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Résumé de l'article

Objective – Often people enter libraries focused on their primary information needs and haven't considered their need for spatial information to find their way to what they need. This presents unique wayfinding information challenges for libraries. Papers on library wayfinding often include some discussion of the lack of wayfinding research in libraries, but apparently there has been no comprehensive review of the LIS literature on wayfinding.

Methods – This paper is a comprehensive review of library wayfinding literature, using the Library, Information Science & Technology Abstracts with Full Text (via EBSCOhost) database to collect the dataset.

Results – Findings indicate a small collection of library wayfinding research, primarily focused on academic libraries.

Conclusion – Empirical research in this area is limited. Suggestions for future research on library wayfinding, including potential foci for that research, are presented.

Evidence Based Library and Information Practice

Review Article

Wayfinding Research in Library and Information Studies: State of the Field

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Abstract

Objective – Often people enter libraries focused on their primary information needs and haven't considered their need for spatial information to find their way to what they need. This presents unique wayfinding information challenges for libraries. Papers on library wayfinding often include some discussion of the lack of wayfinding research in libraries, but apparently there has been no comprehensive review of the LIS literature on wayfinding.

Methods – This paper is a comprehensive review of library wayfinding literature, using the Library, Information Science & Technology Abstracts with Full Text (via EBSCOhost) database to collect the dataset.

Results – Findings indicate a small collection of library wayfinding research, primarily focused on academic libraries.

Conclusion – Empirical research in this area is limited. Suggestions for future research on library wayfinding, including potential foci for that research, are presented.

Introduction

We live in a physical world, and in order to navigate it successfully, we need wayfinding skills. This is true whether one is navigating a forest, city, college campus, or a complex building, such as a library. Wayfinding is the process by which humans orient themselves in and navigate a space. Wayfinding can be facilitated through the provision of spatial information that guides people in orienting and navigating a space. In many ways, libraries provide a unique challenge for wayfinding. When patrons walk into a library with a need for information, they need to orient themselves to the library space, navigate to a source of assistance (person, catalogue, and others), and then navigate to the resource(s) that fulfills their information need. So patrons have both their unique information needs and wayfinding information needs, the latter of which patrons are less likely to acknowledge consciously.

While there is a large focus in the LIS literature on understanding information needs and how to help patrons solve those needs, there is considerably less focus on the wayfinding information that patrons need. But how much less focus? It is common for people writing on wayfinding in libraries to lament the dearth of literature on the subject, but there has been no recent comprehensive review of the LIS research literature on wayfinding. Without that, it is difficult to ascertain where the field of library wayfinding is, what research is being done, in which types of libraries, and what work remains to be undertaken. In short, what is the state of the field of library wayfinding research? This paper reviews library wayfinding research literature to address that question.

Aims

Conducting a literature review as a way to assess the state of a field is not uncommon. Three such studies have been completed in a longitudinal series on the state of information behaviour research (Julien, 1996; Julien & Duggan, 2000; Julien, Pecoskie, & Reed, 2011). Others have looked at topics such as use of Geographic Information Systems (GIS) in LIS research (Bishop & Mandel, 2010), emotions in human-computer interaction (HCI) (Lopatovska & Arapakis, 2011), emotions in librarianship (Matteson & Miller, 2012), and libraries' use of open access software (Palmer & Choi, 2014). As yet, there is apparently no such review of literature on wayfinding in LIS or wayfinding in libraries.

How well people are able to find their way in libraries has an impact on their ability to successfully use library facilities to fulfill information needs. Wayfinding can be guided through spatial information systems, including architectural legibility, signage, and people. Anecdotal evidence indicates there is a growing body of literature on wayfinding issues in libraries. A literature review of the research area would allow identification of trends, topics of interest, commonly used research methods, and assessment of "the scholarly maturity of the area" (Julien et al., 2011, p. 19).

The literature review reported here is guided by three research questions. RQ1: What is being published in LIS journals about wayfinding? RQ2: How much of this is about wayfinding in libraries vs. wayfinding elsewhere? RQ3: For articles that are about wayfinding in libraries, how many are research, and in which library types?

