Perspectives on User Satisfaction Surveys

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ABSTRACT
ACADEMIC LIBRARIES ARE FACING TWO MAJOR THREATS: a global digital
environment and increasing competition. They must improve the quality
of their services in order to survive. The article explores the relationship
between service quality and user satisfaction and examines how user sur-
veys have been employed in a number of previously published data sets. A
model which demonstrates how satisfaction can be seen as both a micro-
level response to individual transactions and at the macro-level as an out-
come of service quality is proposed. Using an evidence-based approach,
gaps between user expectations and perceptions are explored as well as
the gap between user expectations and managers' perceptions of these.
Studies that include user surveys of electronic library services are also ana-
lyzed in terms of customer expectations. Suggestions are offered about
ways in which library and information service providers could make more
use of the information derived from their own and other organizations'
user surveys to improve their services.

INTRODUCTION
Academic libraries are currently facing their greatest challenge since
the explosion in tertiary education and academic publishing, which be-
gan after World War II. The global digital revolution is affecting both the
traditional forms of the creation, organization, and dissemination of knowl-
edge, and the world of tertiary education itself. The alliance of business
and universities to create a new paradigm of tertiary education, and the

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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. Retaining and growing their customer base and focusing more energy on meeting their customers' expectations is the only way for academic libraries to survive in this volatile competitive environment.

The service quality model is focused on meeting these expectations and retaining customers: "Quality service is a competitive necessity for businesses and service organisations," state Altman and Hernon (1998). "Assessing service quality is the first step in retaining customers in today's competitive environment" (p. 53). When library customers are faced with a variety of alternative channels of information delivery, many of which are more convenient and can compete on cost, libraries need to re-examine the range and quality of services they provide and develop systems for consultation and cooperation with their customer and stakeholder groups. They need to ensure that their services both meet customer needs and customer expectations to the highest degree. That is, they need to compete both in terms of service quality and customer satisfaction. Even this may not guarantee survival. As Rowley (1996) asks: "What is the relationship between service quality, customer satisfaction, and purchasing or subsequent use of service?" (p. 416). What level of satisfaction is needed to ensure customer loyalty?

This is a question that has not yet been addressed by many libraries or by much research in the field of LIS. It raises many questions about the applications of service quality models and user satisfaction surveys in library and information services such as:

- what research has been done in the field of service quality and user satisfaction studies in the LIS literature?
- what has been learned from that research?
- how can research into service quality and satisfaction measures help libraries cope with an increasingly competitive environment and the new global digital environment by helping them retain customers?

This article seeks to address some of these issues by examining past research and data sets where they are available, and by attempting to draw some conclusions out of a simple meta-analysis of this research. The aim is to undertake a simple critical appraisal of the evidence and to ascertain if there are some systematic findings emerging from this research that will help us understand better the relationship between service quality, satisfaction, and customer loyalty in the unique industry in which we operate.

DISTINCTION BETWEEN SERVICE QUALITY AND SATISFACTION

In a landmark monograph entitled *Service Quality in Academic Libraries,* Hernon and Altman (1996) use the SERVQUAL model to develop a

robust instrument for measuring service quality and satisfaction in academic libraries. In this volume they cite many of the works from the marketing/management literatures which have become seminal in the LIS literature on service quality. They find no LIS research on service quality to cite although they make good use of the existing performance management literature.

The SERVQUAL model used by Hernon and Altman and other researchers in examining service quality in the field of library and information services is derived from the work of Parasuraman, Zeithaml, and Berry (1988). In the SERVQUAL model, quality is defined as "perceived quality" rather than "objective quality," that is, it is dependent on the customer's perception of what they can expect from a service and what they believe they have received, rather than any "objective" standard as determined by a professional group or in conventional performance measurement. The model is best known for its definition of gaps between customer expectations and perceptions. Parasuraman et al. (1988) define five gaps from their research data:

Gap 1. The discrepancy between customers' expectations and management's perceptions of these expectations.
Gap 2. The discrepancy between management's perceptions of customers' expectations and service quality specifications.
Gap 3. The discrepancy between service quality specifications and actual service delivery.
Gap 4. The discrepancy between actual service delivery and what is communicated to customers about it.
Gap 5. The discrepancy between customer's expected service and perceived service delivered.

The first four gaps contribute to Gap 5—that is, the gap between customer expectations and customer perceptions of service received—and it is this last gap which has been the main focus of library research. There has been some interest as well in Gap 3, the discrepancy between service quality specifications and actual service delivery. In this article, some attention will also be paid to Gap 1, the discrepancy between customers' expectations and management's perceptions of these expectations, and the research literature will be examined for evidence regarding these gaps.

The mature SERVQUAL model, derived from iterative testing of the original model in a variety of contexts, identifies five dimensions of performance which customer expectations focus on: tangibles, reliability, responsiveness, assurance, and empathy. These are also explored by a number of researchers in the LIS field but are not the focus of this discussion.

In *Service Quality in Academic Libraries,* Hernon and Altman (1996) also explore the question of user satisfaction and the part this plays in

user perceptions of service quality. The relationship between service qual-
ity and customer satisfaction is a complex one. Service quality is variously
defined as a component of customer satisfaction and vice versa. Hernon
and Altman, for example, cite a definition of satisfaction derived from a
number of marketing experts which Elliott (1995) gives as "the emotional
reaction to a specific transaction or service encounter," but they go on to
indicate that "satisfaction may or may not be directly related to the perfor-
mance of the library on a specific occasion." As they explain, "a customer
can receive an answer to a query but be unsatisfied because of an upset-
ting or angry encounter. Conversely, although the query might remain
unanswered, another customer might feel satisfied because the encoun-
ter was pleasant, and the helper interested and polite" (Hernon & Altman,
1998, p. 8). However, as Hernon and Altman note, Elliott also observes
that service quality is probably "an antecedent of customer satisfaction"
(p. 36), and that "higher levels of service quality result in increased cus-
tomer satisfaction" (p. 40).

