83 publications were collaboratively authored. The most common type of collaboration involved librarian co-authorships (26) followed by at least one librarian and one business faculty member (25). Interestingly, seven publications were authored solely by business faculty collaborations that did not include librarians. There was a steady increase in co-authored publications between 2000 and 2019 (see Figure 4).

Research Methods

Eighty-five publications used a research method to gather information related to BIL. Within this dataset, eight unique research methods were applied. Surveys were by far the most common method, used in 72% of the original research publications. Many studies used multiple types of surveys, and in fact there were five different survey types: IL self-assessment, pre- and posttest, IL skills assessment, feedback, and other. Distinctions between the categories were as follows: IL self-assessment surveys gauged student perceptions of their individual IL skill levels (e.g., How comfortable are you identifying peer reviewed sources?). Pre- and posttest surveys were distributed both before and after an instruction session or IL intervention. IL skills surveys focused on assessing IL skill level (e.g., Please identify the Boolean operators in the following search statement.). Feedback surveys requested input on a learning object or activity such as a research guide or lesson plan. The other survey category covered any survey that did not fit into those listed above. See Figure 5 for more detail about the multiple types of surveys. Additional methods included content analysis, interviews, case studies, and focus groups. Nineteen publications utilized more than one research

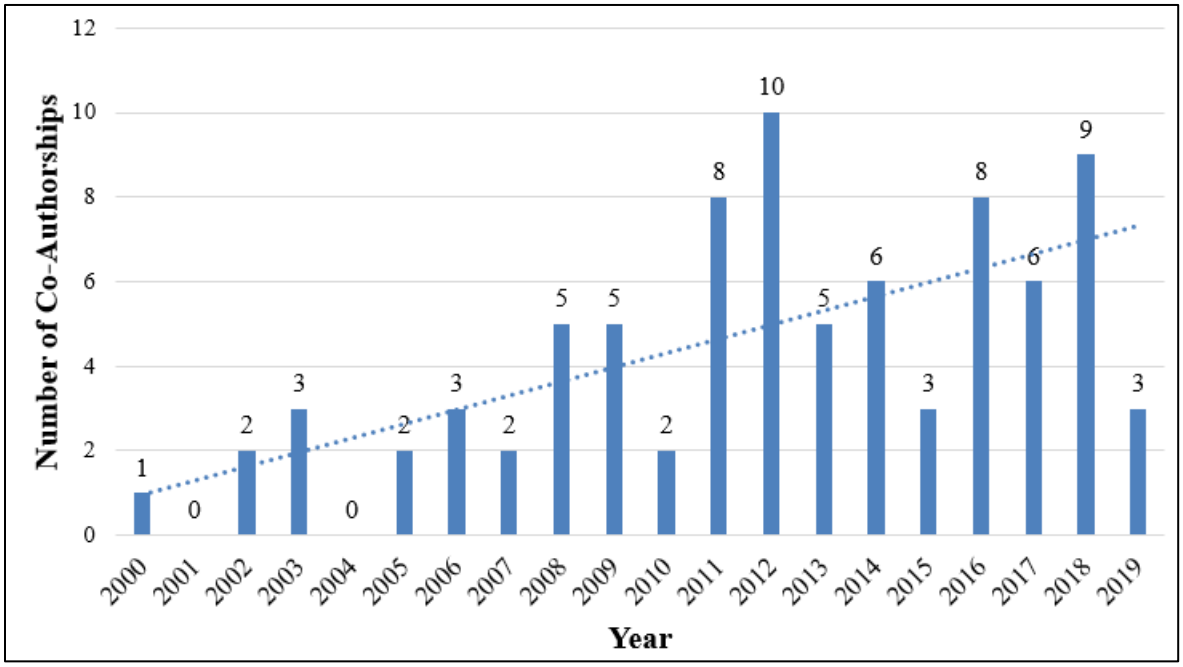

Figure 4
Number of publications with multiple authors by year, 2000–2019.

Table 3
Most Popular Research Methods with Number and Percentage of Publications in Which They Appeared

Research Method	**Total Number of Publications**	**Percentage of Publications**
Survey	61	72%
Content analysis	17	13%
Interviews	12	10%
Case study	10	7%