Literature Review

Research on wayfinding in the built environment is conducted in a wide variety of settings, including both cities and buildings. As the focus of this paper is on library wayfinding, this literature review is limited to discussion of wayfinding in buildings. Best's (1970) pioneering research occurred in a municipal facility, Manchester (UK) Town Hall. Later work has often focused on medical facilities (Baskaya, Wilson, & Özcan, 2004; Kaya, Ileri, & Yuceler, 2016; Morag, Heylighen, & Pintelon, 2016),

transportation facilities (Hafiz & Zohdy, 2016; Shiwakoti, Tay, Stasinopoulos, & Woolley, 2016), and shopping malls (Chebat, Gélinas-Chebat, & Therrien, 2005; Dogu & Erkip, 2000; Tüzün, Telli, & Alır, 2016). There has also been work in educational facilities other than libraries (Kanakri, Schott, Mitchell, Mohammad, Etters, & Palme, 2016; Stoffell, Schoder, & Ohlbach, 2008). More recently, there is increased focus on wayfinding for people with varying degrees of physical limitations, including cognitively impaired persons (Davis & Ohman, 2016; Torrado, Montoro, & Gomez, 2016), visually impaired persons (Lee, Li, & Lin, 2015; Nguyen, Vu, Tran, & Nguyen, 2017), and even firefighters whose senses are impaired when operating in a smoke-filled building (Hsiao, Tang, Huang, & Lin, 2016).

These studies employ a variety of methodologies, including spatial analysis (Dogu & Erkip, 2000), interviews (Best, 1970), surveys/questionnaires (Baskaya et al., 2004; Dogu & Erkip, 2000; Kaya et al., 2016; Morag et al., 2016; Shiwakoti et al., 2016), and sketch mapping (Baskaya et al., 2004). One of the most commonly used methods is a task completion experiment, employed by Best (1970), Chebat et al. (2005), Lee et al. (2015), Davis and Ohman (2016), Hsiao et al. (2016), Kanakri et al. (2016), Nguyen et al. (2017), Torrado et al. (2016), and Tüzün et al. (2016). In these experiments, participants are given predefined tasks to complete. While they complete the tasks, they might be video recorded, audio recorded, accompanied by a note-taker, asked to think aloud, or otherwise observed. Most of these experiments are conducted in physical settings, but some have been in virtual reality simulations (Davis & Ohman, 2016; Tang, Wu, & Lin, 2009).

Papers on library wayfinding cover a variety of topics, from overview of the literature and work in the field (Beck, 1996) to informal assessment of library facilities for their wayfinding ease (Dempsey, 2006) to formal assessment and research on library wayfinding, which sometimes take the form of institutional reports that are not published in the peer-reviewed literature like the Burke Library Wayfinding Study (Baker, Bakkalbasi, Call, & Kamsler, 2015). Most research seems to be reported in peer-reviewed journals. Some comes from dissertations (Beecher, 2004; Mandel, 2012), which are not indexed in Library, Information Science & Technology Abstracts with Full Text (LISTA).

There is documented need for research on wayfinding in libraries given the challenge of wayfinding in complex buildings like libraries and the concerns over library anxiety (Eaton, 1991; Eaton, Vocino, & Taylor, 1992; Hahn & Zitron, 2011; Li & Klippel, 2012; Mandel, 2013; Schoonover & Kinsley, 2014). Libraries have been called mazes (Li & Klippel, 2012) and labyrinths (Mandel, 2012; Zaugg et al., 2016), both terms suggesting the complexity of library facility layouts. All library users live in a physical world and need to navigate the physical library space to solve their information problems. This problem has been noted by Eaton (1991), Hahn and Zitron (2011), Mandel (2013), Schoonover and Kinsley (2014), Zaugg and Child (2016), and Zaugg et al. (2016).

