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Disability and accessibility in the library and information science literature: a content analysis.

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Introduction

Professional library associations and national libraries have long been advocates of providing materials in accessible format for persons with disabilities. Often, library association advocacy and national libraries have been ahead of the legislative curve in addressing accessibility issues. Accessibility of library services and library service to persons with disabilities was a concern in the United States (US) long before the 1990 implementation of the Americans with Disabilities Act (ADA). The Library of Congress began providing services for persons with visual disabilities in 1897. Initially consisting of a reading room with 40 books in Braille, the service eventually developed into the National Library Service (NLS) which provides services to print disabled individuals across the US (Cylke, Moodie, & Fistick, 2007). Similar programs operate in the United Kingdom (UK), Canada, and Australia.

In addition, the Australian Library and Information Association had guidelines on library standards to persons with disabilities in place a year before national legislation was implemented in 1999. In Canada there are human rights laws that prohibit discrimination to persons with disabilities, but there is no nationwide legislation specific to disabilities (Burns & Gordon, 2010; McColl & Stephenson, 2008).The Canadian Library Association has had guidelines for service to persons with disabilities in place since 1997.

With this long-standing concern for persons with disabilities to have accessible services come questions of how this interest is conceived by the broader library and information science (LIS) professional community. How does the LIS community conceptualize disability and accessibility? The space for examining this question will be a content analysis of the LIS literature which provides a broad perspective of viewpoints from both practitioners and researchers. This research will identify the major issues and trends on disability and accessibility in the LIS literature over an 11 year period, 2000-2010 that represents a stretch of time after which major national accessibility legislation had been passed in the US (1990), the UK (1995), and Australia (1999).

Problem statement

The LIS profession, broadly defined as researchers and practitioners interested in libraries and users accessing information systems, has had a long-standing interest in the subject of accessible services to persons with disabilities. Much of the research attempting to examine the phenomenon is survey based and focused on assessing the quality and level of service provision to persons with disabilities (e.g. Akin & Ross, 2002; Kinnell & Creaser, 2001;

Ryder, 2004). This research provides some insight into how the profession perceives accessibility, but a study more focused on the publication of the field could provide increased insight.

The research question is how is library and information science (LIS), as a field, conceptualizing disability and accessibility? The literature provides a fertile ground for study as it reflects the profession's approaches to and perceptions of a topic. A study such as this can prove useful to researchers interested in disability and accessibility issues as it highlights the current areas of emphasis, the type of disabilities of focus in the literature, and the makeup of the current research.

Content analysis in LIS

Content analysis is a well established approach in LIS and has been used to study the literature from multiple angles in order to identify trends, major issues, and developments in the literature (Julien, Pecoskie, & Reed, 2011; Julien & Duggan, 2000; Hider & Pymm, 2008; McKechnie & Pettigrew, 2002). This type of examination provides a broad perspective on a particular issue of interest in the literature creating insight and guidance for future research and inquiry.

Definitions

Disability

For the purposes of this paper, *disability* will be broadly defined to include physical, perceptual, and developmental challenges. A more expansive definition and statistics, as laid out below, provide a more nuanced understanding of the phenomenon and the challenges inherent in addressing them.

The United Nations (UN) defines disability as a broad umbrella term that can be conceived in two parts. Disabilities are "long-term physical, mental, intellectual or sensory impairments which, in interaction with various attitudinal and environmental barriers, hinders full and effective participation in society" (2009). For disabilities researchers the concept of disability is becoming to be seen less in a medical sense and more commonly as an interaction between the individual and the environment (Devlieger, 1999; Field & Jette, 2008; Prince, 2009; Terzi, 2008). Prince (2009) defines disability as neither a fixed nor uniform phenomenon but one that is "socially constructed, administratively negotiated, and politically contested" (6). Similarly, Terzi (2008) defines disability as "a phenomenon of the interface between personal

characteristics of the individual and the specific design of the social and physical environment that the individual inhabits" (97).

Approximately 36 million people in the US have one or more disabilities. In Canada and Australia, the figures are 4.4 million and 4 million, respectively. These figures equate to 11 percent of the US, 13 percent of the Canadian, and 20 percent of the Australian populations. As the populations of these nations age, it is predicted that these numbers will only grow (Burns & Gordon, 2010; Government of Canada, 2005; Human Resources and Skills Development Canada, 2009; U.S. Census Bureau, 2008; Australian Bureau of Statistics, 2009). In both Canada and the US, persons with disabilities are less likely than their able-bodied peers to have post-secondary education and are less likely to obtain meaningful employment (Canadian Council on Social Development, 2001; Kaye, 2003; Malhotra, 2006).