A more complex model is later proposed, derived from Bitner and
Hubbert, in which there are "two perspectives for viewing satisfaction that
are relevant to library services. The first is *service encounter satisfaction*—
customer satisfaction or dissatisfaction with a specific service encounter—
and the second is *overall service satisfaction*—customer satisfaction or dis-
satisfaction with an organization based on multiple encounters or experi-
ences" (Hernon & Altman, 1998, p. 182).

Satisfaction therefore may involve long-term, as well as short-term,
perceptions, and a personal reaction to service built up over a number of
transactions of varying quality. In addition, it would seem that, in the com-
plex interchange of customer expectations and perceptions across the
services delivered by an organization, customer satisfaction at the micro
level concerning an individual service will contribute to the dimensions of
service quality (tangibles, reliability, responsiveness, assurance, empathy)
and that a global or macro view of quality of service derived from all the
services with which the customer has interacted, and integrating the five
dimensions of service quality, will contribute to their overall satisfaction
with the organization.

Rachel Applegate (1993) has also explored this issue and uses the
marketing and psychology literatures, and the concepts of material and
emotional satisfaction, to identify the phenomenon of the "false posi-
tive" emotional satisfaction—a concept familiar to us in the truism of
library service that libraries generally achieve well in satisfaction ratings
because "like motherhood and apple pie, they are considered to be a
good thing."

What is not clear is the interrelationship of material and emotional
satisfaction with satisfaction at the micro and macro levels. To what extent
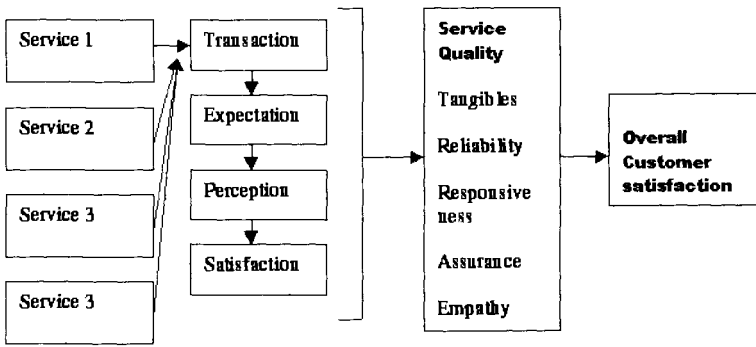do these concepts measure the same customer response and to what extent

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┌─────────────┐      ┌──────────────┐        ┌──────────────┐
│  Service 1  │─────▶│ Transaction  │        │  Service     │
│             │      │              │        │  Quality     │
└─────────────┘      └──────────────┘        │              │
                            ▼                │  Tangibles   │
┌─────────────┐      ┌──────────────┐        │              │     ┌──────────────┐
│  Service 2  │      │ Expectation  │        │  Reliability │     │  Overall     │
│             │      │              │──────▶ │              │────▶│  Customer    │
└─────────────┘      └──────────────┘        │  Responsive  │     │  satisfaction│
                            ▼                │  ness        │     └──────────────┘
┌─────────────┐      ┌──────────────┐        │              │
│  Service 3  │      │ Perception   │        │  Assurance   │
│             │      │              │        │              │
└─────────────┘      └──────────────┘        │  Empathy     │
                            ▼                └──────────────┘
┌─────────────┐      ┌──────────────┐
│  Service 3  │      │ Satisfaction │
│             │      │              │
└─────────────┘      └──────────────┘
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Figure 1. Interrelationship of Customer Satisfaction and Service Quality.

Macro-level satisfaction

User loyalty

Material satisfaction .... Emotional satisfaction
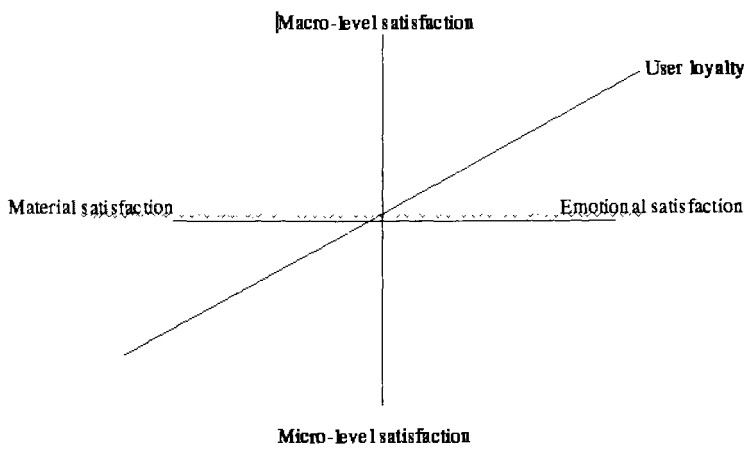
Micro-level satisfaction

Figure 2. Impact of Satisfaction on Customer Loyalty.

are they measures of separate responses to service quality. A tentative rela-
tionship that might throw some light on the impact of satisfaction on cus-
tomer loyalty is shown in Figure 2.

Applegate concludes that much more research is needed in the field
of library and information science to determine the factors or attributes
of service that contribute to user satisfaction at the macro and micro lev-
els, and observes that simple user satisfaction questionnaires do not pro-
vide sufficient information for libraries to make changes in their practice
or service delivery (Applegate, 1993, p. 535). This research is much needed

in order to define the level of user satisfaction that will keep libraries in business in the years ahead. But, like a number of other writers in this field, Applegate rightly observes that, over the years, a great deal of library and information science research has thrown light on these issues. From time to time it has been pointed out that the profession lacks the will or the ability to incorporate research findings into practice. Lack of incentives and the imprecise nature of the outcomes of providing information services have been suggested as reasons for this (Cullen, 1998). To this, Applegate adds lack of precision in overall satisfaction ratings. Comparisons have been made with the field of health sciences, where the evidence-based medicine movement, and the Cochrane Collaboration have led a major change in the application of new knowledge to existing practice. Librarians have played a major part in promoting the use of evidence in health information.