Method

Following the models of prior literature reviews (Bishop & Mandel, 2010; Julien, 1996; Julien & Duggan, 2000; Julien et al., 2011), this study focuses on literature indexed in a specific database, in this case LISTA (via EBSCOhost). LISTA indexes over 600 journals, as well as research reports, conference proceedings, and books and is considered a standard LIS database. LISTA and Library Literature & Information Science Retrospective are the only LIS-specific databases available at the author's institutional library. A search of Library Literature & Information Science Retrospective for wayfind* in all text returned only 30 records. Two records were for the book *Sign Systems for Libraries: Solving the Wayfinding Problem*, a signage guidelines text published in 1979 that doesn't report research. Twenty records were

chapters in the book, and the remaining eight records were reviews of the book. Given this finding in Library Literature & Information Science Retrospective, the research reported here focused entirely on the literature indexed in LISTA. The database was searched on August 17, 2016, for wayfind* in all text, with results limited to peer-reviewed items. This search returned 136 papers.

All citations were downloaded, and then each article was coded using content analysis. Julien et al. (2011) noted the value of content analysis for a literature review as being systematic, rigorous, and flexible. In this case, the full content of articles was assessed to make the most accurate determination of the degree to which the article was about wayfinding research in LIS.

Coding occurred in a Microsoft Excel spreadsheet. First each article was assessed as to whether it was about wayfinding or not. For those articles about wayfinding, they were further coded for whether they reported research or not and which library type was researched (academic, public, school, other, any/all types, and not library). Articles that were not about wayfinding were coded for whether they were about something else, but mentioned wayfinding once or twice, or whether they cited a source that was about wayfinding. The following types of articles were removed from the dataset: duplicates; reviews of books, articles, and digital applications; and editorials that listed the articles appearing in the issue of a journal. After these removals, the dataset comprised 103 items.

Results

RQ1: What Is Being Published in LIS Journals About Wayfinding?

Less than half of the 103 articles in the dataset were found to be actually about wayfinding (n=43; 41.7%). The largest group comprised articles about something else that mentioned wayfinding once or twice (n=46; 44.7%), and a few articles cited a source that had wayfinding in its title (n=14; 13.6%). The majority of the articles that were about wayfinding were research-based (n=39; 90.7% of articles about wayfinding and 37.9% of all articles in the dataset).

The articles that were not about wayfinding but mentioned it a couple of times covered a wide range of topics. Some focused on library space (n=9), and the same number focused on information architecture. Other topics of papers that mentioned wayfinding once or twice were cataloguing and classification (n=2), collection management (n=1), service orientation (n=1), graphic design (n=1), historical collections (n=2), information kiosks and electronic signage (n=2), information seeking and retrieval (n=4), map collections (n=1), marketing (n=1), mobile devices and mobile apps (n=4), QR codes as information tools (n=2), reference services (n=4), sense-making (n=1), and spatial literacy (n=2).

A wide array of journals is covering wayfinding to some extent, with 60 journals represented in the entire body of 103 articles. Less than a quarter of these journals included articles actually about wayfinding (n=24; 23.3%). *Behavior & Information Technology* (n=5) and *Information Design Journal* (n=4) included the most articles about wayfinding with *Code4lib*, *Information -- Wissenschaft Und Praxis*, and *Library and Information Science Research* each including three articles on wayfinding. Together, these five journals included 34.9% of all the articles on wayfinding (n=15). See Table 1 for a breakdown of each journal's coverage of wayfinding.

RQ2: How Much of This Is About Wayfinding in Libraries vs. Wayfinding Elsewhere?

The majority of articles about wayfinding indexed in LISTA (not including those articles that mentioned it once or twice or cited a source with wayfinding in the title) did focus on wayfinding in libraries. About 40% of the

Table 1
Wayfinding Coverage in LIS Journals by Journal Title

Journal Title	**# articles about wayfinding**
Behaviour & Information Technology	5
Information Design Journal	4
Code4lib Journal	3
Information -- Wissenschaft Und Praxis	3
Library and Information Science Research	3
Journal of the Association for Information Science & Technology	2
Journal of Academic Librarianship	2
Journal of Access Services	2
Public Services Quarterly	2
Reference Services Review	2
Universal Access in the Information Society	2
Cataloging & Classification Quarterly	1
Collection Management	1
Evidence Based Library & Information Practice	1
Information Processing & Management	1
Journal of Map & Geography Libraries	1
Journal of Web Librarianship	1
Library Hi Tech	1
OCLC Systems & Services	1
Performance Measurement & Metrics	1
Reference Librarian	1
Reference Quarterly	1
Reference & User Services Quarterly	1
School Libraries Worldwide	1

articles about wayfinding were about non-library sites (n=17; 39.5%), with the rest about wayfinding in academic, public, school, and other libraries. See Figure 1 for a visual representation of the breakdown of wayfinding articles by not-library and library types.