Accessibility

The focus on accessibility here will include both virtual and physical library and information system environments. Accessibility of the virtual environment focuses on the ability to access and utilize online resources in the form of databases and websites. Accessibility of the physical environment includes all that is necessary for persons with disabilities to access and maneuver through the physical space of the library.

The term accessibility as used here is reserved for a focus on persons with disabilities as opposed to more general usability testing, though the two are related. Accessibility includes both 'reasonable accommodation' (where "necessary and appropriate modifications and adjustments not imposing a disproportionate or undue burden….to ensure to persons with disabilities the enjoyment or exercise on an equal basis with others of all human rights and fundamental freedoms" and 'universal design' (where "products, environments, programmes and services [are] useable by all people, to the greatest extent possible, without the need for adaptation or specialized design") (United Nations, 2006).

Libraries have the potential to provide meaningful assistance. Libraries are often considered a leveler in terms of socioeconomic differences—providing resources to people who might not otherwise have access (American Library Association, n.d.; Epp, 2006; Russell & Huang, 2009). Accessibility has been a long-standing concern of practitioners and the LIS professional associations and the proposed increase of disabilities in the future ensures this topic will be of interest in the future.

Review of the literature

LIS literature on disability/accessibility issues

As the LIS research on disability and accessibility will be a focus for part of the content analysis below, the following is a brief overview of the literature. The LIS literature on disability and accessibility has been characterized as being strongly focused on technology (Linley, 2000 Davies, 2007) with a dearth of articles on the attitudinal aspects of disabilities (Linley, 2000; Dequin, Schilling, & Huang, 1988). The literature has been described as consisting mainly of descriptions of access challenges and the recommendation of solutions, with little empirical research (Davies, 2007). Additionally, a U.S. perspective dominates (Burns & Gordon, 2010). Davies (2007) concludes his research on the LIS literature on visual disabilities with the following, "More has to be discovered about people's preferences for service delivery and information content and their perceptions and experiences of what is offered" (793). His conclusions coincide with other researchers who note the lack of information behaviour research (Saumure & Given, 2004; Williamson, Schauder, & Bow, 2000; Beverley, Bath, & Barber, 2007), information needs studies (Davies, 2007; Williamson, Schauder, & Bow, 2000; Creaser, Davies, & Wisdom, 2002), and a lack of first hand information from persons with disabilities (Creaser, Davies, & Wisdom, 2002).

Survey research is used to examine the level, quality, and perception of disability accessibility in libraries. These studies generally do not focus on how disability accessibility issues are perceived by those working in libraries. Instead, the focus is on what services libraries are providing, what they need to improve upon, and the perception of those services which provides some insight into the profession's perception and understandings.

Broad national surveys have been carried out in countries such as the U.S. (Bonnici, Maatta, & Wells, 2009), the UK (Kinnell & Creaser, 2001; Ryder, 2004; Harris & Oppenheim, 2003), and Argentina (Todaro, 2005). On a smaller scale surveys have been done at the state level (Khailova, 2005). Findings show that while library staffs were supportive of being inclusive of persons with disabilities there were significant impediments and constraints. Fear of overwhelming demand caused some libraries to not widely publicize their accessible services (Ryder, 2004). Significant advancements have been made in the physical environment, but other areas such as collections, staff, and policy could use improvement (Khailova, 2005).

Other concerns focused on LIS education programs and noted a concern that graduate LIS programs were not preparing students with the insight and tools necessary for providing services to and working with persons with disabilities (Bonnici, Maatta, & Wells, 2009). More narrowly focused surveys centered on library services to learning disabled children (Akin & Ross, 2002) and on how U.S. LIS graduate programs are incorporating services to persons with disabilities into the curriculum (Walling, 2004; Koulikourdi, 2008). The latter found that knowledge of the law was disseminated in curriculums, but also noted that the understanding of the needs of disabled persons could be higher and that exposure to information about services and adaptive technologies could be higher. Of particular relevance here, one study attempted to ascertain the attitudes of academic librarians towards persons with disabilities. Younger librarians, female librarians, and those librarians who already had a relationship with a person with a disability were more likely to be accepting of persons with disabilities (Deqiun, Schilling, & Huang, 1988).