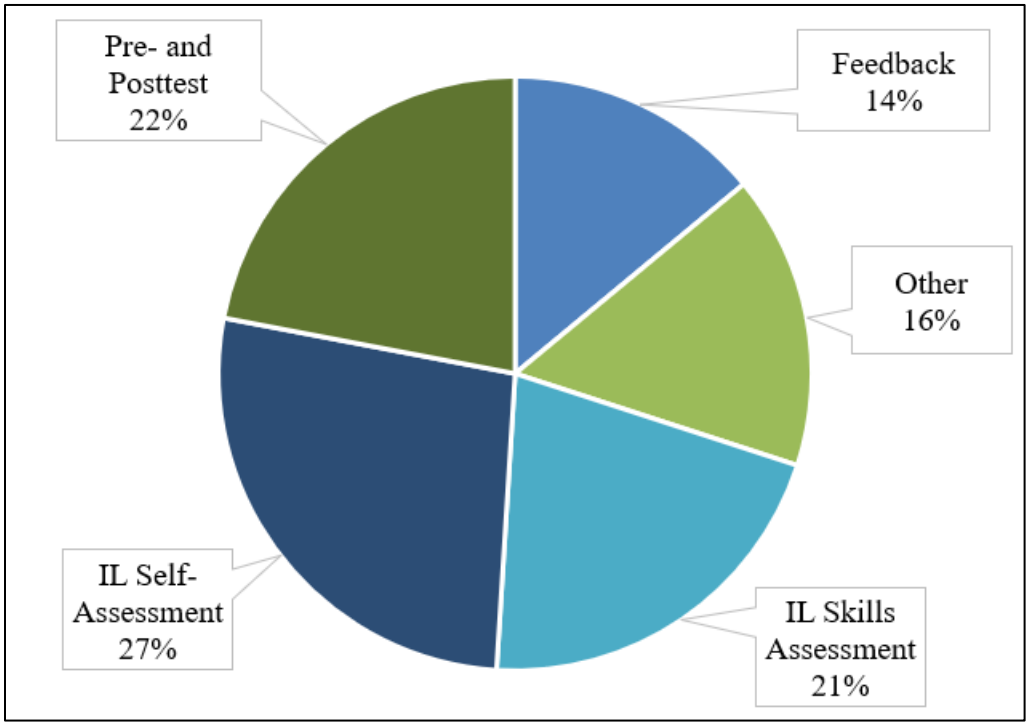

Figure 5
Percentages of surveys by type.

method, and 66 publications relied on one method only. The most popular research methods and the frequency of each can be found in Table 3; all other methods appeared fewer than five times.

Applied Theories and Models

Only 15 of the 135 (11%) publications indicated use of a theory or model in informing their study design, and seven of those publications used more than one. Only three models or theories appeared more than once, Bloom's taxonomy (Jefferson, 2017; Nentl & Zietlow, 2008), adult learning theory (An & Quail, 2018; Quinn & Leligdon, 2014), and the Seven Pillars of Information Literacy (McKinney & Sen, 2012; Webber & Johnson, 2000).

Research Topics

The top six codes applied were collaboration and faculty partnerships, teaching methods and strategies, assessment, IL skills, information-seeking behavior, and online tutorials. The top ten topics can be seen in Table 4. All other codes appeared nine or fewer times. See Appendix A for the topics codebook.

Key Findings and Recommendations

Key findings were coded for original research articles. The top five key findings were related to IL skills, instruction impact, student perceptions, information-seeking behavior, and online resources. The top ten key findings topics can be seen in Table 5. Some publications warranted the use of multiple codes related to the same idea. For example, "instruction impact" was used in conjunction with an additional code such as "evaluation of information" in order to reflect that 1) learning was self-reported and 2) learning was related to information evaluation. In a 2012 article, Finley and Waymire found that students self-reported

Table 4
Most Popular Research Topics with Number and Percentage of Publications in Which They Appeared

Research Topic	**Number of Publications**	**Percentage of Publications**
Collaboration and faculty partnerships	47	35%
Teaching methods and strategies	46	34%
Assessment	42	31%
IL Skills	20	15%
Information-seeking behavior	15	11%
Online tutorials	15	11%
One-shot sessions	14	10%
Instruction impact	13	10%
Student perceptions	12	9%
Workplace IL	12	9%

an increased comfort level with "evaluating the credibility, accuracy, and validity of sources" (p. 34) after receiving IL instruction. Regarding the nesting of codes, evaluation of information is an IL skill and thus might be considered part of that topic. However, publications are often focused on this specific skill, more so than other IL skills. Evaluation of information clearly emerged from the data as its own code.

Fewer than half of the publications offered specific recommendations. The recommendations that did appear were most frequently related to collaboration/faculty partnerships, teaching methods/strategies, and assessment.

