

RUNNING HEAD: DigiQUAL Data

Regrounding LibQUAL+® for the Digital Library Environment:
An Analysis of the DigiQUAL Data

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Abstract

DigiQUAL is a measure of digital library service quality. The current effort directly relates to earlier work in the NSF/NSDL environment where an item pool of 183 survey items was developed based on qualitative interviews with users of digital libraries. The current paper identifies a reduced number of survey items that partially capture service quality in the electronic environment. These items mostly focus on aspects of the Information Control dimension as defined within the well-known LibQUAL+® protocol. Digital library service quality is increasingly important for libraries as they compete with brand names like Microsoft, Google, Amazon, etc. The "library" brand is a powerful brand and developing a digital measure of the quality of this brand still remains an important objective for effectively operating in the 21st century.

The LibQUAL+® protocol is a "total market survey" intended to help library staff understand user perceptions, and thereby improve library service quality and better meet users' information needs. A total-market survey is one of the 11 ways of listening to users elaborated by Leonard Berry (1995).

To date, LibQUAL+® has been used to collect service quality assessment perceptions from 1,294,674 participants at 1,164 institutions around the world. LibQUAL+® has been implemented in 28 language variations: Afrikaans, Chinese, Danish, Dutch, English (American, British, Dutch, Finnish, France, Norwegian, Swedish, Swiss), Finnish, French (British English-BE, Belge, Canada, France, Swiss), German (and German Swiss), Greek, Hebrew, Japanese, Norwegian, Spanish, Swedish (and Swedish BE), and Welsh.

Thompson (2007) described the origins of the LibQUAL+® protocol. The development of the protocol, and evidence for the integrity of LibQUAL+® scores, have both been quite extensively documented in the refereed journal literature (cf. Cook, Heath & B. Thompson, 2001, 2002; Cook & Thompson, 2001; Heath, Cook, Kyrillidou & Thompson, 2002; Thompson & Cook, 2002; Thompson, Cook & Heath, 2001, 2003; Thompson, Cook & Kyrillidou, 2005; Thompson, Cook & R.L. Thompson, 2002) and elsewhere in two dissertations (Cook, 2002; Kyrillidou, 2009).

LibQUAL+® was developed within a philosophy perhaps best communicated by a set of three quotations. First, in the words of French philosopher and moralist François de La Rochefoucauld (1613-1680), "Il est plus nécessaire d'étudier les hommes que les

livres" (p. 51, line 106). Second, in the words of Bruce Thompson (2006), "We only care about the things we measure" (p. 1), so we do not seriously care about service quality unless we listen to library users in various systematic ways. Third, within a service quality orientation, "only customers judge quality; all other judgments are essentially irrelevant" (Zeithaml, Parasuraman & Berry, 1990, p. 16).

LibQUAL+® was grounded in library users' perceptions of libraries. This was accomplished through a series of interviews with diverse users from different research libraries in the United States and Canada (Cook, 2002; Cook & Heath, 2001). The initial measurement model, and even selected individual protocol items, were based on these interviews.

However, users' perceptions of libraries change over time. Much of the impetus for changed user thinking involves the emergence of the internet, and the explosive growth of digital content, some of which is provided to scholars by research libraries.

As Danuta Nitecki (1996) observed around the beginning of this digital revolution, "A measure of library quality based solely on collections [counts] has become obsolete" (p. 181). And Rowena Cullen (2001) noted that "focusing more energy on meeting... [library] customers' expectations" (p. 663) is critical in the contemporary environment, in part because

the emergence of the virtual university, supported
by the virtual library, calls into question many of

our basic assumptions about the role of the academic library, and the security of its future.

(pp. 662-663)

Purpose of the Present Study

LibQUAL+® was not developed as a static library assessment protocol. Indeed, the developers see the need to continually regroup and update the protocol. This commitment can be seen in the recent development of LibQUAL+® Lite (see Cook, Thompson & Kyrillidou, 2010; Kyrillidou, 2009; Kyrillidou, Cook & Thompson, 2010; Thompson, Kyrillidou & Cook, 2009a, 2009b, 2010).