Why is it that the LIS profession finds it so hard to accept the findings of research carried out in its own institutions and is so slow to act upon it? Hernon and Altman may have identified a partial answer. Commenting on the difficulties that service organizations have in motivating themselves to focus on service quality, they cite Johnson:

> Non-profit organizations that are focused on themselves rather than their customers display certain characteristics. They see their services as inherently desirable, blame customer ignorance or lack of motivation when their services are not used, relegate research about customers to a minor role . . . and assume that they have no generic competition. (Hernon & Altman, 1996, p. 9)

Many would agree that this attitude is prevalent in academic libraries although there is little research to support the assertion apart from the work of Edwards and Browne (1995). Such an attitude may even, paradoxically, be an outcome of the service ethic that takes many young professionals into the library/information professions. Most librarians certainly see their work as "inherently desirable." Whatever its cause, the reluctance of library managers to take their users' views into account will damage their institutions' abilities to compete and to survive in the current environment.

Perhaps librarians can apply the skills they have learned in the health information sector and use methods of critical appraisal to analyze the evidence available in the LIS literature. That is the approach taken in this article. While there is not generally a sufficient body of research using rigorous methodologies, reported in enough detail to make a full critical appraisal of evidence, there is a sufficient body of literature to draw some conclusions that might convince libraries and librarians into taking action. The focus is on service quality models and research into academic libraries except where there is relevant data in other studies.

THE ROLE OF SURVEYS IN LIBRARY EVALUATION

While surveys are now an accepted part of a library's evaluative pro-
cesses and feature in most manuals of performance measurement, there
is still some confusion in the literature about the role they play and how to
interpret the results. The theoretical framework and conceptual approach
to evaluation within which the survey will be applied is rarely addressed.
The following examples show the value of such an approach.

For example, in the estimable IFLA guide *Measuring Quality: Interna-
tional Guidelines for Performance Measurement in Academic Libraries* (Poll & te
Boekhoerst, 1995), valid, reliable, reproducible, and practical measures
that will inform library decision making are applied to general library fa-
cilities, collection quality and use, the library catalog, availability and docu-
ment delivery, and reference service. These are followed by suggestions
for user satisfaction surveys focused on:

1. General user satisfaction which evaluates the service of the library as a
   whole.
2. User satisfaction with individual services or components of those ser-
   vices—e.g., opening hours or attributes of the librarian (for example,
   "a positive, friendly and courteous attitude" (Poll & te Boekhoerst,
   1995, pp. 106-08).

The purpose of employing user surveys is described by the authors in the
following terms:

• provides detailed information about the user's opinion of the service;
• helps to clarify the librarian's concept of the service as well as his/her
  assumptions about the users' needs;
• indicates problems; and
• suggests solutions (p. 30).

This model was adopted by the Council of Australian University Li-
brarians, who carried out an investigation into some frameworks for a set
of performance measures/indicators for use in Australian academic li-
braries. The first three indicators that were developed as self-contained
packages and published in 1995 were: Library/Clientele Congruence (i.e.,
satisfaction) Indicator; Document Delivery Indicator; and Proportion of
Sought Material at Time of Visit. These three formed part of six broad
categories: General Library Use and Facilities, Collection Quality, Cata-
logue Quality, Availability of Items in the Collection (the last two indica-
tors above were included here), Reference Service, and User Satisfaction
(Byrne, 1997) and were derived primarily from the IFLA template with
other inputs. Again, user satisfaction surveys are not integrated into an
overall framework of evaluation. Measures of "perceived quality" (the
congruence, or satisfaction, indicator) sit uneasily alongside measures of
"objective quality."

A third example comes from a group of libraries which had already made serious attempts to use the professional literature to develop meaningful measures, including *A Planning Process for Public Libraries* (Palmour, 1980) and *Output Measures for Public Libraries* (Van House, 1987) both of which included user surveys as part of their methodology. In an attempt to develop more cost-effective and practical methods of capturing the views of users, and in order to benchmark some of the data between libraries, the New South Wales Public Libraries Evaluation Group (NSW PLEG) persuaded some of their colleagues to pilot a customer satisfaction survey in Sydney, Maitland, and Wollongong and some outer metropolitan and country areas in the state of New South Wales, Australia. The proposed instrument is designed to capture the user's response to the library visited without much granularity, and most of the detailed data requested is demographic (albeit useful for marketing and future survey design). Although the NSW PLEG group's survey instrument does not make explicit reference to a service quality model, the study does appear to be one of the first reported from library practitioners that attempts to capture information about which services were of most importance to users, along with satisfaction rates for those services. The results show up some discrepancies in what patrons believe is important, and what the library is apparently doing well, and the authors suggest that the surveys developed form a valuable management tool. They also note that, in a competitive environment, it may not be possible to benchmark results as they had hoped (Garlick, 1998).

Introducing their modification of the SERVQUAL model to academic library managers in *Service Quality in Academic Libraries,* Hernon and Altman (1996) focus on the need for library managers to integrate perception-based satisfaction and service quality measures into their library evaluation. Hernon and Altman use data collected from surveys and focus groups to refine the SERVQUAL model in order to develop a robust survey instrument for use specifically in library and information services. The resulting instrument is capable of gathering information from users at both the macro and the micro level and asks users about their overall perceptions of the library and the quality of its services, as well as their perceptions of specific services and the characteristics of specific services. There is a great deal of granularity built into the model in order that user responses to any aspect of service can be thoroughly examined. With this level of detail, user responses can contribute to a service quality analysis that both identifies measures of user satisfaction at the macro and micro level and provides information that supports a multivariate model of material and emotional satisfaction (Applegate, 1993, p. 533).

Two later research projects have tested the validity of the standard instrument used in the SERVQUAL model. Nitecki's (1996) doctoral research tested the SERVQUAL instrument on three aspects of library

service—interlibrary loan, reference, and closed reserve—and concluded that the instrument was useful in determining how well services match user expectations.

Hernon and Calvert (1996) tested the validity of the SERVQUAL instrument for evaluating academic libraries among library students and librarians, and came up with an instrument based on SERVQUAL but one that would offer libraries more choice about the customer expectations they might want to focus on and the priorities they might want to set in service delivery. It was also hoped that the findings from this study would identify a multi-method approach to measuring and understanding service quality from the perspectives of multiple constituencies—an aspect of library service not well handled in the original SERVQUAL model.

