# Assessing and improving service performance for maximum impact: insights from a two-decade-long research journey

## A Parasuraman

#### An outline of the research

1983-1985: Conceptual model of SQ - GAPS model.
1985-1988: SERVQUAL instrument.
1988-1990: Extended GAPS model.
1990-1993: Nature and determinants of service expectations.
1993-1994: Refined SERVQUAL instrument.
1995-1996: Multiple-method listening: a SQ information system.
1996-2003: Role of technology in service delivery.
2000-2003: Understanding and measuring e-service quality.
2001-2003: Network-based customer service systems.

## **Conceptual model of SQ - GAPS model**

Based on insights from extensive focus group research with customers and indepth interviews with senior executives in a variety of sectors, the research team (consisting of Parasuraman, Zeithaml and Berry) developed a conceptual framework called the "GAPS model" (see Figure 1). The primary thesis of this model is that the service quality shortfall (i.e. GAP 5, the gap between customers' service expectations and perceptions) is a result of a series of shortfalls within the service provider's organization (i.e. GAPS 1-4). Thus, improving the quality of service experienced by customers (i.e. closing GAP 5) requires diagnosing the causes of and correcting the internal deficiencies (i.e. GAPS 1-4).

## Questions to ponder regarding library-service initiatives

Are you focusing on the right service initiatives?

Do you have a good understanding of the expectations of different segments of users?

Do you translate user expectations into internal performance guidelines? Are you using the available resources optimally to improve service performance?

Are your external communications about your services consistent with your internal capabilities?

## SERVQUAL instrument

Building on the key insights from their qualitative research, the research team launched a series of empirical studies to develop, test and refine a scale for measuring service quality as perceived by customers. This series of studies gave birth to SERVQUAL, a five-dimensional, two-part instrument. The first and second parts of SERVQUAL measure customers' expectations and perceptions respectively along a variety of service attributes grouped into the following five dimensions:

**Reliability**: ability to perform the promised service dependably and accurately. **Responsiveness**: willingness to help customers and provide prompt service. **Assurance**: knowledge and courtesy of employees and their ability to inspire trust and confidence.

**Empathy**: caring, individualized attention the firm provides its customers. **Tangibles**: appearance of physical facilities, equipment, personnel, and communication materials.

This instrument has been used widely in the commercial sector. Being a userbased measure of service quality, SERVQUAL is a potentially useful approach to consider as a complement to current approaches for assessing quality of libraries.

## Questions to ponder regarding library-service initiatives

Do you have any user-based measures of service performance? If no, why not? If yes, do the measures focus not only on the service outcomes, but also the process of service delivery?

## Extended GAPS model

In the next phase of their research journey, the research team did an in-depth examination of each of the four internal gaps to identify potential causes of each gap. This phase involved field studies of organizational units (including extensive interviews with managers and employees) and a search of the scholarly literature in the domain of organizational behavior. Insights from this research phase resulted in an "extended" model of service quality (Figure 2), which enumerates for each general gap a list of specific organizational deficiencies that could contribute to the gap. The extended GAPS model is a useful starting point for diagnosing and closing the gaps.

## Questions to ponder regarding library-service initiatives

For closing the "market information gap" (Gap 1):

Do you have any mechanisms in place for channelling feedback from front-line staff for senior administrators?

Do your senior administrators have direct contact with users?

Do your senior administrators at least occasionally perform customer-contact roles?

For closing the "service standards gap" (Gap 2):

Are your senior administrators quick to dismiss user expectations as unrealistic or unreasonable?

Do you have a formal, ongoing process for setting service specifications? Are your performance-evaluation criteria dominated by "input" and "efficiency" type measures?

For closing the "service performance gap" (Gap 3):

Do you support your front-line staff with appropriate technology and information systems?

Do you provide adequate training to front-line staff?

Do you recognize - and take steps to reduce - potential role stress among front-line staff?

For closing the "internal communication gap" (Gap 4):

Do you have mechanisms in place for encouraging communication across different functional areas or departments?

Do you have consistent user-related policies and procedures across different branches or departments?

Do you scrutinize all external communications intended for users to prevent overpromising?