Cited IL Standards and Frameworks

This body of literature cited a variety of IL standards and frameworks, including the Australia and New Zealand Information Literacy Framework (ANZIL), Association to Advance Collegiate Schools of Business (AASCB) *Accreditation Standards*, Society of College, National and University Libraries (SCONUL) *Seven Pillars of Information Literacy*, Association of College & Research Libraries (ACRL) *Information Literacy Competency Standards for Higher Education*, ACRL *Framework for Information Literacy for Higher Education*, and BRASS's *Business Research Competencies*. Overall, the following standards were cited most often: ACRL *Standards* (59 references), AASCB *Standards* (24 references), and ACRL *Framework* (16 references). Figure 6 illustrates the number of citations per year for each of these. Twenty-five publications cited more than one standard or framework. The *Business Research Competencies* developed by BRASS, the Business Reference and Services Section within RUSA (Reference & User Services Association), were cited only twice.

Cited Reference Search

In order to better understand the impact of the BIL literature, a cited reference search was conducted in Google Scholar for all 135 publications. Table 6 lists the top ten most highly cited publications from the dataset. There are, of course, numerous ways to measure the impact of a publication, but for the purposes of this study citations were chosen to illustrate the

Table 5
Most Popular Key Findings Topics with Number and Percentage of Publications in Which They Appeared, Examples from the Publications, and Topic Definitions

Key Finding Topics and Definitions	**Number of Publications**	**Percentage of Publications**	**Example From Publications**
IL skills: Assessment or perception of the ability to evaluate, locate, or use information ethically	28	21%	"Generally speaking, librarians, library administrators, and faculty believe that students are lacking the necessary information literacy skills. This stands in contrast to the perceptions of many students, who tend to see their skills as well developed or adequate for completing school assignments" (Detlor, Julien, Willson, Serenko, & Lavallee, 2011, p. 583).
Instruction impact: Participant self-reported change in learning or understanding due to IL instruction or learning object	23	17%	"Based on the quiz performance, it seems that the instructional videos did prepare students for the library instruction session by teaching basic business research concepts" (Camacho, 2018, p. 33).
Student perceptions: Participant self-reported learning or understanding of the library, librarian, or resources	16	12%	"The feedback…indicated that this group of first year [business] students were comfortable with the prospect of undertaking library research and expected to be able to meet course research expectations" (Matesic & Adams, 2008, p. 7).
Evaluation of information: Assessment of or self-reported information evaluation skills and/or behaviors	13	10%	"Prior studies have suggested that some employees do not always evaluate information . . . but this study found that 82% of all jobs mentioned evaluation skills" (Gilbert, 2017, p. 127).
Information-seeking behavior: Behaviors related to finding needed information in- and outside of the library setting	13	10%	"The results also confirmed the authors' suspicions that students largely rely on web-based search engines, like Google, to conduct their research" (Bryant & Hooper, 2017, p. 411).
Online resources: Feedback on or reported use of online resources such as a database, website, or research guide	12	9%	"Research analysis found a range of attitudes toward the use of Wikipedia in higher education, with all interviewees expressing a level of caution regarding its use" (Bayliss, 2013, p. 49).

Workplace IL: Needed or used IL skills in the workplace setting	12	9%	"The university students who performed better on a commercial assessment of information literacy produced better emails, memos, and technical reports as reflected in their grade in a business communications course" (Katz, Haras, & Blaszczynski, 2010, p. 146).
Assessment: Measured student learning through a pre- and posttest or similar method	12	9%	"Across all four categories of knowledge including library usage experience, post-instruction session averages are significantly higher than pre-instruction session" (Gong & Loomis, 2009).
Collaboration, and faculty partnerships: Identified collaboration within the library or institution in IL efforts	10	7%	"We found that successfully implementing the integration of IL skills into the business curriculum was contingent upon the level of continuous institutional support and faculty commitment to the process" (Rodríguez, Cádiz, & Penkova, 2018, p. 127).
Teaching methods and strategies: Reported use of a specific teaching method or strategy used for IL efforts	9	7%	"This study confirms the findings from the library science literature that a research guide is effective when targeted to a class as a course page and there is concurrent instruction on how to use the page by the librarian" (Leighton & May, 2013, p. 135).