The culmination of much of Hernon's work in this area was issued in 1998 in a manual published by the American Library Association in workbook format to encourage libraries to use the manual in this way (Hernon & Altman, 1998). Although it covers much of the material of *Service Quality in Academic Libraries* (Hernon & Altman, 1996), *Assessing Service Quality* introduces a range of methods for surveying users, including the SERVQUAL instrument used by Nitecki. In this volume the authors present a more complex model of the interrelationship among satisfaction, service quality, customer expectations, and service delivery in an overlapping set of spheres. This model, and the way in which libraries are encouraged to select pertinent areas of library service for examination by means of user surveys in the service quality instrument outlined, shows a much better integration of satisfaction in the paradigm of service quality.

ANALYSIS OF THE DATA EMERGING FROM SERVQUAL STUDIES

The Gap between Customer Expectations and Perceptions of Service Quality
In her report in the *Journal of Academic Librarianship* on the first SERVQUAL analysis that she carried out, Nitecki's focus is on the dimensions of service quality resulting from the data, which she concludes tend to a three dimensional model rather than the five proposed by Zeithaml, Parasuraman, and Berry (1990), there being some overlap among reliability and responsiveness, and more obviously between responsiveness, assurance, and empathy. In the data provided in the article, there is evidence of significant gaps between user expectations and service delivery which are not commented on in detail. Negative scores range between –.178 and –1.888 (Nitecki, 1996, p. 186). Aggregate scores for gaps in service quality, as measured by the difference between the mean for indicators reflecting expectations compared with the mean of scores for perceived quality of service delivered are also predominantly negative and high, ranging from –.446 to –1.278. It is worth noting that the scores derived from Nitecki's gap analysis do not correlate well with the overall

scores given for user satisfaction with the library's service at a macro level, which range from 6.596 to 8.058 suggesting that the macro satisfaction score measures something other than an aggregate of satisfaction with individual services.

Nitecki (1996) notes that the results seem to suggest that a higher overall rating of satisfaction correlates with users who "a) have not experienced a service problem within the past year; b) were satisfied with the resolution of problems experienced; c) indicated a willingness to recommend the library service they experienced to a friend, or d) suggested that the information they obtained from the service experience was more valuable to them than the information found among those users with opposite experiences" (p. 184). These observations tend to support the proposition that satisfaction at the macro level is more than an aggregate of satisfaction at the micro level over a range of services.

While Nitecki is concerned to point out that in this project she was not using SERVQUAL as a measure of performance but testing the validity and robustness of the instrument, it is still worth noting user responses to two key factors in the satisfaction ratings in reference service: "When a user has a problem, excellent libraries' [or test library's] reference services will show a sincere interest in solving it," and "[e]mployees in excellent libraries [or test library's] reference service will always be willing to help users," both of which show major gaps between expectation and performance. As Nitecki observes, "reference service providers should concentrate on both showing sincere interest in solving user problems . . . . and staff willingness to help users" (Nitecki, 1996, p. 187). In the reference literature, this is a key factor in the provision of accurate reference service. In a significant empirically based study on the quality of reference service and reference librarians' accuracy in responding to users' queries, Gers and Seward (1985) note:

> A second set of behaviours strongly associated with providing correct answers is showing interest in the users' question. The librarian who shows the least interest in the user's question is likely to provide a correct answer 33 percent of the time. The librarian who shows the most interest in the user's question is likely to provide a correct answer 76 percent of the time. (pp. 33-34)

Dewdney and Ross (1994) also report that user satisfaction with the reference encounter is strongly correlated with similar behaviors, and that there is a strong correlation between friendliness and understanding of staff and the users' overall satisfaction and willingness to return. It would seem that the existing research literature emphatically endorses the messages emerging from the service quality research literature in LIS and that libraries ignore these messages at their own peril. Furthermore, comparing service quality measures with other empirical measures enables us to draw some well-validated conclusions about the relationship between

"perceived quality" and "objective quality." Other examples later in this article explore this question further.

Some other research reports provide data which can be compared with Nitecki's. An online and paper-based survey of library service using a SERVQUAL model carried out at the University of Illinois at Urbana-Champaign provides data for a gap analysis based on the difference between the means for user expectations and perceptions of performance. Negative scores range between –.01 and –.92 (Schmidt & Searing, 1998, pp. 3-4). The averages of mean differences for service issues relating to staff activities are negative compared with a positive average score (service exceeds expectations) for indicators relating to collections, both print and electronic.

A SERVQUAL analysis of Interlibrary Loan services at Carnegie Mellon University also resulted in some negative scores, ranging between –.85 and –1.71 for indicators which, in the SERVQUAL model, are generally aligned with reliability of service—again largely dependent on staff activities and attitudes (Stein, 1998, p. 211). The mean overall quality rating received was 7.545. Stein (1998) notes that the mean for users who reported that they had not experienced a problem with the libraries in the past year was 8.090, while among those who did experience problems and whose problem was resolved, the mean rating was 7.571, and those whose problem was not resolved rated the library at 5.650 (p. 214). It would be useful to compare these data with Nitecki's data on the same issue—overall satisfaction rates of users who had no problem, had a problem which was resolved, and had a problem which was not resolved.

In the most recent research report on the application of the SERVQUAL model to an academic library (in this case, Yale University's Library), Nitecki and Hernon (2000) report that, based on analysis of the data relating to the gap 5 case, "the library did not surpass reader expectations on any service attribute, but it did come close to meeting most expectations" (p. 263). Eleven areas where gap scores exceed –1.0 are noted. These include the ability to communicate with library staff through the Web page, document delivery through IL or other methods, easy use of the online catalog, photocopiers and computer printers in good working order, clear and helpful directional signs and information about library hours, and reshelving of materials. The three scores greater than –2.00 were for the following: online catalog as an accurate source of information about all materials held in the library, the ease in discovering in advance when the library is open, and materials being reshelved promptly. Nitecki and Hernon (2000) comment: "It is important to remember that the judgements about the importance of the attributes and the perceptions of services delivered are relative and are merely indicators of where priorities might be placed for improvement effort" (p. 263).