## Nature and determinants of service expectations

The next phase of the research journey, involving a serious of focus group interviews in a variety of sectors, produced a more detailed understanding of the composition and drivers of customers' service expectations (Figure 3). In particular, it suggested that customers, rather than having a single "ideal" level of expectations, actually have a range of expectations - namely, a "zone of tolerance," bounded by "desired service" (service level customers believe can and should be delivered) at the top and "adequate service" (minimum service level customers are willing to accept) at the bottom. If the delivered service falls within the zone, customers will be satisfied. If the service is better than their desired service level, customers will perceive the service as exceptionally good, and be delighted. However, if the service falls below the zone of tolerance, customers will be disgusted and look elsewhere for the service.

The zones of tolerance can vary across customers (reflecting different priorities in their service expectations) and also across occasions or contexts (reflecting different potential drivers of expectations at play). Customers' service expectations can be greatly influenced by what the organisation promises, both explicitly and implicitly. Over-promising the service that the library can deliver can be very dangerous. There can be explicit promises in, for example, service level agreements, that will be hard to reach in some circumstances and difficult to monitor. For example, most libraries can confidently promise to respond to a customer's inquiry within a limited period of time, but not necessarily to supply book within a specified time, as it simply may not be available.

Implicit service promises are more difficult to address. Public and academic libraries have largely been free at the point of delivery. Political pressure to raise more funds may make the library manager look closely at the range of services offered in order to add value and therefore charge a fee. However, where the customer perceives all library services to be free at the point of delivery, they may object to being asked to pay for any service. They may then become much more critical of existing services when an added value service has been suggested to them, which may implicitly raise their expectations.

In addition, customers' personal needs could affect their service expectations. Perhaps they were delighted with what the public library service offered when they were using the service for recreational reading, but much more critical when using the service to undertake some serious study. Customers' past experience of a library service, perhaps as a child, could influence the confidence with which they approach any library service as an adult. The staff of a library service may have little experience of what a truly excellent library service can offer and can be complacent with the service they offer. Many librarians can be shocked when on retirement they move from being a manager of their service to a customer and they can see the service that is actually delivered more clearly. If customers who have received excellent service from one university library move to a university whose library service is not as good, their perception of the service will be poor, even if the service is acceptable to most of its other customers. Word-of-mouth communications and recommendations are also powerful determinants of service expectations.

The perception of the alternative services that are available to customers will affect their view of the services offered. For instance, students who have very limited choice of which university library they use may consider the public library to be a good alternative for some services. Yet another potential determinant of expectation levels are situational factors, which are factors beyond the service provider's control (e.g. power failure at the library causing lack of access to electronic resources). When service customers are made aware of such situational factors they are willing to be more understanding and to widen their zones of tolerance.

## Questions to ponder regarding library-service initiatives

Do you have a good understanding of the underlying drivers of your users' service expectations?

Do you know which services (or service levels) are likely to delight users and which service shortfalls are likely to irritate them?

Do you proactively "manage" users' service expectations so as to reduce disappointment and increase satisfaction?

## **Refined SERVQUAL instrument**

Based on the insights from the preceding phase, the research team refined the original SERVQUAL instrument by incorporating into it measures for the two different levels of expectations - namely, the desired service and the adequate service levels. In other words, the refined instrument generates three different ratings for each service quality attribute:

The desired service level. The minimum service level acceptable to the customer. The perceived level of service offered.

Once obtained, these ratings facilitate the construction of a zone of tolerance for each SERVQUAL dimension (as well as for more specific attributes within each dimension). The perceived-service ratings can then be compared against the zone of tolerance to see whether they are above, within or below the zone. Such comparisons can be diagnostically very valuable by pinpointing service deficiencies and prioritizing resource allocations in correcting those deficiencies. In fact, assessing service quality by examining just the perception ratings (which is what most organizations do) can be misleading, e.g. perception ratings may be quite high on all attributes; however, comparing those perceptions-only ratings against their corresponding zones of tolerance might reveal important service shortcomings that would otherwise go undetected.

## Questions to ponder regarding library-service initiatives

Do your user-based evaluations include measures to ascertain users' expectations?

If yes, are the measures refined enough to provide you with information about the users' tolerance range for difference service attributes?

Do you know how your service performance stacks up against that of sister institutions in terms of meeting/exceeding users' expectations?

