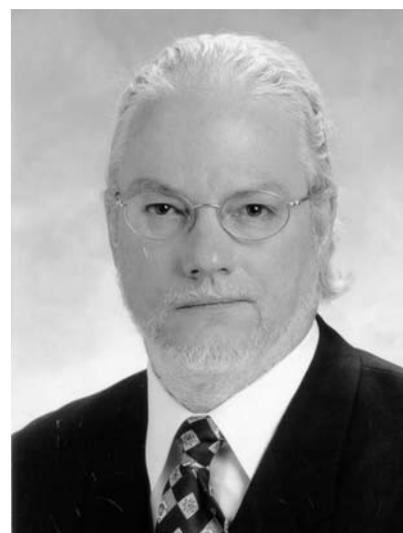


# LibQUAL+: Service Quality Assessment in Research Libraries

## **Colleen Cook, Fred Heath, Bruce Thompson and Russel (Trey) Thompson**

Colleen Cook is Professor of Library Science and Executive Associate Dean of the Texas A&M University Libraries where she also is a PhD candidate. She may be contacted at: Texas A&M University Libraries, Mail Stop 5000, College Station, Texas 77843, USA. Tel. +1 (979)-845-8111. E-mail: [ccook@tamu.edu](mailto:ccook@tamu.edu).



Bruce Thompson is Professor of Educational Psychology and Distinguished Research Scholar, Texas A&M University, and Adjunct Professor of Community Medicine, Baylor College of Medicine (Houston). He may be contacted via Internet at: <http://acs.tamu.edu/~bbt6147/>.



Fred Heath is Dean of the Texas A&M University Libraries and holder of the Sterling C. Evans Chair. He may be contacted at: Texas A&M University Libraries, Mail Stop 5000, College Station, Texas 77843, USA. Tel. +1 (979)-845-8111. E-mail: [fheath@tamu.edu](mailto:fheath@tamu.edu).



Russel (Trey) Thompson is a PhD candidate in the Counseling Psychology Program at Texas A&M University. He may be contacted at: [RLT@tamu.edu](mailto:RLT@tamu.edu).

**Introduction**

In October 1999, the Association of Research Libraries (ARL) approved a membership-centered effort to develop a new tool that would enable research libraries to measure service quality delivery to their constituents. The initiative was in response to rising demands for accountability in the public service sectors generally and to the Association's New Measures Program specifically. The New Measures effort represents a collective determination on the part of membership to move beyond the input measures that undergird the *ARL Index* and the accompanying comprehensive statistical database, the most important assessment metric heretofore available. [The preceding article by Martha Kyrillidou has already provided information on the ARL role, examples of LibQUAL data input forms, and web site references.]

This new instrument, trademarked by the Association of Research Libraries under the name LibQUAL+, traces its origins to service marketing research and the pioneering work of Berry, Parasuraman and Zeithaml. Their SERVQUAL protocol has been accepted as a standard of service quality assessment in the business world since the mid-1980s. LibQUAL+ is a derivative of that protocol, rigorously re-grounded through both qualitative and quantitative means for the research library sector in North America. It undertakes to measure library users' perceptions of service quality and identifies gaps between desired, perceived, and minimum expectations of service. The project will continue as a research and development endeavor based at ARL in collaboration with the Texas A&M University Libraries through 2003, by which time LibQUAL+ will evolve into an ongoing service quality assessment program at ARL. Adhering to its SERVQUAL origins, LibQUAL+ proceeds from the same principle: "...only customers judge quality; all other judgments are essentially irrelevant." Given that perspective, it should be remem-

bered that there are many ways of assessing an organization. A. Parasuraman identifies at least eleven ways, including transactional surveys; mystery shopping; new, declining and lost customer surveys; focus group interviews; customer advisory panels; service reviews; customer complaint, comment, and inquiry capture; total market surveys; employee field reporting; employee surveys, and service operating data capture. An organization should effectively employ multiple assessment methods in order to ensure effective service quality delivery. At least three assessment methods, including total market surveys are considered essential. LibQUAL+ is designed as a total market survey. Slowly, other instruments are being developed for libraries. The transactional survey model being developed by Danuta Nitecki and Peter Hernon, recently tested at Yale, is a promising entry in the field.

with sixty-eight faculty, graduate students and undergraduates at ten participating institutions.