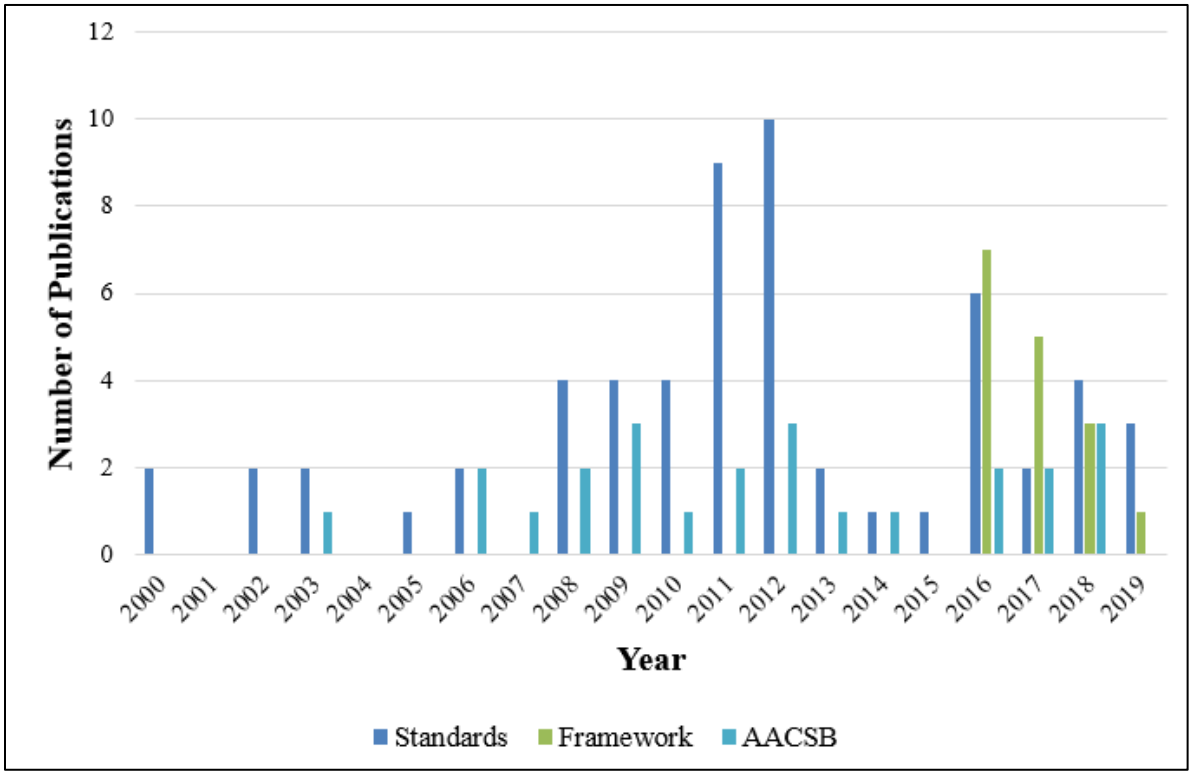

Figure 6
Number of publications citing the ACRL *Standards*, ACRL *Framework*, and AACSB *Standards* by year, 2000–2019.

Table 6
Ten Most Highly Cited Publications in this Study with Citation Count

Number of Times Cited in Google Scholar	Full Citation
490	Johnston, B., & Webber, S. (2003). Information literacy in higher education: A review and case study. *Studies in Higher Education, 28*(3), 335–352. https://doi.org/10.1080/03075070309295
482	Webber, S., & Johnston, B. (2000). Conceptions of information literacy: New perspectives and implications. *Journal of Information Science, 26*(6), 381–397. https://doi.org/10.1177/016555150002600602
203	Williams, J., & Chinn, S. J. (2009). Using Web 2.0 to support the active learning experience. *Journal of Information Systems Education, 20*(2), 165–174. Available at http://jise.org/volume20/n2/JISEv20n2p165.html

159	O'Sullivan, C. (2002). Is information literacy relevant in the real world? *Reference Services Review, 30*(1), 7–14. https://doi.org/10.1108/00907320210416492
100	Fiegen, A. M., Cherry, B., & Watson, K. (2002). Reflections on collaboration: Learning outcomes and information literacy assessment in the business curriculum. *Reference Services Review, 30*(4), 307–318. https://doi.org/10.1108/00907320210451295
91	Donaldson, K. A. (2000). Library research success: Designing an online tutorial to teach information literacy skills to first-year students. *The Internet and Higher Education, 2*(4), 237–251. https://doi.org/10.1016/S1096-7516(00)00025-7
87	Lombardo, S. V., & Miree, C. E. (2003). Caught in the web: The impact of library instruction on business students' perceptions and use of print and online resources. *College & Research Libraries*, *64*(1), 6–22. https://doi.org/10.5860/crl.64.1.6
81	Detlor, B., Julien, H., Willson, R., Serenko, A., & Lavallee, M. (2011). Learning outcomes of information literacy instruction at business schools. *Journal of the American Society for Information Science and Technology, 62*(3), 572–585. https://doi.org/10.1002/asi.21474
76	Cooney, M., & Hiris, L. (2003). Integrating information literacy and its assessment into a graduate business course: A collaborative framework. *Research Strategies*, *19*(3–4), 213–232. https://doi.org/10.1016/j.resstr.2004.11.002
75	Klusek, L., & Bornstein, J. (2006). Information literacy skills for business careers: Matching skills to the workplace. *Journal of Business & Finance Librarianship*, *11*(4), 3–21. https://doi.org/10.1300/J109v11n04_02

impact snapshot. In addition, it is important to note that some of the publications in the dataset were published recently and thus have not yet been cited frequently.