Wayfinding in academic libraries comprised the same number of articles as wayfinding in non-library sites (n=17 each; 39.5%). Very few articles reported on wayfinding in public (n=2; 4.7%) or school libraries (n=2; 4.7%), a few articles reported on wayfinding in any or all types of libraries (n=4; 9.3%), and one article reported on wayfinding in a digital library (2.3%). The non-library sites included city streets (n=10), digital and virtual environments (n=3), other types of complex facilities (n=3) such as hospitals and airports, and a university campus (n=1).

RQ3: For Articles That Are About Wayfinding in Libraries, How Many Are Research, and in Which Library Types?

Of the articles actually about wayfinding, the vast majority reported research (n=39; 90.7%). Four articles were about something else related to wayfinding. There was one article each on the

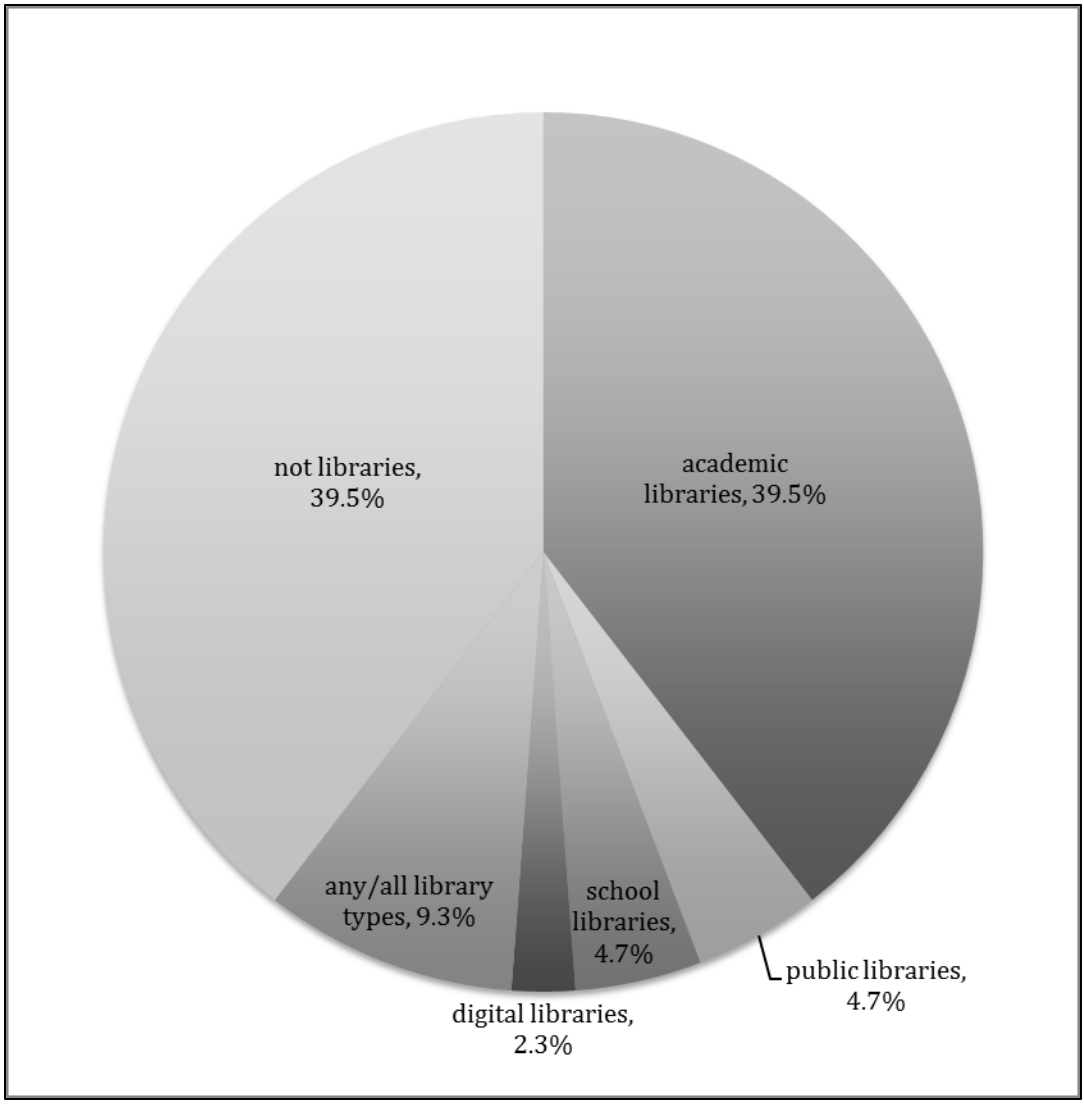

Figure 1
Wayfinding articles in LISTA by institutional focus.

development of a wayfinding app for libraries (Hahn, 2011), the development of a navigation system for cities (Allard, 2008), design principles (Fendley, 2009), and wayfinding in the digital age (Fox, 2015).

Twenty-four articles (23.3% of all 103 articles) reported wayfinding research in libraries. See Table 2 for a list of articles on wayfinding research in libraries by library type. The majority of this library wayfinding research comes from academic libraries (n=17; 70.8% of articles reporting wayfinding research in libraries). The research on academic library wayfinding covers the following topics:

- Development of a wayfinding system (Agarwal & Lawrence, 2014; Orphanides, 2011);
- Reference transactions that include wayfinding questions (Bishop, 2012);
- Signage assessment (Eaton et al., 1992; Polger & Stempler, 2014; Stempler, 2013; Stempler & Polger, 2013);
- App development (Hahn & Morales, 2011; Hahn & Ryckman, 2012; Hahn,

Ryckman, & Lux, 2015; Hahn, Twidale, Gutierrez, & Farivar, 2011);
- Assessing user wayfinding (Hahn & Zitron, 2011; Kinsley, Schoonover, & Spitler, 2016; Li & Klippel, 2012; Schoonover & Kinsley, 2014; Zaugg et al., 2016); and