*Affect of Service* essentially collapses three of the service dimensions identified by SERVQUAL into one:

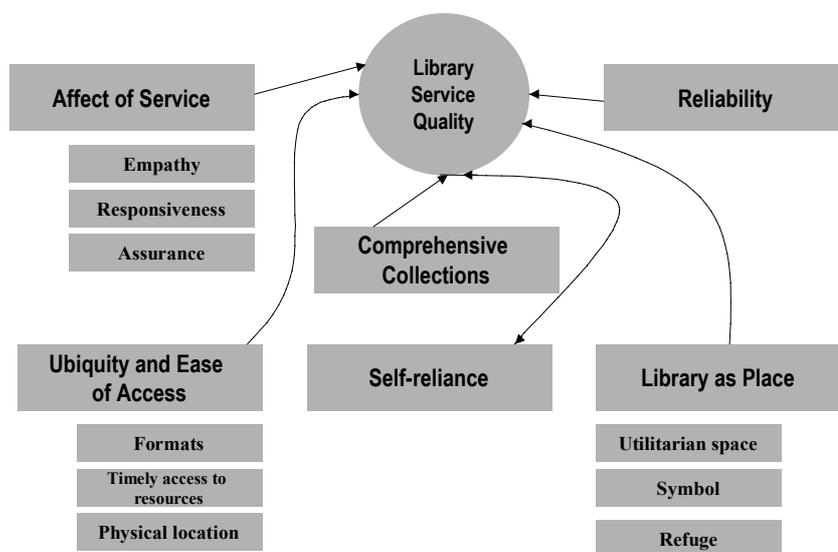
- *Assurance*, the knowledge and courtesy of employees and their ability to convey confidence and trust;
- *Empathy*, the caring, individualized attention provided to customers by employees; and
- *Responsiveness*, the ready willingness to help customers and provide prompt service.

*Reliability*, or the ability to perform promised or expected services dependably and accurately, was found through qualitative assessment to be as important in the library environment as it was in previous sectors assessed by SERVQUAL.

*Library as Place* is reflective of a concept transcending the SERVQUAL *Tangibles* dimension. The original concept had defined rather traditionally the appearance of physical facilities, equipment, personnel and communication materials. The concept of Library as Place assesses the ability to meet community requirements for utilitarian space for study, collaboration, or rendezvous, oftentimes especially important for undergrad-

**The Dimensions of LibQUAL+**

LibQUAL+ is an effective total market survey for the research library context that assesses service quality across several dimensions. Figure 1 below provides a graphic summary of the dimensions LibQUAL+ assesses in its current iteration. These dimensions have been identified through interviews conducted



**Figure 1: Dimensions of Library Service Quality**

uates whose options are more limited than graduate students and faculty. However, the qualitative process also revealed that Library as Place was sometimes valued as a contemplative environment where the essential work of scholarship and creativity could take place. For that reason, interviews revealed that some valued the availability of aesthetically pleasing library space as emblematic affirmation of the centrality of the life of the mind in the university setting.

*Access to Information* was another dimension surfaced through the interview process. Access was ensured through the provision of *comprehensive collections* at the local level, collections sufficient to attract scholars and sustain graduate study. Increasingly, however, the emphasis is on *ubiquity of access* or the provision by all means possible of barrier-free access to information at the time of need. In that context, *information format* begins to lose its relevance. A rich array of full-text deliverable to the desktop, strong local collections available in easy-to-reach physical locations, and timely access to distant resources through effective document delivery are all components to the Access to Information Dimension.

Each of these dimensions was tested and retrieved during the first iteration of the pilot survey, administered during Spring 2000 to twelve participating research libraries. The results of that iteration were reported at the IFLA conference in Jerusalem in August 2000, as well as elsewhere in the literature.

Not tested during the initial pilot phase was the concept of *self-reliance*. The interviews with users of research library collections - undergraduates, graduate students, and faculty alike - captured a desire to be self-reliant and confident in navigating the library. Self-reliant information-seeking behavior is achieved in many ways, but from the interviews two methods dominated responses. Self-reliant users are forged formally through biblio-

graphic instruction or informally through mentoring relationships and through simple trial and error. Although inefficient, independent trial and error seems to be the most commonly followed strategy. In the second iteration of the LibQUAL+ pilot, now underway, the ability of the research library to foster self-reliant information-seeking behavior through instruction, mentoring, signage and other means is being assessed as a component of service quality.