Examinations of the LIS literature on disability and accessibility

Previous examinations of the LIS literature have focused on disability and accessibility issues, but from a narrower perspective. Each of these examinations focused on the LIS literature on a particular disability or area of concern as opposed to the broad natured approach taken here. Shpilko (2003) examined the journal literature on communication disorders to identify the most influential communication disorders journals based on impact factor and stated faculty presence. Alborz and McNally (2004) examined the research literature to identify theories or evidence related to help-seeking behavior by persons with learning disabilities. This literature was then used in a subsequent project looking at providing guidance for future research and best practices. Walling (2004) reviewed significant LIS literature concerning persons with disabilities in connection with a survey of how LIS programs are addressing the ADA and services to persons with disabilities. Williams, Jamali, and Nicholas (2006) examined the literature to find previous studies of information and communication technologies (ICTs) and people with special education needs (SEN). They found that while there was much written about various initiatives, there was little testing of them published in the literature. Additionally, a focus on SEN users and ICTs was rare as much of the research on ICTs concerned persons with visual disabilities. Davies (2007) provides a brief overview of international research into the library and information needs of persons with visual disabilities. He found that most of the research concerning persons with visual disabilities focused on information technology, particularly on the internet and internet accessibility.

Method

The Library and Information Science Abstracts database (LISA) was chosen as the source of literature. As noted by Julien, Pecoskie, and Reed (2011), this sampling method provides an appropriate means of identifying the literature in an area. Thesaurus searching led to specific descriptors related to disabilities including 'service to persons with disabilities', 'disabled people', 'blind and partially sighted', and 'learning disabled.' To ensure a fuller representation from the literature searches for truncated versions of the term disability were used to determine if the extent of the literature had been found. In addition, keyword searches for terms such as 'cognitive impairment' were performed to confirm that such articles had the descriptor 'learning disabled' attached to them. Searches were completed in December of 2010, limited to English-language, peer-reviewed articles published from 2000-2010. Only substantive articles were selected for analysis. Book reviews, editorials, duplicates, news items, brief articles of fewer than three pages, and other non-related pieces were removed leaving 198 articles for evaluation. Content analysis (Krippendorff, 2004) was used to code the data for the following themes:

- General themes – technology, service-related, program descriptions, legislation, etc.
- Disabilities of focus – visual, learning, physical, auditory, etc.
- Designation as research or non-research
    - For research articles
        - Methodology used
        - Participation of those with disabilities in the research

Findings

There was no consistency in the number of articles published per year which varied from 8, in 2000, to 34, in 2007. Table 1 illustrates the breakdown of articles by year. Significant increases in certain years were due to the publication of themed issues of journals focused on disability and accessibility issues. In 2001 and 2002 there were special issues of *Library Hi-Tech*. In 2005 there was a special issue of *Library Review*. In 2007, three journals released themed issues, *Library Trends, Information Society,* and *Children and Libraries*.

<Insert table one here>

General themes

Articles were coded by theme based off of a modified version of Kajberg's schema. Kajberg's (1996) schema covers the broad nature of topics in LIS literature including

professional concerns, theoretical, applied, related fields/tangential to librarianship, and general. Subcategories are used to break down topics. Of most use for the current project were the categories of applied and professional concerns. Relevant professional categories included legislation, library policy, education for librarianship, continuing education, manpower, research, and ethics. The applied category included entries for 'services to special categories of users which used here was broken down further to focus on particular disabilities. Additional useful categories included systems (here changed slightly to accessibility related to technology) and collections.

Table 2 illustrates the breakdown of articles by the ten most popular themes. After the first ten, presence of other themes was diffuse.

<center><Insert table two here></center>

websites, databases, and software

Accessibility related to electronic resources accounts for the largest portion of articles (25%). Included here were articles exploring the difficulties users with disabilities encounter utilizing electronic resources and the accessibility testing of their interfaces. Resources of focus included word processing software, databases, websites, and e-learning platforms such as WebCT.

A strong focus on the online environment is not surprising. Website accessibility testing is a standard procedure for public agencies in the US that need to be compliant with the ADA so this data is readily available for many organizations. At the same time, testing the accessibility of the electronic environment is easier than testing the physical environment as the minimal requirements are one person with access to testing software. Additionally, library websites are no longer simply an information source about the physical library; they are 'virtual branches.' The library website has become a location on its own as more library collections are available electronically and as other services shift online.

Significant themes in the literature essentially begin and end with a focus on electronic accessibility. The next most prominent theme, services to persons with disabilities (12%), has less than half the literature as that focused on electronic accessibility. Included here are advocatory articles that promote the need to provide services to persons with disabilities, descriptions of different services provided by libraries and studies attempting to gauge access and use of libraries by persons with disabilities. An emphasis on services represents a strong focus on the user. This category is distinct from other categories like physical and virtual

environments and collections because in these latter categories the emphasis is more centered on the resource itself rather than the service it provides.

