M A R K E T I N G S C I E N C E I N S T I T U T E

A Conceptual Framework for Understanding e-Service Quality: Implications for Future Research and Managerial Practice

Valarie A. Zeithaml, A. Parasuraman, and Arvind Malhotra

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As e-commerce proliferates, the most experienced and effective e-tailers are realizing that the key determinants of success or failure are not merely Web presence or low price but rather the delivery of electronic service quality (e-SQ). To encourage repeat purchases and build customer loyalty, companies must shift the focus of e-business from e-commerce—the transactions—to e-service—all the cues and encounters that occur before, during, and after the transactions. To do so, managers need answers to many questions. What is good service on the Web? What are the underlying dimensions of superior e-SQ? How can e-SQ be conceptualized, measured, and thereby assessed? What actions can be taken to deliver e-SQ? And, what role will different technologies play in addressing the various aspects of customer service on the Web?

In this report, authors Zeithaml, Parasuraman, and Malhotra begin to address these questions by developing a framework for consumer evaluation of e-SQ gleaned from focus-group research with customers who shop on the Internet. They compare these findings on e-SQ with what is known about traditional service quality (SQ), and offer a conceptual model for understanding and improving e-service quality.

Study Findings

- ❑ Consumers consider 11 dimensions when they evaluate e-SQ: access, ease of navigation, efficiency, flexibility, reliability, personalization, security/privacy, responsiveness, assurance/trust, site aesthetics, and price knowledge. Notably, personal service is not considered critical in e-SQ except when problems occur or when consumers make complex decisions.
- ❑ The ideal level of many of the 11 e-SQ dimensions varies widely among customers. That is, more is not necessarily better. This is particularly true of responsiveness and personalization.
- ❑ Perceived control over the shopping environment and perceived convenience (characteristics that are enabled by the above dimensions of e-SQ) are critical to consumers.

- ❑ Participants have difficulty in precisely defining expectations pertaining to their interactions with websites.
- ❑ Price-value themes are strongly related to e-SQ, perhaps due to the pervasiveness of price as a reason for shopping on the Internet.

Managerial Implications

The findings from this exploratory research offer a rich set of insights about the criteria and processes consumers use in evaluating websites. These insights, in addition to serving as a starting point for developing a formal scale to measure perceived e-SQ, constitute a conceptual blueprint that managers can use to qualitatively assess the potential strengths and weaknesses of their websites.

Further, the study highlights four common "disconnects" between consumers' expectations of a website and their experience in using it. First, a *marketing information gap* reflects insufficient or incorrect information on the part of an e-tailer about website features desired by customers, and about the customers' assessment of the company's e-SQ. However, even when a company has complete and accurate knowledge, it may not be fully reflected in the site's design and functioning, resulting in a *design gap*. A *communication gap* reflects a lack of accurate understanding on the part of marketing personnel about a website's features, capabilities, and limitations. This may result in unattainable promises (e.g., guaranteed delivery of purchased merchandise by a certain date). This internal communication gap triggers a *fulfillment gap* which customers experience when the promises are broken.

As such, to foster customer loyalty to a website, managers must (a) develop a thorough understanding of how customers assess e-SQ, and (b) implement systems to detect and eliminate information, design, and communication gaps.

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Contents

Figures

Tables

Introduction

> "I'm a demon about customer service on the Web."
>
> "If an Internet company does well and does it consistently, it will be impossible for another site to get my business. I just wouldn't take the time even to look at other options."
>
> "You can hook me on the lowest price, but you can't keep me on the lowest price, even on the Web."
>
> —*Comments of focus-group participants*

As e-commerce proliferates, electronic retailers are attempting to establish a competitive edge over traditional retailers by conducting transactions with their customers over the Web. The most experienced and effective electronic retailers are realizing that the key determinants of success or failure are not merely presence or low price but rather the delivery of quality service over the Web. As the novelty of being among the pioneers on the Internet wears off, the sustainable advantage on "terra virtua," as was the case on "terra firma," will come from understanding the elements of superior quality on the Web and then leveraging information technology to deliver "knock-your-socks-off" e-service.