Discussion

Competing IL Standards and Frameworks

Citation of the *Standards* in BIL peaked in 2012, more than a decade after they were adopted (see Figure 6). Adoption of the *Framework* seems slow, and the citations have actually decreased steadily since 2016. This is potentially due to unfamiliarity with the document, which was finalized just four years ago, coupled with the lengthy scholarly publishing process. However, there may well be a spike in usage as more business librarians become knowledgeable about and comfortable with it. ACRL has made a concerted effort to educate librarians on the *Framework* and promote its use in the information literacy instruction classroom. The ACRL publication *Disciplinary Applications of Information Literacy Threshold Concepts* (Godbey, Wainscott, & Goodman, 2017) shared 25 examples of ways that subject librarians have successfully incorporated the *Framework* into class content, and the book includes one example from business-related disciplines. The

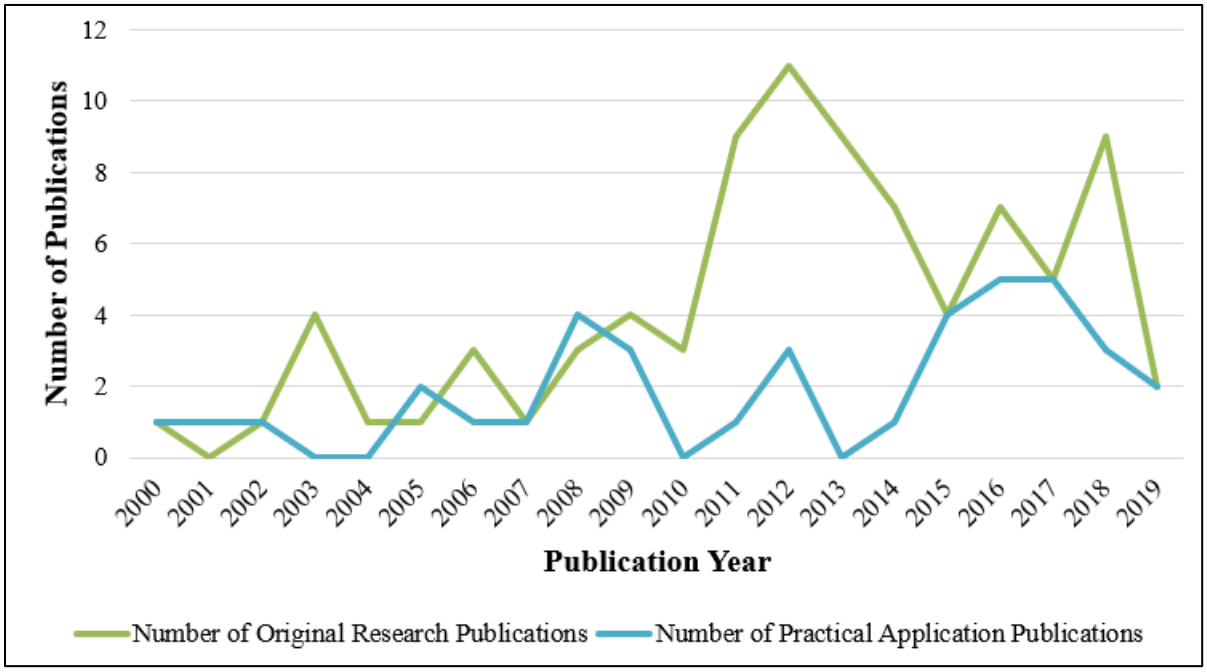

Figure 7
Original research and practical application publications by year, 2000–2019.

widely popular ACRL Sandbox, which is an open access repository where librarians can share lesson plans and activities that incorporate the *Framework*, had 25 out of almost 225 lesson plans focused on business or economics at the time of this writing (ACRL, 2020).

The AACSB *Standards* were cited far less often than the *Standards* but more often than the *Framework*. While these Standards do not specifically use the phrase "information literacy," McInnis Bowers et al. (2009) point out that "four of the six curricular standards for quality management education put forth by AACSB International were closely tied to information-literacy skills, namely, communication abilities, ethical understanding and reasoning abilities, analytical skills, and use of information technology" (p. 113). More than three-fourths of the articles that cited the AACSB *Standards* also cited the ALA *Standards*.

Study Design

Research or Practice?