## Multiple-method listening: an SQ information system

The SERVQUAL instrument, though very valuable, is just one approach for assessing service quality. This approach can, and should, be augmented with other approaches (some of them qualitative) to get a more complete and richer understanding of an organization's quality of service. During 1995-1996 the team worked on and documented multiple approaches, with each complementing, and compensating for the weaknesses of, the other approaches. This research phase concluded with a proposed "SQ information system" consisting of the following:

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.

Not all of these methods need to be employed by (nor would they all be appropriate in) every organization. Each organization should select and implement the most feasible and useful subset of approaches from the list above.

## Questions to ponder regarding library-service initiatives

Do your performance-assessment procedures include a healthy mix of:

Quantitative and qualitative approaches? External and internal measures?

In generating information for performance evaluation, are you taking full advantage of the potential for obtaining valuable insights from:- front-line staff?- users?

## Role of technology in service delivery

In 1996 it became important to look at the role of technology in service delivery. This led to the development of the concept of "technology readiness" (TR), which refers to people's propensity to embrace and use new technologies for accomplishing goals in home life and at work. Multinational research studies on TR began in 1997 in the USA and are still ongoing. The research is being conducted by Parasuraman in collaboration with Charles Colby, president of Rockbridge Associates, and has involved several qualitative and quantitative studies. Completed studies include four "National Technology Readiness Surveys" in the USA (NTRS, 1999, 2000, 2001 and 2002) and an Austrian Technology Readiness Survey in 2001. A Swedish TR study has been completed recently, and studies are being planned for Chile and Singapore.

## Why is technology readiness important?

There is a proliferation of technology-based products and services and customers are increasingly being asked to serve themselves through self-service technologies. But there is also anecdotal evidence about customer frustration with using technology and some evidence that technology penetration and usage rates may not be positively correlated. Therefore, not all customers may be equally enthusiastic about technology. A case in point is libraries investing heavily in the latest technologies, before having a good understanding of the extent to which their patrons and their employees (who are "internal customers") consider those technologies to be critical and are ready to embrace them wholeheartedly. The traditional approach for producing and delivering services is reflected by the "triangle model of services marketing" (see Figure 4), and involves exchanges among the company, its employees and its customers using conventional communication modes. However, with the proliferation of technology-based interactions, many traditional interaction modes are being mediated by some form of technology. The "pyramid model of services marketing" (see Figure 5) acknowledges the growing role of technology and emphasizes that role by placing it at the pinnacle of the model.

An important implication of the pyramid model is that an organization's success in implementing technology-based systems for serving customers critically depends on its understanding the level of technology readiness of its customers and employees.

Both qualitative and empirical studies relating to TR suggest that it is a multidimensional construct. Specifically, TR consists of four distinct dimensions or facets:

**Optimism**: a positive view of technology and belief that it offers increased control, flexibility and efficiency.

**Innovativeness**: a tendency to be a technology pioneer and thought leader.

**Discomfort**: a perceived lack of control over technology and a feeling of being overwhelmed by it.

Insecurity: a distrust of technology and scepticism about its working properly.

The "technology readiness index," a scale developed by Parasuraman and Colby to measure people's TR, has been used in several empirical studies in the USA as well as abroad. These studies suggest that there are five distinct segments of people - explorers, pioneers, sceptics, paranoids and laggards - that vary in terms of their scores of the four TR dimensions as well as their overall TR. Moreover, there is a strong association between their TR levels and their adoption and usage of technology-based products and services. For instance, based on a survey conducted in the USA in 1999, the penetration of various technologies into the five TR segments differed as follows (the technologies listed beside each segment are those that had been adopted by at least 50 per cent of the segment):

Explorers: computers, cell phones, caller ID, ATMs, online services, telephone banking. Pioneers: computers, cell phones, caller ID, ATMs, online services. Sceptics: computers, ATMs. Paranoids: ATMs. Laggards: none.

To summarize, the TR scores and the time of adoption of technologies for the five segments will generally vary, as shown in Figure 6.

## Questions to ponder regarding library-service initiatives

If you are considering, or have implemented, technology-based service initiatives:

Do you know how "technology ready" your front-line staff and users are? Do you "migrate" users to the new technology-based systems all at once or gradually?