However, the quadrant analysis carried out by Hernon and Nitecki, which graphs expectations against performance, suggests a grimmer scenario; the attributes falling into quadrant 2 are those of most importance to users but are not perceived as services on which the library performs well. Twenty-six out of forty attributes fell in this quadrant. An overall customer satisfaction rating of 7.11 is compared with an adjusted mean of ratings derived from individual attributes of 7.32. The authors conclude that Yale libraries are meeting, but not exceeding, customer expectations. This can be compared with the mean scores in the Carnegie Mellon SERVQUAL analysis of IL of 7.545. It is also worth noting that the lower scores in the gap 5 analysis at Yale tend to be attributes associated with "reliability," the indicator that emerges in most of these studies as the one rated by users as most important. This may suggest that there is more room for concern about the gap 5 scores falling below −1.00 and definitely about those falling below −2.00 than the authors indicate.

Researchers into SERVQUAL and similar models in LIS are divided as to whether the SERVQUAL instrument can be used as a diagnostic tool or for ranking library performance (Cook, 1999). While Nitecki's comment about the lack of normative data with which to compare her results holds true for the LIS field, in some other disciplines there is a body of data emerging that throws some light on the scores achieved by libraries in some of these studies, in particular in Gap 5—i.e., the gap between customer expectations and perceptions of service. Such comparisons could add considerable meaning to both research results and to future applications of the model. For example, at Victoria University of Wellington, the SERVQUAL model has been used in a large number of MBA research projects in a wide range of industries. Geoff Durden, coordinator of the projects for many years, notes that, while there is no published cross industry data available relating to SERVQUAL, from his own analysis of these projects over eight years, he is able to summarize findings of the gap between customer expectations and perceptions of service as follows:

A. Magnitude of Gap 5: 0 to −1
Interpretation: relationship in good order with perhaps just one of the five dimensions exhibiting a significant gap between expectations and perceptions (usually assurance or empathy). Overall, perceived quality and satisfaction with the service is positive. These relationships need managing by a routine process of incremental improvement.

B. Magnitude of Gap 5: −1 to −2
Interpretation: relationship is flawed along one, sometimes two, of the five dimensions. Gaps between expectations and perceptions along these dimensions are at a level that results in a slightly positive/neutral view about the overall quality of the relationship and satisfaction with the service. The relationship is in need of fairly urgent remedial action.

again these have a higher priority in the rankings of academic staff than library staff. Since most of the studies analyzed here took place, there has been a tremendous increase in the number and kinds of electronic services offered in libraries. From the tentative networking of online catalogs and CD-ROM indexes, electronic services now available include desktop links to a Web environment that offers users direct access to online database vendors, full-text articles available on demand, and instant access to electronic journals. As electronic access to a wide variety of publications becomes available to academic library users, libraries seek to cancel print subscriptions on the assumption that "just-in-time" document delivery and access to academic journals is more cost-effective than "just-in-case" print-based subscriptions with their accompanying costs of acquisition and storage.

Not many research studies of library effectiveness have caught up with this change. One of the few that has is the Western Kentucky University (WKU) Libraries Satisfaction Survey reported by Perkins and Yuan (2000) in which a survey placed on the WKU Libraries' home page gathered usable responses from 247 participants. Participants were asked about their use and satisfaction with the libraries' electronic resources, library center, use of library resources off-site, book and serial collections, and Internet databases. The data are not very clearly presented, the focus of the article being more about the way the survey was set up. Respondents overall seem to have been satisfied with access to databases both within and from outside the library and with the book and serial collections but less so with the libraries' home page, with phone and e-mail assistance, and with access to CD-ROM products. (This article, which has the potential to add value to the literature, is an example of many which need editorial guidance in order to present findings in a meaningful way.) While some administrative changes were reported as taking place as a result of the survey, it did not seem to be integrated into any overall analysis of service quality of library effectiveness.

The SERVQUAL analysis carried out by the University of Illinois at Urbana-Champaign mentioned earlier also covered a full range of electronic services. Many of these are areas where the gap between expectation and perception of service is greatest. The online catalog has a poor satisfaction rating and does not appear to be meeting needs (user comments indicate dissatisfaction with the user interface), and there are mildly negative views of electronic full-text articles and Internet access. However, the largest gaps remain regarding basic service items (reshelving of materials and hours the library is open) with scores at nearly −1. The authors comment that these last two areas are where additional staff resources would be needed to resolve the problem. The quality of the collection, the general service skills of staff, and users' knowledge of resources are also indicators with negative scores on Gap 5. They are therefore points where the quality of service offered needs addressing, "by a routine process

the Zeithaml/Parasuraman model of SERVQUAL as described by Nitecki (1996), the first Gap is the discrepancy between the customers' expectations and managements' perceptions of these expectations, derived from "executive perspectives on a service organization's design, marketing and delivery of service . . . . the first four gaps are the major contributors to the service quality gap that customers may perceive" (p. 182). In the LIS field, there has been little overt attention paid to this aspect of service quality, but some studies outside the SERVQUAL framework nevertheless do contain data that might enable an analysis of any discrepancy between users' expectations and management's perceptions of these. One such data set is derived from a series of investigations carried out by Calvert and Cullen between 1992 and 1996. There is an assumption made in analyzing these data that, in stating their views on which aspects of service it is important to measure, librarians are reflecting their views of the expectations of users and are not vexatiously imposing their own beliefs about service quality in opposition to the views of their users. Data from both public and academic libraries are used here to illuminate this point.

The first study in the series explored the views of three separate constituencies: librarians, local body councillors (elected representatives who are members of the city council which has responsibility for the local amenities such as libraries), and users. Each group was asked how important they believed each of ninety-five aspects of library performance were. The ninety-five indicators covered a similar range of services to many service quality surveys. Although that study did not distinguish between librarians in management roles and para-professionals, it does provide some insights into potential discrepancies between user expectations and a professional/managerial view of these. Each aspect was rated on a scale of 1 to 5 by respondents according to its importance to them. For each constituency, the aspects were then ordered from most important to least, and the ranked list compared using Spearman's rho test. There was .880 correlation between the ranked list of indicators favored by library users and that of the librarians (Cullen & Calvert, 1993). An earlier U.S. study using the same methodology had found a .57 correlation between library managers and users, and a .58 correlation between library service staff and users (see Table 1).