- Wayfinding as a component of a marketing and assessment project (Porat, 2013).

As compared to wayfinding research in academic libraries, there is less wayfinding research in LISTA about any or all library types (n=2; 8.3%), public (n=2; 8.3%), school (n=2; 8.3%), or digital (n=1; 4.2%) libraries. Both public library wayfinding research articles (Mandel, 2010, 2013), both school library wayfinding research articles (Eaton, 1991; Johnston & Mandel, 2014), and the digital library wayfinding research article (Kerr, 1990) are about assessing user wayfinding. One of the articles about wayfinding research in any/all library types is a comparison of existing research on wayfinding, familiarity, and sketch maps to give libraries a way to assess patron familiarity with and anxiety about the facility (Horan, 1999). The other is about wayfinding as a problem-solving strategy for navigating cataloguing rules (Normore, 2012).

Discussion: Implications for Future Research on Library Wayfinding

The papers found in LISTA that report research in libraries all suggest a need for more wayfinding research to be conducted in libraries. There is great concern about how to make the physical spaces of libraries more navigable for users (Agarwal & Lawrence, 2014; Eaton, 1991; Eaton et al., 1992; Hahn & Zitron, 2011; Hahn et al., 2015; Hahn et al., 2011; Johnston & Mandel, 2014; Kinsley et al., 2016; Li & Klippel, 2012; Mandel, 2010, 2013; Orphanides, 2011; Schoonover & Kinsley, 2014; Stempler, 2013; Zaugg et al., 2016). This is especially true in places where staffing is limited. This can be a physical location that poses a staffing challenge, with Stempler (2013) noting that "open stacks are traditionally not staffed, therefore efficient signage is vital to ensure these collections are accessible to users" (p. 503). Or it can be more general, based on either users' preferences for self-sufficiency or the necessity of self-sufficiency brought on by reduced staffing. Orphanides' (2011) development of a self-service kiosk came out of a confluence of factors, including "a perceived need for improved user access to unmediated wayfinding information" (Motivations, item 1).