### The Applications of LibQUAL

Information obtained from the LibQUAL+ total market survey can be useful to the library administra-

tor at several levels. First of all, the carefully grounded questions that comprise the survey yield data of sufficient granularity to be of considerable local use. Because each question is administered across three scales, of *minimum*, *desired*, and *perceived* performance, it is possible to derive rich information. With responses measured on a 9-point scale, a *zone of tolerance* or acceptable performance is established with the minimum scores describing the lower acceptable level and desired scores setting the upper boundary. Optimally, perceived performance scores would float comfortably within this zone of tolerance, the closer to the desired boundary the better. It can be a simple matter mathematically to derive *gap scores* or deficits

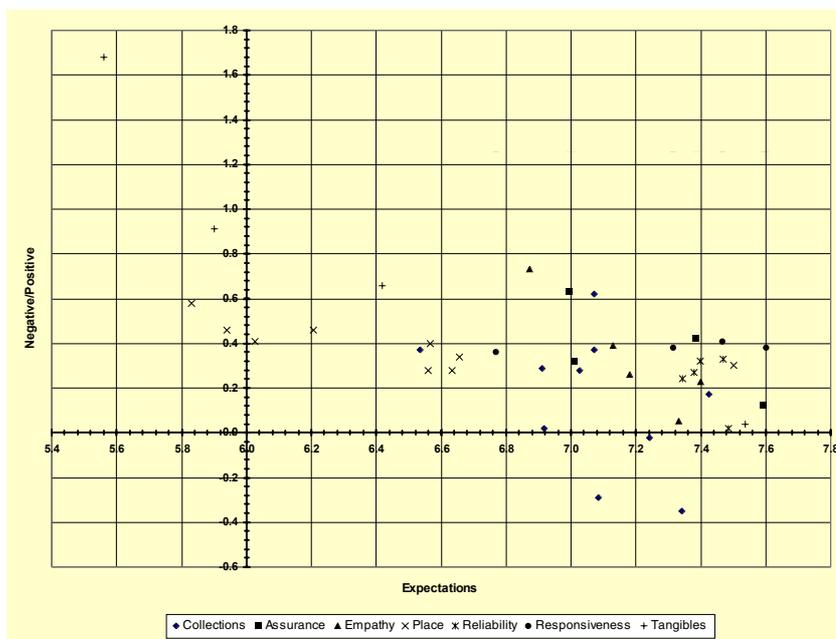


Figure 2. LibQUAL+ Summary Aggregate

*Note:* An aggregate average of minimum + desired scores for each of the LibQUAL+ questions is plotted on the x-axis. Aggregate gap scores (Perceived - Minimum Expectations) are plotted on the y-axis. Thus the higher the x-axis score, the more important a quality represented by a question was considered by respondents. The higher the score on the y-axis, the better the perceived performance on that question. It is noteworthy then, that the data suggests a trend that those questions deemed most significant to respondents generally received relatively lower ratings. The outliers are particularly interesting. Two Access to Collections issues were considered very important to users by virtue of their high x-axis score, and received negative gap scores meaning that perceptions fell lower than minimum expectations. In contrast, a tangibles question concerning the personal appearance of library employees was considered least important to users and received the highest gap score.

where perceived performance falls below acceptable norms. LibQUAL+ allows administrators to discern deficits in service performance across dimensions and allocate resources to identify the causes of lagging performance and to correct them. Periodic administration of LibQUAL+, biennially for example, permits administrators to watch for falling trajectories and develop intervention strategies *before* performance levels fall outside the zone of tolerance.

Secondly, it is possible to obtain normative data across a cohort group from multiple perspectives, e.g. by individual question or from first or higher order factor. Factor analysis from the first pilot study has shown that various dimensions or factors are correlated and aggregate at the second-order level into a single over-arching perception factor of *service quality*. In order to fully understand user perceptions it is necessary to derive both the dimension scores and the higher order score. Such normative information might enable library administrators to place local data in context. For example, as Figure 2 indicates, two *Collections* or *Access to Information* issues earned negative gap scores (see the lower right quadrant) across all twelve participating institutions in the initial pilot. Normative data permits each institution to place its performance in the context of the entire cohort.