The present preliminary study was undertaken to explore regrouping the LibQUAL+® protocol to include more items focusing on digital content, or to provide an ancillary protocol focusing on accessing that content. The data for this inquiry were obtained as part of a research project, "Developing a National Science Digital Libraries (NSDL) LibQUAL+™," funded by the United States National Science Foundation. The protocol is known as DigiQUAL and the qualitative grounding of this research has been documented in previous articles (Cook, Heath, Kyrillidou, Lincoln, Thompson & Webster, 2003; Kyrillidou, Cook & Lincoln, 2009; Kyrillidou, Heath, Cook, Lincoln, Thompson & Webster, 2007; Lincoln, Cook & Kyrillidou, 2004).

Methodology

The researchers conducted a series of interviews with staff at major digital libraries in the United States, such as the Multimedia Educational Resource for Learning and Online Teaching

(MERLOT) digital library. Based on interviews with respect to how users think about these libraries, a pool of 183 items was developed. Some of these items were in the actual words of the interviewees.

Subsequently, at several digital libraries when users went to the website the users were asked to complete a brief online survey. The survey asked about the user's gender, age, frequency of site use, five items from the pool of 183 items by the staff of the digital library, and an overall site satisfaction question. The item sampling technique was used to reduce overall respondent burden while still collecting data on all 183 items in the item pool, and to increase response rates (Cook, Heath & Thompson, 2000).

Respondents were asked to rate each of the five items with respect to both (a) importance of the library features evaluated by the item and (b) perceived quality of the site's services with respect to those features. Responses were collected on a "1" to "7" scale.

Participants

The DigiQUAL items were completed by 1,294 library users from one of seven digital libraries (e.g., MERLOT, Utopia, Math Forum, National Engineering Education Delivery System [NEEDS]). There were marginally more females (58.2%) than males who participated in the survey. The ages of the 1,294 participants were: (a) < 18, 16.1%, (b) 18 to 22, 10.7%; (c) 23 to 30, 13.4%; (d) 31 to 45, 28.6%; (e) 46 to 65, 27.0%; and (f) older than 65, 4.2%. With

respect to frequency of use of a given digital library, the 1,294 library users reported frequency as: (a) daily, 11.7%; (b) weekly, 31.7%; (c) monthly, 24.7%; (d) quarterly, 16.6%; (e) less than quarterly, 15.4%.

Results

A preliminary new pool of items was identified by evaluating the 183 items with respect to several criteria. First, items rated "not applicable" or skipped by an excessive number of respondents were rejected at the outset. Second, only items relevant to research libraries (as opposed to those more narrowly applicable only to completely digital libraries) were retained.

Finally, the remaining items were sorted with respect to the "importance" ratings provided by the respondents, and 24 items were selected on this basis. These 24 items are presented in Table 1.

INSERT TABLE 1 ABOUT HERE

Table 1 also presents the mean perception ratings on the 24 items. And Table 1 presents the Pearson r coefficients for the correlations between perception scores on the 24 item with the scores on the global rating of library satisfaction.

Discussion

Our goal was to identify on a preliminary basis some items that might be added to the LibQUAL+® protocol, or used as a standalone DigiQUAL protocol. We focused on items that users

seemed to deem important, and which had scores highly correlated with overall library user satisfaction scores. On this basis we developed a preliminary item pool of 24 items, as presented in Table 1.

Of course, this preliminary research only represents an initial step in the process of developing a refocused LibQUAL+® protocol, or a standalone DigiQUAL protocol. Further research is required to investigate the performance of these 24 items, and potential other digitally focused items, in relation to scores on LibQUAL+®. In short, new items need to be administered along with the current 22 LibQUAL+® items to make the final selections.

These 24 items in many ways reflect the Information Control dimension measured in LibQUAL+®. The 24 DigiQUAL items primarily reflect (a) content (breadth and depth) comprehensiveness or (b) ease of use of the website itself.

However, there are additional emerging issues that have surfaced in the last five years and captured through another study the Association for Research Libraries has completed: the collection of textual narratives describing the research library at the dawn of the 21st century (Potter, Cook & Kyrillidou, 2011). The narrative descriptions provided by ARL libraries articulate among other things the following important issues in relation to digital library characteristics: (a) the suite of services provided by digital libraries such as blogs, wikis, open journal and monograph publishing platforms, (b) born digital collections which includes a variety of media and datasets, (c) usage and

awareness of these resources, (d) integration of digital library metadata into catalogs and other discovery tools to facilitate ease of access, and (e) the value of open access possibly tied with the inclination of some users to prefer digital libraries over commercial and other publishers.