Many arguments focus on the challenge of wayfinding in library spaces. There are general statements like "Wayfinding in libraries can be a difficult and challenging task" (Eaton et al., 1992, p. 81) and "Research shows that academic libraries can be difficult to navigate and that students are often frustrated with not being able to find the right materials" (Schoonover & Kinsley, 2014, p. 175). There are also more critical statements about specific spaces, such as "Anecdotally referred to as a maze, the interior spaces of the main library on the authors' university campus […] bring a challenge for patrons to navigate" (Li & Klippel, 2012, p. 22).

But it's not just that wayfinding is a challenge, it is also that service provision is a central tenet of librarianship and wayfinding is a means to improve provision of library services. Hahn and Zitron (2011) asserted, "Providing assistance in the search for books and other resources in the physical library space is a foundational library service. This search can be fostered or hindered by library layout" (p. 28). Zaugg et al. (2016) said that "Wayfinding tools are the means to meet Ranganathan's (1931) third and fourth laws of library science, namely, to help patrons find their book (or needed service) and to save the time of the reader" (p. 70).

Table 2
Articles on Wayfinding Research in Libraries by Library Type

Library type	Citations
Academic	Agarwal, N. K., & Lawrence, H. (2014). Office location map of individuals in the library and other college campus buildings: A proof-of-concept wayfinding system. *Journal of Web Librarianship, 8*(3), 305-323. http://dx.doi.org/10.1080/19322909.2014.927744 Bishop, B. W. (2012). Analysis of reference transactions to inform library applications (apps). *Library & Information Science Research, 34*(4), 265-270. http://dx.doi.org/10.1016/j.lisr.2012.06.001 Eaton, G., Vocino, M. & Taylor, M. (1992). Evaluating signs in a university library. *Collection Management, 16*(3), 81-102. http://dx.doi.org.uri.idm.oclc.org/10.1300/J105v16n03_06 Hahn, J., & Morales, A. (2011). Rapid prototyping a collections-based mobile wayfinding application. *Journal of Academic Librarianship, 37*(5), 416-422. http://dx.doi.org/10.1016/j.acalib.2011.06.001 Hahn, J., & Ryckman, N. (2012). Modular mobile application design. *Code4lib Journal*, (18), n.p. Retrieved from http://journal.code4lib.org Hahn, J., Ryckman, B., & Lux, M. (2015). Topic space: Rapid prototyping a mobile augmented reality recommendation app. *Code4lib Journal*, (30), n.p. Retrieved from http://journal.code4lib.org Hahn, J., Twidale, M., Gutierrez, A., & Farivar, R. (2011). Methods for applied mobile digital library research: A framework for extensible wayfinding systems. *Reference Librarian, 52*(1/2), 106-116. http://dx.doi.org/10.1080/02763877.2011.527600 Hahn, J., & Zitron, L. (2011). How first-year students navigate the stacks: Implications for improving wayfinding. *Reference & User Services Quarterly, 51*(1), 28-35. Retrieved from https://journals.ala.org/index.php/rusq Kinsley, K. M., Schoonover, D., & Spitler, J. (2016). GoPro as an ethnographic tool: A wayfinding study in an academic library. *Journal of Access Services, 13*(1), 7-23. http://dx.doi.org/10.1080/15367967.2016.1154465 Li, R., & Klippel, A. (2012). Wayfinding in libraries: Can problems be predicted? *Journal of Map & Geography Libraries, 8*(1), 21-38. http://dx.doi.org/10.1080/15420353.2011.622456 Orphanides, A. K. (2011). Lessons in public touchscreen development. *Code4lib Journal*, (15), n.p. Retrieved from http://journal.code4lib.org Polger, M. A., & Stempler, A. F. (2014). Out with the old, in with the new: Best practices for replacing library signage. *Public Services Quarterly, 10*(2), 67-95. http://dx.doi.org/10.1080/15228959.2014.904210 Porat, L. (2013). Marketing and assessment in academic libraries: A marriage of convenience or true love? *Evidence Based Library & Information Practice, 8*(2), 60-67. http://dx.doi.org/10.18438/B8FS5M