Equally importantly, LibQUAL+ abets the New Measures goal of surfacing best practices in librarianship. For each dimension, it is possible to identify the normative performances of each of the libraries in a cohort. Problems in the Affective Dimension, for example, might indicate issues with staff training or development. As focus groups and other measures of institutional assessment are being undertaken locally to understand causality, it may also be desirable to visit members of the cohort who have demonstrated stronger performance on that dimension in order to learn from their example.

Additionally, LibQUAL+ is an effective response to the growing pres-

ures for accountability. In the United States all institutions of higher education are assessed by Regional accrediting societies. Those in Texas are evaluated by SACS, the Southern Association of Colleges and Schools, Commission on Colleges. It is the largest of the US regional accrediting societies and their procedures are similar to other regionals. Criteria are shifting quickly from quantitative indices to requirements for ongoing self-assessments of institutional effectiveness. Historically, standards are driven by a series of MUST statements in the Criteria for Accreditation. (The process is undergoing transformation, but this aspect will survive in some form.) Section 5 of the *SACS Criteria for Accreditation* treats Educational Support Services, and the majority of the MUST statements relate to libraries. The following statement is relevant here:

The library and other learning resources **must** be evaluated regularly and systematically to ensure that they are meeting the needs of their users and are supporting the programs and purposes of the institution.

An ongoing biennial program of web-based assessment through LibQUAL+ represents a painless, effective and inexpensive response to these requirements. Without doubt similar accountability issues are encountered by most of the IFLA membership.

---

## Phase II

---

The first round of the LibQUAL+ pilot involved twelve research libraries selected from among thirty North America universities that volunteered for the effort. The second round was launched in 2001 with more than forty participants from Canada and the United States. The majority of the universities are again ARL libraries, but eleven non-ARL organizations (other types of research libraries and some smaller institutions) are included. The reasons for this are explained in the FIPSE section below.

In January-February 2001 the survey was reformatted to accommodate the findings of the first iteration and to test additional constructs. The instrument remains a web-based, three-scale survey designed to be administered to a random sample of users at each university. In order to test new constructs, the number of questions was expanded from approximately forty to approximately sixty. The survey was administered in Spring 2001 to selected respondents at the forty-three participating sites. When the survey was shut down in early May, over 34,000 had responded to the survey, and some six million data points relating to library service quality have been obtained. In early summer the data was analyzed and the preliminary results will be presented to the participants at the annual meeting of the American Library Association in June 2001. In August, a more in-depth look at the results will be presented at the 4th Northumbria Conference in Pittsburgh, Pennsylvania. The large-scale administration has served to demonstrate the efficacy of large-scale administration over the web, and the huge database should provide psychometrically sound observations about library service quality and should permit thorough assessment of demographically-based differences in user perceptions.

---

## FIPSE

---

There are even more far-reaching plans ahead for LibQUAL+. In September 2000, the Association of Research Libraries (ARL) was awarded a USD 500,000 grant by the United States Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE) to develop tools for and establish a service quality assessment program not only for research libraries, but for post-secondary education generally. The goals of the project include:

- development of tools and protocols for evaluating library service quality
- development of effective web-based delivery mechanisms

- identification of best practices; and
- establishment of a service quality assessment program.

The anticipation of the FIPSE grant led to the inclusion of a select number of non-ARL libraries in the second round. In this way it will be possible to test the ARL-specific instrument for its applicability in other environments.

---

### Prospects

---

The year ahead promises to be busy. Over the latter half of 2001 the LibQUAL+ instrument will continue to be qualitatively re-grounded through a series of interviews at other types of libraries, and in November-December 2001 participants in the third round of LibQUAL+ will be selected. With the efficacy of large-scale administration across the Web now demonstrated, and with a mandate to develop instruments that are applicable in a variety of post-secondary settings, it is anticipated that between 100 and 200 libraries will be selected to participate. Building upon the research of Philip Calvert and others the feasibility of including research libraries from other regions will also be studied. Preliminary conversations have begun with libraries in the United Kingdom and New Zealand.

---

### Conclusion

---

The real contributions of LibQUAL+ lie ahead. Two more pilot iterations remain before schedules call for the instrument to be standardized and turned over to ARL for on-going maintenance and administration. The gap analysis work of Rowena Cullen has promising application to institutional risk assessment, and should be assessed for its applicability to the LibQUAL+ model.