In the BIL literature, original research and practical applications are the two most common publication types. Both original research and practical application publications generally increased in frequency between 2000 and 2019—although original research increased more. Figure 7 shows a trend in the BIL literature, beginning in 2010, in which original research was published more commonly than practical application publications Practical applications publications are common in the overall LIS literature, and the BIL subset is no exception. These types of publications have been criticized for not being generalizable or rigorous (Wilson, 2013, 2016). Potential explanations for this trend in LIS have been explored, and a main reason for this is the lack of formalized support for

librarians to conduct their own research. Babb summarizes the issue in this way: "Research carried out by librarians was considered important for the profession, while often simultaneously considered extraneous to the individual jobs of librarians" (Babb, 2017, p. ii). Wilson (2016) notes that this issue is not unique to LIS, and that all disciplines have a range of quality that appears in the literature. She recommends these six strategies or areas for improvement in LIS research: confidence, collaboration, mentorship, education, recognizing that practice makes better, and developing specific research needs for specific areas of librarianship. It is important to keep in mind, however, that the practical applications publications are highly valued and used by librarians because they are, in fact, practitioners.

Use of the Survey Method

The survey method is clearly popular with LIS practitioners and researchers. The prevalence of the survey method is not surprising. A 2004 content analysis of "librarianship research" (Koufogiannakis, Slater, & Crumley, 2004) and a 2018 systematic review of LIS research (Ullah & Ameen, 2018) both found the questionnaire/survey to be the most common method. Of the studies that used the survey method, many used multiple types of surveys. For example, Camacho (2018) reported on a project in which librarians and business faculty collaborated on the development of instructional videos for a flipped classroom. The first survey tested the IL skills of the students who had watched the video (e.g., "Why are peer-reviewed articles considered authoritative?") (p. 30). A second follow-up survey collected feedback on the new instructional videos (e.g., "What suggestions do you have for improving the videos in the future?") (p. 33).

It seems that the survey method is often used to demonstrate impact and effectiveness in the classroom. Half of the 62 survey method publications had assessment as a topic, and many shared key findings related to instruction impact (29 publications), IL skills (26 publications), and student perceptions (24 publications). Atwong and Heichman Taylor (2008), for example, developed a survey "to measure students' self-reported knowledge before and after a training module developed and conducted by librarian and faculty" in order to demonstrate instruction impact (p. 433). Detlor et al. (2011) used the standardized IL testing instrument SAILS, in conjunction with interviews, to study undergraduate business students. Findings from this paper indicated that students were skilled at evaluating sources but struggled with search skills.

Researchers most often used IL self-assessment surveys and pre- and posttests to study undergraduate business students, and IL self-assessment surveys and IL skills surveys to study graduate business students. Note that pre- and posttests and IL skills surveys may ask the same types of questions (e.g., Which words in the following list are Boolean operators?), but the IL skills survey is given just one time and the pre- and posttest is given before and after some sort of IL intervention, such as a tutorial or one-shot session. For example, a business librarian and a communications librarian collaborated to develop new IL instruction for undergraduate business students taking a public speaking course. Pre- and posttest surveys using Likert-scale responses measured the effectiveness of the IL sessions. Participants responded to statements such as "I feel comfortable accessing business-related information through the library" (Nielsen & Jetton, 2014, p. 347). In this case, the survey was both a pre- and posttest and also an IL self-assessment. Cooney and Hiris (2003) developed an Information Literacy Inventory, a survey instrument that combined IL skills (e.g., "Information posted on the Internet is available for fair use and is not covered by copyright restrictions. True or false?") and IL self-assessment questions (e.g., "How would you rate your comfort level in conducting the research for the term paper

required in this course?") (p. 226, 227). The authors surveyed graduate business students taking a course on international financial markets and used the findings to develop BIL instruction for the MBA program.

Focus on Undergraduate Business Students

The BIL literature is generally focused on improving instruction practice. Business librarians tend to spend much of their teaching time with undergraduate students. In a 2019 survey, 90% of business librarian respondents reported teaching undergraduate students, and 54% reporting teaching graduate students (Houlihan, Wiley & Click, 2019). Thus, it is not surprising that undergraduate business students made up the study population in more than half of the publications in this dataset. Stonebraker & Fundator (2016) conducted a longitudinal study of undergraduate management students, using a pre- and posttest that "measured students' knowledge of business resources, as well as students' ability to recognize when different types of information are needed to answer specific business questions" (p. 440). In a departure from the heavy use of surveys in the BIL literature, Bauer (2018) used journaling, an ethnographic method. Upper-level business undergraduate students kept journals about their research processes as they completed semester-long projects. Findings showed that participants often struggled in the early stages of the research process, were concerned with the credibility of information, and understood that web searching alone was not sufficient for their assignments (Bauer, 2018, p. 6).