The importance of the digital environment is also captured by the MINES for Libraries[®] protocol supported by ARL and documented through two important studies implemented at the Ontario Council of University Libraries (OCUL). Through the MINES for Libraries[®] OCUL studies we see the increasing use of electronic resources and the way it relates to student and faculty outcomes such as research, teaching and learning (Kyrillidou, Franklin, Plum, Scardellato, Thomas, Darnell, 2011; Kyrillidou, Olshen, Franklin & Plum, 2006). The MINES for Libraries protocol is a point-of-use survey, while LibQUAL+[®] is a total market survey protocol. The possibility of linking the two with DigiQUAL-like items is worth exploring in the future. Similar efforts from the IT environment also point to the increasing importance of information services provided by universities and colleges (Allen & Baker, 2010; Chester, 2010; Consiglio, Allen, Baker, Creamer & Wilson, 2011).

Digital library issues will remain with us for the foreseeable future. Even agreeing on a commonly acceptable definition of what is a digital library is a major challenge. The answer to this question seems to be "we will know it when we see it," not unlike the answer to the question "what is a research library!"

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Table 1
Items Statistics for the Final 24 DigiQUAL Items

| Variable | Importance Mean (SD) | n | Perception with Satisfaction | |
|---|-------------------------|----|------------------------------------|----|
| | | | r | n |
| Q0183 Content that matches my information need | 6.45 (1.18) | 47 | .7377 | 47 |
| Q0181 Having comprehensive content | 6.42 (0.99) | 26 | .6441 | 26 |
| Q0120 Easily finding information on the site | 6.41 (1.01) | 32 | .7926 | 32 |
| Q0109 A site design that is easy to navigate | 6.37 (1.36) | 27 | .5849 | 27 |
| Q0106 site being easy to navigate | 6.36 (1.11) | 55 | .7717 | 54 |
| Q0133 site having a lot of resources in my are | 6.35 (0.75) | 43 | .5876 | 43 |
| Q0180 site enabling me to locate information on | 6.31 (1.46) | 26 | .8429 | 26 |
| Q0090 Content that is sufficient to meet my nee | 6.24 (1.32) | 38 | .8616 | 38 |
| Q0081 Easy to use access tools allow me to find | 6.17 (1.42) | 35 | .7810 | 35 |
| Q0136 available content fitting my needs | 6.10 (1.26) | 49 | .7941 | 48 |
| Q0140 Being able to find what I want | 6.04 (1.80) | 53 | .8311 | 53 |
| Q0085 site enabling me to be more efficient in | 6.03 (1.52) | 31 | .7121 | 31 |
| Q0121 Navigating the site comfortably | 5.91 (1.73) | 45 | .8113 | 45 |
| Q0108 site being well organized | 5.87 (1.58) | 47 | .7408 | 47 |
| Q0021 Easy to use menus | 5.83 (1.37) | 30 | .4374 | 30 |
| Q0053 site enabling me to navigate it independ | 5.83 (1.45) | 41 | .6876 | 41 |
| Q0112 Staff take feedback seriously in putting | 5.81 (1.30) | 26 | .7683 | 25 |
| Q0075 My ability to navigate the site easily | 5.77 (1.60) | 48 | .8131 | 48 |
| Q0161 A site that is accessible to the indepen | 5.70 (1.54) | 40 | .6555 | 40 |
| Q0102 Meeting the needs of the new user | 5.69 (1.29) | 48 | .6810 | 47 |
| Q0011 Adequate breadth of content for my needs | 5.63 (1.66) | 43 | .6458 | 42 |
| Q0125 site being intuitive | 5.53 (1.61) | 30 | .5889 | 30 |
| Q0101 Bridging the gap between site, students | 5.45 (1.72) | 33 | .8324 | 33 |
| Q0077 site facilitating self directed research | 5.42 (1.91) | 38 | .6648 | 38 |