Are you aware of, and do you proactively plan for dealing with, the increasing diversity over time in the mix of first-time users of your technology-based systems?

#### Understanding and measuring e-service quality

The increasing role of technology in general, and the Internet in particular, in service delivery triggered the next stage of the research journey: a series of qualitative and empirical studies to understand and measure e-service quality. This research, sponsored by MSI, is being conducted in collaboration with Valarie Zeithaml and Arvind Malhotra. The focus is on conceptualizing, measuring and improving service quality of Web sites. The qualitative component of this research is complete and has yielded a definition, of e-SQ, the dimensions underlying e-SQ, and a conceptual framework for understanding and improving e-SQ. The empirical component is underway.

E-SQ is defined as the extent to which a Web site facilitates efficient and effective shopping, purchasing and delivery of products and services. The dimensions on which customers assess e-SQ are:

access; ease of navigation; efficiency; customization/personalization; security/privacy; responsiveness; assurance/trust; price knowledge; site aesthetics; reliability; flexibility; and efficiency.

Each of the above general dimensions consists of a number of specific attributes (see Zeithaml et al., 2000).

The qualitative research also suggested a conceptual "gaps" model of e-SQ (see Figure 7), similar to the GAPS model already discussed in the context of traditional service quality. The overall managerial implication from the conceptual model shown in Figure 7 is also similar: to improve e-SQ as experienced by customers the various gaps shown in the model must be closed.

## Questions to ponder regarding library-service initiatives

Do you know how user-friendly your Web-based user interfaces are? In designing Web sites for delivering various library services, do you pay at least as much attention to user needs and expectations as you do to the Web sites' technical features and sophistication?

Do you have high-touch help readily available for users who may desire that type of help when they experience problems with your Web sites?

## Network-based customer service systems (NCSS)

An NCSS is a net-based system (wired or wireless) that delivers service to a customer either directly (e.g. to a browser, PDA, or cell phone) or indirectly (e.g. via a service representative or consultant). This most recent phase in the research journey is also being sponsored by MSI and is being conducted in collaboration with Rick Watson, Kathryn Brohman and Gabe Piccoli.

The focus is on understanding how firms are currently using network-based customer service systems and developing a typology of such systems. The methodology is to undertake a detailed analysis of the Web sites of 30 leading service providers plus seven field visits to companies (four to five in-depth interviews per visit). Preliminary insights from this research suggests that the type of interaction channel that is optimum in a given context depends on the type of customer as well as the type of transaction. Therefore, some type of "router" mechanism is necessary to provide the most efficient and effective customer service. The router should be able to analyze the type of customer and transaction based on prior knowledge stored in a data warehouse and then recommend the best interaction channel (see Figure 8).

## Questions to ponder regarding library-service initiatives

Do you have a database containing complete information about users' past usage of and inquiries about various library services?

If no, can you consolidate and/or upgrade your current systems to create such a comprehensive database?

If you already have a comprehensive database, are you making creative and full use of it to enhance service to users?

## In summary

To excel in service delivery to users, libraries must:

Ascertain users' service expectations and how well those expectations are being met;

Use multiple methods of listening to users and understanding their needs; Work systematically to remove organizational barriers that lead to poor service - both offline and online;

Recognize and capitalize on the increasing role of technology in serving users, but ...;

Be cognizant of users' and employees' readiness to embrace technologybased service systems;

Realize that e-service quality as perceived by users involves much more than having a state-of-the-art Web site; and

Recognize that the optimal channel for interacting with users may vary by user type as well as transaction type.



Figure 1 Conceptual model of SQ - GAPS model



Figure 2 Extended GAPS model



Figure 3 Nature and determinants of service expectations



Figure 4 Triangle model of services marketing



Figure 5 Pyramid model of services marketing



Figure 6 TR segments and technology adoption



Figure 7 Conceptual model of e-service quality



## Figure 8 Selection of optimal interaction channel

This article has been prepared from Professor A. Parasuraman's Powerpoint presentation at the 5th Northumbria International Conference on Performance Measurement in Libraries and Information Services. "Library measures to fill the void: assessing the outcomes", by Sandra Parker, Research Fellow, Information Management Research Institute, School of Informatics, University of Northumbria, Newcastle upon Tyne, UK.