It is worth noting that, while there are discrepancies in these lists, it would not be true to state that the library staff did not care about users' views—they have focused heavily on community needs in their responses and would appear to believe that they are "listening" to their communities. But they have a different view of these from the community itself. While small differences in scores among items in these ranked lists are not meaningful, larger variances in the rankings can be considered significant. For example, librarians rank users' second favored indicator as being "Quality of books, magazines and other materials" at 16, their seventh

Table 1. Ranked lists of attributes: Public Libraries (Cullen & Calvert, 1993).

Users' Rating	Librarians' Rating
Helpfulness and courtesy of staff	Helpfulness and courtesy of staff
Quality of books, magazines, and other materials	Level of staff morale
Competence of management	Competence of management
Ease of use and arrangement of library catalog	Match of service to community needs
Accessibility of buildings (ramps for disabled etc.)	Match of stock to community needs
Expertise of reference staff	Extent of community awareness of library services
Total stock of books, magazines, and other materials	Accessibility of buildings (ramps for disabled etc.)
Level of staff morale	Range of services available whenever library open
Match of hours open with user needs	Ease of use and arrangement of library catalog
Total money spent on books and other materials	Quality of reference materials

* Expertise of reference staff was ranked at 11 (Cullen & Calvert, 1993)

favored indicator being "Total stock books, magazines and other materials" at number 37, their ninth indicator is "Match of hours open with user needs" at number 15, and their tenth favored indicator is "Total money spent on books and other materials" and is ranked at 19. These data match well with that reported by Garlick (1998), where users placed "Books for adults" and "Helpful staff" as their highest priorities by a significant margin (p. 69).

In the second study, the actual performance of these libraries was evaluated by library staff using the same indicators. Again, while the purpose of this study was not focused on service quality, the results tell us something about resource allocation and service delivery and the extent to which this matches the expectations of users. In other words, the results provide insights into the gap between managers' perceptions of user expectations and those expectations themselves, although it is not constructed as a gap analysis survey.

In the top ten indicators, two of the users' preferred indicators in the first study—that is their expectations—are listed as being well performed by the group of libraries surveyed. "Helpfulness, courtesy of staff" is listed second and "Expertise of reference staff" is listed ninth. "Quality of books, magazines and other materials," "Total stock of books, magazines, and other materials," and "Match of hours open with user needs" come in the next ten (i.e., the top twenty in terms of performance). Most

of the rest of the users' preferred indicators are below fifty in the ranked list of ninety-five indicators (Calvert & Cullen, 1994).

Clearly, while some of the users' priorities are being met, others are not. The professional argument has always been that users do not know what is good library service and cannot judge. The service quality model argues that this view should be re-examined and that libraries should start changing their priorities and align them more closely with those of users. These data support that view. It is interesting to note in passing that the question of "helpfulness of staff" and "willingness to help" remains a significant indicator in both service quality surveys and in some of these earlier studies and emerges as a critical factor in reference success. Both users and librarians seem to believe that this is an important aspect of service quality. And yet, in areas when libraries are made aware of users' priorities in terms of service, they frequently find reasons for not altering resource allocations in order to deliver service at that level. Willingness to help users is thus treated as a micro level service quality issue rather than a macro level one.

ACADEMIC STUDIES THAT INVESTIGATE THE GAP IN USER EXPECTATIONS AND MANAGERS' PERCEPTIONS

A second series of research projects carried out by Cullen and Calvert (1993) investigated the same issues in academic libraries. As in the previous studies, the perceptions of key groups of stakeholders (the governing body, senior library staff, library staff, academics, graduate students, and undergraduate students) were surveyed concerning the indicators which each group believed was important when judging the effectiveness of an academic library. The means of ratings given by all members of a constituency were compared, and a ranked list of indicators prepared for each constituency. Correlations between the rankings of the groups of interest here were:

Senior library staff: academic staff	.69
Senior library staff: graduate students	.67
Senior library staff: undergraduate students	.67
Library staff: academic staff	.73
Library staff: graduate students	.72
Library staff: undergraduate students	.69

The tables of ranked indicators (see Tables 2 and 3) show some of the same orderings as in the Public Libraries study.

Despite the fact that, between the highest ranked indicator in each case and the tenth, the difference is never more than .514, and individual placings may not be statistically significant. The rankings, and the indicators placed in the top ten in each list, can be considered to reflect the expectations of users and management's perceptions of these. (Compari-

Table 2. Ranked lists of attributes: Academic Libraries (Cullen and Calvert, 1993).

Senior Library Staff Rating	Other Library Staff Rating
Helpfulness and courtesy of staff	Helpfulness and courtesy of staff
Expert staff assistance to users when needed	Expert staff assistance to users when needed
Competence of management	Competence of management
Ease of use and arrangement of library catalog	Expertise of reference staff
Expertise of reference staff	Proportion of library materials listed on computer catalogs
	Availability of reference staff when needed
Ease of use of public catalogs	Success in answering reference questions
Use of planning procedures (short- and long-term)	Ease of use of public catalogs
Extent to which users are made aware of services available	Extent to which users are made aware of services available
Match of goals objectives to user group needs	Proportion of items wanted by user finally obtained
Success in answering reference questions	
Extent to which library achieves goals, objectives	

sons between subject areas in the academic and student groups that were also investigated in the study showed far higher correlations than between the various constituencies.) Library staff again demonstrate their desire to be responsive to user needs and the indicator "match of goals and objectives with users" is very high on both library staff lists. But their aspirations and their perceptions of what users want are not close to reality. Staff, in fact, appear to be preferring indicators that reflect "objective quality," that is, standard library performance measures.