The first two themes consisted of a mix of research, feature, descriptions, and advocatory pieces. In contrast, the next two themes consist solely of descriptive pieces. Program/project descriptions (11%) include pieces that simply describe projects and programs created by libraries and library organizations in order to provide information and resources specifically to persons with disabilities. Product descriptions (11%) include articles describing adaptive technologies, their use by or relevance to persons with disabilities and libraries serving persons with disabilities.

After the first four themes, representation in the literature drops significantly for all remaining themes. Legislation accounts for 5% of the literature. Articles in this theme discussed national or local legislation and the affects this legislation may have on the provision of library services. This smaller presence in the literature is not too surprising as during the 10 years under examination there were few significant national policy changes on disability and accessibility. The United States passed the ADA in 1990, Australia's Disability Discrimination Act was passed in 1992, the Disability Discrimination Act in the UK was passed in 1995, and while Canada has no similar national legislation the province of Ontario has the Access for Ontarians with Disabilities Act, the first phase of which went into place in 2010.

Articles designated as organizations (5%) consisted of descriptive pieces on such institutions as the NLS from the Library of Congress, the Canadian National Institute for the Blind (CNIB), and the Royal National Institute for the Blind (RNIB) in the UK. As with the program and product themes, articles here were purely descriptive.

Of minimal representation were collections, published materials, and accessibility not related to technology. Collections and published materials each accounted for 3% of the literature. Collections themed pieces focused on building accessible collections and recommendations for selection, while the published materials theme consisted of bibliographies of accessibility titles and informational resource lists. Accessibility not involving technology was a minute topic of interest with articles on the accessibility of the physical environment and the accessibility of print texts.

Disabilities of focus

Articles were next coded by the particular disability or disabilities of focus. For an article to be designated as having a focus on a particular disability, two methods were used. First, if the authors self-selected a particular disability through use of descriptors or keywords attached to the article. Second, if the focus of the article was on a particular disability then that disability became the main theme. Table 3 illustrates the breakdown of the disabilities of focus in the research.

<Insert table three here>

The largest group consists of articles that approached disabilities in a broad or general way (42%). This category includes such topics as library accessibility policies, program or product development, the accessibility of websites, databases, and computer programs from a general accessibility angle, and articles that spoke of adaptive technology in a broad sense.

The prevailing disability of focus in the literature is visual which accounts for 41% of the literature. The strong emphasis on visual disabilities makes sense given the historical focus of the text medium in libraries. A visual disability can often preclude the full use of print books and other textual material. As collections and services shift online, these impediments to access for persons with visual impairments do not automatically diminish, which may make this particular disability more of interest to the LIS community. In addition, visual disabilities are often a 'visible disability', as opposed to disabilities like learning disabilities that are sometimes categorised as 'invisible.' As such the community of people with visual impairment is perhaps more in the public's awareness as the NLS, the CNIB, and the RNIB have provided nationwide services to those populations for many years.

A focus on learning disabilities or physical disabilities was extremely rare. Research geared specifically to learning disabilities accounts for 9% of the literature while physical disabilities and auditory disabilities were a focus for 1% each. Learning disabilities are often 'invisible' in the sense that they are often not perceptible to others and those with learning disabilities are sometimes reluctant to self-identify (Olney & Kim, 2001) which may account for some of the dearth of literature on this topic. The absence of focus on physical disabilities could be due to the dominance of literature coming from the United States and the existence since 1990 of the ADA. After passage of the ADA, many public institutions at least nominally addressed the physical environment, but even libraries built with accessibility in mind can have physical environment challenges that were not anticipated (Riley & Wales, 2002).

Articles designated as including multiple disabilities (6%) were of two types. This theme included pieces where the author used more than one disability as a descriptor and studies that included the participation of persons with different types of disabilities.

Research

In looking at general views of the LIS literature on disability and accessibility, there is a perception that little actual research is present (Davies, 2007; Saumure & Given, 2004; Williamson, Schauder, & Bow, 2000) and that much of the literature focuses on describing difficulties and recommending solutions (Davies, 2007). This characterization is confirmed here. Research articles represent only 35% (N=70) of the articles which is not quite the 'precious little' found by Beals (1942) and Shera (1964), but the emphasis in the literature is still significantly more focused on description and advocatory pieces than on investigation. The focus for the rest of this subsection is the 35% of articles that were designated as research and figures used refer to the population of research articles. Table 4 illustrates the distribution of research articles by research type.

<Insert table four here>

Accessibility testing accounts for 36% of the research articles. This emphasis is not surprising given the dominance of the US in the literature and with it the ADA requirement that federally funded services have accessible websites. The majority of accessibility testing (33%) consisted of testing websites, databases, and software. The interest here in accessibility testing goes far beyond the library, as the research examines websites from universities, governments, schools of library and information science, and websites about health information among others. As website compliance testing is essentially a routine task for many organizations, this type of data is readily available. A smaller sub-set (3%) tested other environments, namely the physical environment and the availability of accessible books.