Authorship and Collaboration

Collaboration was a very common topic in the BIL literature; 41% of the practical application and 31% of the original research publications were about collaboration or faculty partnerships. The most common types of author collaboration in this dataset were between two librarians or between a librarian and a business professor. Librarian collaborators were more likely to publish practical application papers. Original research publications were more likely to be authored by a librarian and business faculty. These findings support Wilson's (2016) recommendation, noted previously in the "Research or Practice?" section, that collaboration is an important strategy in improving the quality of LIS research. Librarian's collaborative efforts tended to focus on teaching methods and strategies, which may explain why practical application publications are more common with this population. For example, librarians Detmering and Johnson (2011) describe the revision of BIL instruction for an introductory course, "highlighting the importance of thinking critically throughout the information-seeking process" (p. 105) instead of demonstrating library tools. Papers authored by librarian and business professor teams were, not surprisingly, often about collaboration and faculty partnerships. Many of these publications focused on assessment efforts as well. In one case, a business librarian and an accounting professor collaborated to design a research assignment for a class on government and nonprofit accounting (Finley & Waymire, 2012). They assessed student IL skills by analyzing the bibliographies of the first draft and final version of student papers. This article is notable because it described one of the few librarian/business faculty collaborations in which the librarian participated in the grading process.

Interdisciplinary collaboration on research has many benefits. Scholars can experience personal growth as they learn to approach research from a different perspective. They have the opportunity to learn about different methods, models, and theories. This type of work can be especially rewarding for business liaison librarians as they forge deeper connections with the faculty they work with and learn more about the business research landscape. In a recent study, Tran and Chan (in press) found that librarians are motivated to seek research collaborators for a number of reasons, including

accessing needed expertise, seeking a sounding board, and sharing the research workload. Respondents indicated that seeking collaborators in the workplace is a preferred strategy. These findings all support the idea that business librarians can benefit from collaborating with business faculty—and vice versa.

Impact

A cited reference search was conducted in Google Scholar to identify the most impactful publications as illustrated in Table 6. Seven of the top ten publications were published between 2000 and 2003, which is to be expected; the longer a publication has been out, the more opportunity it has to be cited by other scholars. Interestingly, five of the top ten publications were written by authors outside of the United States, including the top two. Six of the most highly cited publications present original research.

It is also interesting to note that three of these publications appear in journals outside the LIS field (*Studies in Higher Education, Journal of Information Systems Education,* and *The Internet and Higher Education*). More than one-third of the publications in the 135 paper dataset were published in the *Journal of Business & Finance Librarianship*, but only one of the top 10 most highly cited articles was published here. According to Google Scholar's LIS journal rankings, three of the journals represented here are considered top publications in the field: *Journal of the American Society for Information Science and Technology* (*JASIST*), *Journal of Information Science* (*JIS*), and *College & Research Libraries* (*C&RL*). In the complete dataset of 135 articles, these journals appear eight times total: three articles in *JASIST*, three in *C&RL*, and two in *JIS*. All eight were published more than five years ago, with the exception of one *C&RL* paper published in 2018.

Recommendations for Practice

While all of the publications shared findings or described experiences, many did not provide specific recommendations for practice. Of those that did, however, these recommendations most commonly fell under one of the following categories: teaching methods and strategies, collaboration, or assessment.

Teaching methods and strategies recommendations focused on the flipped classroom, problem-based learning, and the use of business models and concepts in IL. Cohen (2016) calls the flipped-instruction model a "catalyst for collaboration" and recommends bringing "disciplinary faculty 'on board' with homework assignments, in-class activities, assessment" and supporting technologies (p. 20). Fiegen (2011), who reviewed 30 years of BIL literature, advises librarians to adopt "a regular practice of preassignments" (p. 287). Problem-based learning was also regularly endorsed. Brock & Tabaei (2011) recommend "using real-life problems and scenarios to encourage the development of information literacy skills" (p. 367), while Devasagayam, Johns-Masten, and McCollum (2012) suggest "experiential exercises that demand involvement, engagement, application, and reinforcement through repetition" (p. 6). Authors also recommend that librarians use methods, frameworks, and concepts that are familiar to business students when teaching BIL. O'Neill (2015) uses the Business Canvas Model, a "popular tool for helping entrepreneurs plan and iterate their business concepts," in the BIL classroom (p. 458). Others recommend using the case method, which students regularly encounter in their business classes, to teach BIL concepts (Spackman & Camacho, 2009; Stonebraker & Howard, 2018).