SERVQUAL STUDIES OF THE GAP BETWEEN USER EXPECTATIONS AND MANAGEMENT'S PERCEPTIONS

These data can be compared with the findings of Edwards and Browne (1995) who address directly the problem of the gap between user expectations and management's (or the professional's) views of those expectations. In their study, Edwards and Browne developed a ninety-three item service quality questionnaire by canvassing the views of professional librarians and academics. This was sent to a randomly selected group of academics in four widely different Australian universities and a smaller group of senior librarians who were asked to respond to the questionnaire as they thought their users would.

In analyzing the results, Edwards and Browne conclude that the academics and librarians agreed on the significance of the five broad dimen-

Table 3. Ranked lists of attributes: Academic Libraries (Cullen & Calvert, 1993).

AcademicStaff	Graduate Students	Undergraduate Students
Expert staff assistance to users when needed	Match of hours open with user needs	Provision of multiple copies of items in high use
Expertise of reference staff	Expert staff assistance to users when needed	Match of hours open with user needs
Proportion of library materials listed on computer catalogs	Provision of multiple copies of items in high use	Equipment(e.g., photo-copiers) kept in service by good maintenance
Quietness of study environment	Proportion of library materials listed on computer catalogs	Quietness of study environment
Helpfulness and courtesy of staff	Quietness of study environment	Helpfulness and courtesy of staff
Total amount of library budget	Equipment (e.g., photo-copiers) kept in service by good maintenance	Expert staff assistance to users when needed
Access to library catalogs via networks throughout the campus	Helpfulness and courtesy of staff	Number of seats per full-time student equivalent
Match of hours open with user needs	Expertise of reference staff	Provision of adequate number of photocopiers
Speed of provision of items through ILL	Proportion of items wanted by user finally obtained	Proportion of library materials listed on computer catalogs
Proportion of items wanted by user finally obtained	Speed of provision of items through ILL	Speed and accuracy of reshelving of materials

sions of service quality (tangibles, responsiveness, reliability, assurance, and empathy) although the academics appeared to place greater weight on reliability and the librarians on assurance, the dimension which measures the extent to which service providers are knowledgeable, courteous, and engender trust and confidence. This finding ties in with Hernon and Altman's observation that nonprofit organizations see their services as inherently desirable and do not focus on service quality and certainly not in terms of "perceived quality."

Librarianship has high ideals, and these lead to perceptions that what libraries do has value. Perhaps it also leads to a somewhat paternalistic view that we know what patrons need and want and can be trusted to deliver it. This view may be interfering with a clear focus on customer satisfaction as a measure of service quality and may be preventing library managers from having confidence in users to decide their own needs and priorities.

Edwards and Browne suggest that library users focus on more specific elements of service quality. In their analysis of the two groups' responses

to the questionnaire (that is, users and librarians who were asked to respond as they thought their users would), Edwards and Browne point to a high level of consonance in the results, but noted some key indicators on which academics placed a greater weight than librarians. When items for which the means of all responses for each group differed more than .5 are listed, some key issues can be identified. For example, some aspects of computer-generated service fall into this category, as do issues about access to library materials (journals arranged by title; direct user access to databases; lists of materials on subjects; dedicated terminals for staff) and some relating to some issues that are commonly perceived to be issues of service quality (staff will try another source if the item is not available; staff provide quick answers; large number of staff; reference shelves are tidy; staff can be relied on; staff locate missing items).

In their conclusions, Edwards and Browne (1995) highlight the similarities between the perceptions of academics and librarians:

> The findings also show that the librarians in the sample had an accurate perception of their users' expectations across the broad dimensions that research has found to be important in determining service quality. In addition, librarians were able to identify many of the attributes of service which the academics most strongly agree are expected of a quality information service. (p. 178)

The authors follow this statement by commenting again on the gaps in perceptions about individual indicators of quality:

> In particular, librarians underestimated the level of expectation on items about computer based services, responsiveness in obtaining material, timeliness of service, and the arrangement of materials. They overestimated academics' expectations for aspects of service involving user and librarian relationships, and for user education programs. (p. 178)

This is an important statement. The disparities in perceptions are of more significance than the congruities. One unhappy experience may be overlooked by a user but a series of incidents in which the user's purpose on a specific day is frustrated will lead to low satisfaction scores on elements of individual services and lower satisfaction rates overall. Edward and Browne's research deserves much attention and should be followed by many more such studies. But what are the lessons learned from current research?

THE DIGITAL LIBRARY

One of the key issues to emerge in the Edwards and Browne study is that, while librarians focused on information provision regardless of format (or believed that their users would perceive information in this way), users showed a greater than expected concern with format and with computer-based services. In the Cullen and Calvert study of academic libraries, there are only a few indicators that relate to electronic services, but

again these have a higher priority in the rankings of academic staff than library staff. Since most of the studies analyzed here took place, there has been a tremendous increase in the number and kinds of electronic services offered in libraries. From the tentative networking of online catalogs and CD-ROM indexes, electronic services now available include desktop links to a Web environment that offers users direct access to online database vendors, full-text articles available on demand, and instant access to electronic journals. As electronic access to a wide variety of publications becomes available to academic library users, libraries seek to cancel print subscriptions on the assumption that "just-in-time" document delivery and access to academic journals is more cost-effective than "just-in-case" print-based subscriptions with their accompanying costs of acquisition and storage.

Not many research studies of library effectiveness have caught up with this change. One of the few that has is the Western Kentucky University (WKU) Libraries Satisfaction Survey reported by Perkins and Yuan (2000) in which a survey placed on the WKU Libraries' home page gathered usable responses from 247 participants. Participants were asked about their use and satisfaction with the libraries' electronic resources, library center, use of library resources off-site, book and serial collections, and Internet databases. The data are not very clearly presented, the focus of the article being more about the way the survey was set up. Respondents overall seem to have been satisfied with access to databases both within and from outside the library and with the book and serial collections but less so with the libraries' home page, with phone and e-mail assistance, and with access to CD-ROM products. (This article, which has the potential to add value to the literature, is an example of many which need editorial guidance in order to present findings in a meaningful way.) While some administrative changes were reported as taking place as a result of the survey, it did not seem to be integrated into any overall analysis of service quality of library effectiveness.