Surveys (24%) make up the second bulk of the research. The surveys were both mainly focused inwardly on services and resources provided by libraries with few focused toward users and what their needs and wants might be.

As with the general themes, after the first two categories, representation of other aspects in the literature drops significantly. Mixed methods approaches (11%) account for less than half that of surveys while interviews (10%) and case studies (9%) account for only a small amount of the research.

The lesser emphasis on policy analysis (1%) may have to do with the time period chosen for examination. The US, Australia, and the UK had had legislation in place for at least five years previous to the period of analysis and major analysis of the legislation may have already taken place.

Participation of persons with disabilities in research

In the 35% of articles designated as research (n=70), the participation of persons with disabilities in the literature is limited. 36% of the research directly involved persons with disabilities. All participation noted was as participants in either information-seeking or accessibility testing research. It is unclear if any of the researchers, themselves, may have had a disability as none self identified. This finding supports long-standing assertions that there is limited information in the research coming directly from persons with disabilities (Burke, 2009; Epp, 2006).

Discussion

Overall in the literature, there is a focus on what the library has and how users operate within those parameters. Little research explored the more fundamental questions of what persons with disabilities might want from an information provider and how best to provide that service. A third of the research consists of easy to perform accessibility testing. The importance of this type of work is not to be dismissed, but the broad nature and limited depth attainable through this type of research leaves much detail missing. The research combining a mix of broadly focused survey research with more deeply focused studies involving interviews is promising, but the paucity of information behaviour and other qualitative approaches shows room for improvement.

In the literature, there seems to be a lot of discussion centering on people with disabilities, but little involvement directly with them in the research. Not all research in LIS concerning disability and accessibility needs to include persons with disabilities. In the case of research such as a policy analysis, this approach makes sense. But in many cases the literature is attempting to assess accessibility without talking to or involving persons with disabilities which can lead to some significant deficiencies in the research. Participation in the research by persons with disabilities was actually higher than expected (36%), but in examining the other 44% of the research there does appear to be a disconnect between the research and the needs and wants of persons with disabilities.

For instance, the predominant approach to testing accessibility is to have fully able-bodied researchers perform testing. While this approach is perhaps quicker, it may make for cases of token accessibility over true accessibility. Even if an environment is deemed to be accessible based on current standards there can still be a gap between technically accessible and user friendly. Research has shown that able-bodied participants who test for general standards can still miss accessibility challenges (Bayer and Pappas, 2006; Hill, 2011; Riley & Wales, 2002). The research could be improved by working directly with persons with disabilities so that it gets beyond 'token accessibility' to actual user friendliness.

Conclusion

Current disability research defines disability as involving both physical and social components (Terzi, 2008; Prince, 2009), but the overall environment of the LIS literature is one of a focus on the physical (particularly technology as opposed to physical environment) rather than on the social or attitudinal aspects of disabilities. When the focus does turn to people most of the research is from the perspective of information providers rather than users as also noted by Kinnell, Yu, and Creaser (2000).

Davies (2007) advocated for more research, particularly quantitative research with more representative samples, but the research does not address the topic at a significant level. Advocating for an increase in both rigorous quantitative research as well as strong qualitative research is warranted. The current emphasis on online accessibility, while understandable, shows an imbalance towards testing already existent phenomena over research necessitating the gathering of new data. This focus on technology may be overshadowing other forms of access and understanding. A stronger presence of persons with disability participating in the literature, a focus on increasing the quantity and quality of research – both quantitative and qualitative, and a greater understanding of the importance of the social aspects of accessibility would greatly improve the literature.

The current focus in libraries is on developing user-centered approaches whether the topic is information behaviour research or information literacy. A user-centred approach here would necessitate talking to persons with disabilities about their information needs and the barriers they face in accessing information. Such research could lead to new services or changes to existent services that make the environment more accessible and more welcoming to the community. Additionally, this research would also combat the token accessibility found in the physical and virtual environments.

Research in LIS, theoretically informed by the disability research, could broaden perceptions on the concept of disability and what it means to be accessible. Understanding the importance of attitudinal and other social factors can provide for a richer discourse as this research will have to look beyond technical accessibility, being in compliance with standards, and look to where the standards fall short.

The literature, and the understanding in the field, could be greatly enhanced by just these changes. More research, both qualitative and quantitative, focused on a user-centered perspective, directly involving persons with disabilities, and theoretically informed by the disability literature would all help to improve the literature.

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