	Schoonover, D., & Kinsley, K. M. (2014). Stories from the stacks: Students lost in the labyrinth. *Journal of Access Services, 11*(3), 175-188. http://dx.doi.org/10.1080/15367967.2014.914426 Stempler, A. F. (2013). Navigating circular library stacks: A case study on signage. *Reference Services Review, 41*(3), 503-513. http://dx.doi.org/10.1108/RSR-02-2013-0006 Stempler, A. F., & Polger, M. A. (2013). Do you see the signs? Evaluating language, branding, and design in a library signage audit. *Public Services Quarterly, 9*(2), 121-135. http://dx.doi.org/10.1080/15228959.2013.785881 Zaugg, H., Child, C., Bennett, D., Brown, J., Alcaraz, M., Allred, A., & ... Lee, S. (2016). Comparing library wayfinding among novices and experts. *Performance Measurement & Metrics, 17*(1), 70-82. http://dx.doi.org/10.1108/PMM-12-2015-0041
Public	Mandel, L. H. (2010). Toward an understanding of library patron wayfinding: Observing patrons' entry routes in a public library. *Library & Information Science Research, 32*(2), 116-130. http://dx.doi.org/10.1016/j.lisr.2009.12.004 Mandel, L. H. (2013). Finding their way: How public library users wayfind. *Library & Information Science Research, 35*(4), 264-271. http://dx.doi.org/10.1016/j.lisr.2013.04.003
School	Eaton, G. (1991). Wayfinding in the library: Book searches and route uncertainty. *RQ, 30*(4), 519-527. Johnston, M. P., & Mandel, L. H. (2014). Are we leaving them lost in the woods with no breadcrumbs to follow? Assessing signage systems in school libraries. *School Libraries Worldwide, 20*(2), 38-53. Retrieved from http://www.iasl-online.org/publications/slw/index.html
Digital	Kerr, S. T. (1990). Wayfinding in an electronic database: The relative importance of navigational cues vs. mental models. *Information Processing & Management, 26*(4), 511-523. https://doi.org/10.1016/0306-4573(90)90071-9
Any/all	Horan, M. (1999). What students see: Sketch maps as tools for assessing knowledge of libraries. *Journal of Academic Librarianship, 25*(3), 187-201. https://doi.org/10.1016/S0099-1333(99)80198-0 Normore, L. F. (2012). "Here be dragons": A wayfinding approach to teaching cataloguing. *Cataloging & Classification Quarterly, 50*(2/3), 172-188. http://dx.doi.org/10.1080/01639374.2011.651192

If wayfinding is so important to the provision of library services, then why is it such a small area of focus in LIS research? Out of tens of thousands of articles indexed in LISTA, only 103 include the keyword wayfind*. This shows wayfinding to be a small subset of the LIS literature, despite the known importance of user services for librarianship. There is more work being done on wayfinding than what appears in LISTA, including dissertations, such as Beecher (2004) and Mandel (2012), papers published in journals not indexed in LISTA, and institutional reports like the *Burke Library Wayfinding Study Report* (Baker et al., 2015). But, it does seem like wayfinding is not experiencing the level of research focus that its importance demands.

A search of information behaviour research indexed in LISTA for 1999-2008 found 749 articles (Julien et al., 2011). As compared to this study, which found 103 articles over the entire time period indexed in LISTA, that is seven times as many articles in a much shorter time period. Effective wayfinding requires spatial information, yet it receives very little research attention in LIS compared to information behaviour, a central topic in the field (Bawden & Robinson, 2012). And, despite the focus on development of models and frameworks of information behaviour, there is hardly any work on theoretical development for library wayfinding with most studies forgoing a theoretical model entirely.