However, LibQUAL+ has already had an impact on library assess-

ment. In the first place, LibQUAL+ has helped to shift the focus of assessment from mechanical expenditure-driven metrics to user-centered measures of quality. Secondly, it has re-grounded gap theory and service quality constructs for the library sector, especially research libraries. Its results can be subjected to rigorous psychometric analysis and replication, and can be continuously re-grounded qualitatively to take into account evolving library environments. Because of the rigor and the size of the database, it should be possible to determine the degree to which information derived from local data can be generalized, providing much-needed best practices information. Finally, it has demonstrated conclusively the effectiveness of large-scale administration of user-centered assessment transparently across the web. Its almost limitless scalability and the minimal demands for survey or statistical expertise at the local level are especially appealing attributes.

### References

1. See: A. Parasuraman, Leonard L. Berry and Valarie A. Zeithaml. "SERVQUAL: A Multiple-Item Scale for Measuring Customer Perceptions of Service Quality." *Journal of Retailing* 64, no. 1 (spring 1988): 12-40; A. Parasuraman, Leonard L. Berry and Valarie A. Zeithaml. "Refinement and Reassessment of the SERVQUAL Scale." *Journal of Retailing* 67, no. 4 (winter 1991): 420-450; A. Parasuraman, Valarie A. Zeithaml and Leonard L. Berry. "A Conceptual Model of Service Quality and Its Implications for Future Research." *Journal of Marketing* 49, no. 4 (fall 1985): 41-50; A. Parasuraman, Valarie A. Zeithaml and Leonard L. Berry. "Alternative Scales for Measuring Service Quality: A Comparative Assessment Based on Psychometric and Diagnostic Criteria." *Journal of Retailing* 49, no. 3 (fall 1994): 201-230.
2. Valarie A. Zeithaml, A. Parasuraman and Leonard L. Berry. *Delivering Quality Service: Balancing Customer Perceptions and Expectations*. New York: The Free Press, 1990. 16.

3. A. Parasuraman. "The SERVQUAL Model: Its Evolution and Current Status." Presentation: ARL Symposium on Measuring Service Quality. Washington, DC: October 20, 2000. Available Saturday, April 28, 2001 at: <http://www.arl.org/libqual/events/oct2000msq/slides/parasuraman/sld001.htm>; Leonard Berry. *On Great Service: A Framework for Action*. New York: The Free Press, 1995. 35.
4. D. Nitecki and P. Hernon. "Measuring Service Quality at Yale University's Libraries." *Journal of Academic Librarianship* 26 (4), 259-273.
5. Colleen Cook, Fred Heath and Bruce Thompson. "A New Culture of Assessment: Preliminary Report of the ARL SERVQUAL Instrument." Proceedings, 66th IFLA Council and General Conference. Section on Statistics. Jerusalem, August 2000. Available April 28, 2001 at: <http://ifla.org/IV/ifla66/papers/028-129e.htm>.
6. Colleen Cook and Fred Heath. "Users' Perceptions of Library Service Quality: a LibQUAL+ Qualitative Study." *Library Trends* (in press).
7. A. Parasuraman, Valarie A. Zeithaml and Leonard L. Berry, "Alternative Scales for Measuring Service Quality: a Comparative Assessment Based on Psychometric and Diagnostic Criteria." *Journal of Retailing* 49, no. 3 (fall 1994): 201-230.
8. Colleen Cook, Fred Heath and Bruce Thompson. "LibQUAL+: One Instrument in the New Measures Toolbox." *ARL Newsletter: a Bimonthly Report on Research Library Issues and Actions from ARL, CNI, and SPARC*. October 2000: 212, 4-7; Colleen Cook, Fred Heath and Bruce Thompson. "Users' Hierarchical Perspectives on Library Service Quality: a LibQUAL+ Study." *College and Research Libraries* 2001: 62(2), 147-154.
9. *Criteria for Accreditation: Commission on Colleges*. Decatur, Georgia: Southern Association of Colleges and Schools. 1997. 54.
10. Phillip Calvert. "A Different Time, a Different Country: an Instrument for Measuring Service Quality in Singapore's Polytechnic Libraries." *Journal of Academic Librarianship*, 1998: 24 (4), 296-303; Phillip Calvert. "International Variations in Measuring Customer Expectations." *Library Trends*, 2001 (in press).
11. Cullen, R. "Perspectives on User Satisfaction Surveys." *Library Trends*, 2001 (in press).