The SERVQUAL analysis carried out by the University of Illinois at Urbana-Champaign mentioned earlier also covered a full range of electronic services. Many of these are areas where the gap between expectation and perception of service is greatest. The online catalog has a poor satisfaction rating and does not appear to be meeting needs (user comments indicate dissatisfaction with the user interface), and there are mildly negative views of electronic full-text articles and Internet access. However, the largest gaps remain regarding basic service items (reshelving of materials and hours the library is open) with scores at nearly −1. The authors comment that these last two areas are where additional staff resources would be needed to resolve the problem. The quality of the collection, the general service skills of staff, and users' knowledge of resources are also indicators with negative scores on Gap 5. They are therefore points where the quality of service offered needs addressing, "by a routine process

of incremental improvement" to use Durden's words, even if they are not quite at the "in need of fairly urgent remedial attention" (Durden, personal communication with the author, September 26, 2000). These areas all turn up in user comments. As with many other studies, the authors talk about areas needing attention but, like many other commentators in the field, are too readily forgiving about shortcomings and too ready to accept that lack of resources prevent the institution from providing the service quality that users seek.

In the UIUC study, some electronic resources (e-mail reference services and the library Web pages) appear satisfactory to users. Overall electronic resources appear to be accepted as part of the library's system of information delivery, and some are well regarded. However, the few service quality surveys that cover some of the issues relating to service quality in relation to electronic resources and services do not provide enough information about the service quality issues in this area. The few articles which attempt to analyze not only the technicalities, desirability, and costs of developing electronic library services, but also analyze some of the service aspects which will need to be monitored, and suggest some of the key issues, and even these fall far short of a comprehensive analysis. Issues identified in the literature so far include: the effectiveness of information storage and retrieval tools, menus and search engines, systems for structuring and cataloging digital resources alongside print resources, security and authentication issues, archiving of electronic material, user assistance, and instruction (Mandel, 1997). All of these will impact service quality as perceived by users of electronic resources as library clients. Sloan (1997) focuses on the continuing need for intermediation and assistance for users of electronic services, and describes several instances of libraries using video-based interactive reference services and e-mail reference services for this purpose. Such systems must be designed with user needs and satisfaction in mind if they are to add value to the quality of library services overall (Sloan, 1997). Harter (1997) also sees the need for electronic services to meet user needs by offering selected, cataloged, and classified high-quality information sources, supported by a professional intermediation and user assistance service, if digital libraries of the future are to offer the quality of service of the traditional research library. A futuristic study carried out by University of Maryland Libraries which attempts to identify the issues that the library needs to address in establishing the balance between traditional library sources and services and the electronic/digital library paradigm focuses on the development of electronic resources characterized by ease of use and richness of content. Integration of physical and electronic services and resources is seen as critical to quality of service and the ongoing mission of the University of Maryland itself.

Bertot and McClure propose a model where service quality in relation to networked electronic services is measured along with extensiveness,

efficiency, effectiveness, impact and usefulness, and adoption. These measures are applied to technical infrastructure, information content, information services, support, and management (Bertot, 1999, p. 4). Some interviews and focus groups are suggested as a way of gauging user responses to electronic services; however, the main focus is on transaction logging and network statistics.

Ease of use of access systems to electronic resources, ready assistance for users through electronic mediation and the quality of the resources themselves are emerging as key issues in the field of electronic resources (Klump, 1997). These issues need to be tested in the next iteration of the SERVQUAL model to ascertain their relevance to users' perceptions of service quality in the academic library and ascertain the role of electronic services in user satisfaction at the macro and micro level. Such research also needs to examine which aspects of the electronic service contribute to the five variables (tangibles, reliability, responsiveness, assurance, and empathy) and how libraries can ensure that these criteria are met in the new electronic environment.

CONCLUSION

In their article in *American Libraries* where they suggest the profession should learn "what matters most to [library] customers" or suffer the consequences of losing their customers, Altman and Hernon (1998) challenge libraries to ask themselves:

- Has the library defined its service reputation and customer loyalty and developed the means to determine the extent to which customers share the same vision?
- Does the library incorporate the results of that measurement into the planning process and revise its customer service plan as needed?
- Are a variety of measures used to construct a well-rounded picture of service quality and of completely satisfied and loyal customers?
- Does the entire library (all units and staff) embrace service quality and work toward the same ends?
- Is the library committed to stop spending staff and dollar resources on activities that customers do not care about and reallocate them to things customers prefer (p. 54)?

The research analyzed here tends to suggest that very few libraries could give a positive answer to any of these questions and do not understand the importance of service quality and customer satisfaction in retaining their customers in the context of the competitive global digital environment which threatens academic libraries today. Our examination of the research literature has shown that:

1. there is a body of research into service quality and the role of customer satisfaction in the field of library and information studies that

shows consistent results and patterns of responses by users in different places and types of libraries;

2. this literature indicates that there are significant gaps between users' expectations and perceptions in some key areas of service, notably: quality of collections and access to these, the provision of a study environment, services and equipment that meets the needs of students, and willingness of staff to help users;

3. urgent remedial action is needed in some of these areas to increase user satisfaction at the micro and macro level;

4. there is also a gap between users' expectations and our professional perceptions of these;

5. our past reliance on measures of "objective quality" have not always met customer needs;

6. there is a lack of resolve in the profession to address these two gaps that could lead to libraries not thriving as well as they might in a competitive environment.

The expectations of users are likely to change in the electronic environment, and these will impact at both the macro and micro level on service quality and overall satisfaction ratings. Overall satisfaction is likely to have a significant impact on the future of academic libraries and their competitiveness. Clearly, further research that would help integrate indicators evaluating electronic service delivery into the SERVQUAL model and other models of service quality and user satisfaction are urgently needed. Research that throws more light on the complex relationship between service quality and satisfaction at the macro and micro level is also much needed. But more than either of these, action is needed. Our research findings are clear, the gaps are clear, the significance of those gaps is becoming clearer, and action from the profession in reducing these gaps is overdue.

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