The research indexed in LISTA includes calls for more wayfinding research on a variety of topics. Some call for further development and testing of wayfinding tools (Agarwal & Lawrence, 2014; Hahn & Ryckman, 2012; Hahn & Zitron, 2011; Hahn et al., 2015; Oprhanides, 2011), as well as development of best practices (Mandel, 2013; Stempler & Polger, 2013). Others recommend modifications to existing tools with follow-up research to assess the new tools (Eaton et al., 1992). There are calls for replication studies (Kinsley et al., 2016; Mandel, 2010; Polger & Stempler, 2013; Schoonover & Kinsely, 2014) and expansion of research methods used in wayfinding research (Johnston & Mandel, 2014; Li & Klippel, 2012; Mandel, 2010; Schoonover & Kinsely, 2014; Stempler, 2013). There are even calls for tools that facilitate serendipitous information seeking behaviour (Hahn & Morales, 2011) and research to develop theories related to library user wayfinding (Mandel, 2013).

There is Need for Wayfinding Research in Libraries

Libraries are physical spaces that users must navigate in order to satisfy their information needs. Over 20 years ago, there was a call for wayfinding research in libraries (Eaton, 1991), and there has been growth in library wayfinding research since that time, but it is still a very small segment of LIS research compared to other information seeking research. If we accept that "people come to libraries with cognitive information needs, and library use—especially first-time library use--adds to those needs before it meets them" (Eaton, 1991, p. 520) and that "there is little point in having a resource or service if locating it is a tiresome and frustrating experience for patrons" (Zaugg et al., 2016, p. 80), then libraries cannot afford to neglect the needs of physical space navigation. There is already pressure on many libraries, of all types, to cede space to other uses. It doesn't help if library spaces are hard to use; that makes people even less likely to support library requests to maintain or expand their space. Wayfinding research that helps libraries make their spaces more usable is of extreme importance, requiring more research and subsequent publication of the findings of that research in the LIS literature.

There Is Need for Library Wayfinding Research in Public, School, and Other Libraries

Over 70% of library wayfinding research indexed in LISTA is about academic libraries and based on academic library users. Academic libraries serve a specific population that differs greatly from the user populations of public, school, and special libraries. It cannot be assumed that research based on undergraduate students (the most common population studied in the academic library wayfinding research) is generalizable to K-12 students and teachers, digital and other special library users, or the broad populations that comprise public library users. There is a strong need for empirical wayfinding research in all types of libraries. Perhaps once there is a large body of wayfinding research in a wide variety of library types, it might be determined that wayfinding needs are similar across library types, but we cannot safely assume that without any empirical evidence on which to support such an assertion. So, we first need a larger body of literature on wayfinding research in public libraries, school libraries, and special libraries before we can determine the

generalizability of wayfinding research in one library type to all library types.

There Is Need for More Research on Library Wayfinding That Is Empirical, Guided by Theoretical Models, and in Various Types of Libraries

Such research might replicate existing studies, expand studies from academic libraries to other types of libraries, or ask new questions. For example, to what degree does familiarity play a role in successful library patron wayfinding and how can we support that for new patrons? Libraries focus much of their wayfinding improvement efforts on signage, but how much can signage overcome problems of physical layout and architectural legibility? How can we use new technologies to support and facilitate wayfinding in libraries? Given the nascent nature of library wayfinding research, there are countless questions to be asked. This is a rich area for future research that offers many opportunities for researchers willing to take up the challenge.

It is hoped that this article will serve as an impetus for more researchers to investigate library wayfinding in their research and to consider researching library wayfinding in a variety of library types.

Conclusion

Reviewing the literature indexed in LISTA showed that research on library wayfinding is a nascent field with much work to be done. There are fewer than 40 articles in LISTA that report research on wayfinding in libraries, an extremely small number compared to the research articles on other topics with LIS, such as information behaviour research. The majority of that research on library wayfinding is based on studies conducted in academic libraries, so we know even less about wayfinding in school, public, special, and digital libraries. In a field like librarianship that prides itself on a service orientation, research on critical issues for customer service should be prevalent. Wayfinding is one such critical issue, but empirical research in this area is limited.

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