The nature of teaching in this discipline is more practical than theoretical since BIL requires a unique set of knowledge and search skills. The low number of theories and models used as well

as the scant evidence for implementation of the *Framework* could indicate that some librarians teaching business prioritize teaching disciplinary knowledge over more abstract information literacy concepts.

The many recommendations related to collaboration tended to be vague in nature, positing that collaboration between librarians and business faculty is important and necessary but giving few practical ideas for how to build these relationships. The literature does, however, identify some specific ways that librarians and business faculty can work together, including identifying resources for purchase (Camacho, 2015), supporting experiential learning (Griffis, 2014), identifying skills gaps (Macy & Coates, 2016), and developing IL outcomes (Stagg & Kimmins, 2014).

The assessment recommendations ranged from general calls for more assessment to the recommendation of specific methods. As a result of her review of the BIL literature, Fiegan (2011) recommends pre- and posttests and graded assessments. In our study, we tracked the number of publications in which librarians were part of the grading process, and six met this criterion. Examples of librarians participating in the grading process included Strittmater's (2012) study about a faculty-librarian collaboration in which the author creates online exercises and participates in the grading process. Additionally, librarian-business professor team Cooney and Hiris (2003) collaboratively graded term papers for IL related skills based on a checklist. Other methods are recommended as well, including reflective writing (McKinney & Sen, 2012), rubrics (Mezick & Harris, 2016), and systematic reviews (Fiegen, 2010). Sokoloff and Simmons (2015) write about the value of citation analysis but note that "the method would elicit more meaningful results in the presence of other, complementary evidence" (p. 170).

Conclusions

This scoping review was designed to explore the last two decades of BIL research, in order to support LIS practitioners in their evidence based practice. Findings indicated a dependence on the survey method in BIL research, a focus on collaboration between business librarians and business faculty, interest in new teaching methods, and a hesitation to implement the ACRL *Framework* in BIL. With the introduction of the *Framework* in 2015, all teaching librarians have the opportunity to rethink information literacy efforts based on this new paradigm. While there is an abundance of literature about the ACRL *Framework* and threshold concepts, relatively little literature exists that specifically focuses on how business librarians have utilized this document to improve information literacy assignments, lesson plans, learning activities, and assessments. Further research on this topic would help inform efforts to integrate the *Framework* into BIL.

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Appendix A
Codebook for Research Topics, Key Findings, and Recommendations

Active learning
Assessment
Case study (student assignment)
Client-based projects/student consulting/problem-based learning
Collaboration/faculty partnerships
Credit-bearing courses
Critical thinking
Data literacy
Embedded librarianship
Evaluation of information
Financial literacy
ACRL *Framework*
Information literacy skills
Information literacy standards
Information access
Information seeking behavior
Instruction impact
International libraries
Non-traditional students
One-shot sessions
Online resources
Online teaching
Online tutorials
Orientation
Outreach
Reference services
Scholarly communication
Student perceptions
Teaching methods & strategies
Technology

Appendix B
All Included Publications

1. Akhras, C. (2013). Interactive technology: Enhancing business students' content literacy. *Procedia - Social and Behavioral Sciences, 83*, 332–336. https://doi.org/10.1016/j.sbspro.2013.06.065

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Appendix C
All Journal Titles

Academy of Educational Leadership Journal
Australian Academic & Research Libraries
Australian Library Journal
Behavioral & Social Sciences Librarian
Business Communication Quarterly
College & Research Libraries
College & Undergraduate Libraries
Communications in Information Literacy
Education for Information
Electronic Journal of Academic & Special Librarianship
Evidence Based Library & Information Practice
IFLA Journal
Internet Reference Services Quarterly
Journal of Academic Librarianship
Journal of Business & Finance Librarianship
Journal of Business and Educational Leadership
Journal of Higher Education Theory and Practice
Journal of Information Literacy
Journal of Information Science
Journal of Information Systems Education
Journal of Library & Information Services in Distance Learning
Journal of Management Education
Journal of the American Society for Information Science & Technology
Journal of the Australian Library & Information Association
Journal of Web Librarianship
Knjiznica
Library & Information Science Research
Library Review
New Review of Academic Librarianship
New Zealand Library & Information Management Journal
Nordic Journal of Information Literacy in Higher Education
Pakistan Journal of Information Management & Libraries
Partnership: The Canadian Journal of Library & Information Practice & Research
portal: Libraries and the Academy
Public Services Quarterly
Reference Services Review
Research Strategies
Singapore Journal of Library & Information Management
Southern Law Journal
Studies in Higher Education
The Internet and Higher Education
The Journal of Academic Librarianship
Ticker: The Academic Business Librarianship Review