Considerable business evidence shows a widespread lack of adequate e-service quality. A study conducted by the International Customer Service Association (ICSA) and e-Satisfy.com (2000) found that only 36 percent of e-customers are satisfied with their Internet purchasing experiences. Boston Consulting Group (2000) research shows that four out of five online purchasers have experienced one failed purchase and 28 percent of all online purchases fail. These failures disappoint consumers and can have a detrimental impact on the future of electronic retailers: 28 percent of customers frustrated by their e-commerce experience report that they will not shop online again and 23 percent will not buy from the offending site again. A Jupiter Communications (1999) study found that many e-tailers are not even doing the basics, such as answering e-mail queries.

Faced with the criticism that they are not providing excellent service, some e-tailers are turning to advances in technology to enhance customer experience on their sites. Sellers of apparel, for instance, allow customers to build three-dimensional models to represent their body dimensions and "try-on" clothes. Unfortunately, these technology-based solutions are not correcting poor service perceptions and may even be exacerbating the problem. A survey conducted by Computer Economics (1999) found that the majority of the three-dimensional models it tested were painfully slow to download and did not simulate the real experience of trying on clothes. This and other examples illustrate the fact that the solution is not in more and better technology, but rather in understanding customer requirements and evaluation processes in shopping on the Web.

Mainspring and Bain & Company (2000) found that the average customer must shop four times at an online store before the store profits from that customer. To encourage repeat purchases and build customer loyalty, companies must shift the focus of e-business from e-commerce—the transactions—to e-service—all the cues and encounters that occur before, during, and after the transactions. These include efficient and effective shopping on the Web as well as fulfillment of customer orders. To achieve the shift in focus, managers of these existing or emerging companies need answers to many questions. What is good service on the Web? What are the underlying dimensions of superior electronic service quality? How can electronic service quality be conceptualized, measured, and thereby assessed? What actions can be taken to deliver electronic service quality?

The overall objective of this paper is to begin to address these questions. Specifically, we:

1. Review the literature on service quality and customer interactions with new technologies as a backdrop for understanding consumer evaluation of e-service quality,
2. Present a conceptual framework for consumer evaluation of e-service quality gleaned from exploratory research,
3. Compare and contrast research about traditional service quality with findings about e-service quality,
4. Combine all our insights into a conceptual model for understanding and improving e-service quality, and
5. Discuss directions for future research and managerial implications stemming from our findings.

Literature Review

The customer-service facet of e-commerce and Internet-based interactions has been gaining increasing attention. Articles about customer frustrations with websites such as those mentioned earlier frequently appear in the trade press. These articles are based largely on the following types of evidence: (a) anecdotes about individual customers' (usually the writer's) experiences with particular websites, (b) information generated through electronic monitoring of websites (e.g., ratio of number of individuals buying from a website relative to those visiting it), and (c) commercial surveys of customer satisfaction with websites (e.g., BizRate.com surveys). In contrast, the scholarly literature is, to our knowledge, devoid of articles dealing directly with how customers assess electronic service quality (e-SQ) and what the antecedents and consequences of e-SQ are. However, a rich body of knowledge on traditional service quality (SQ) exists, as does an emerging literature on customer interactions with new technologies. We provide a brief overview of key insights from these two research streams that serve as useful background information for discussing customer assessments of e-SQ.

Traditional Service Quality

By "traditional SQ" we are referring to the quality of all *non-Internet-based* customer interactions and experiences with companies. We use this term—and the acronym "SQ"—merely as an expositional convenience to distinguish SQ as discussed in the extant scholarly literature from e-SQ, the focus of our research.

Early scholarly writings on SQ (Grönroos 1982; Lehtinen and Lehtinen 1982; Lewis and Booms 1983; Sasser, Olsen, and Wyckoff 1978) suggested that SQ stems from a comparison of what customers feel a company should offer (i.e., their expectations) with the company's actual service performance. The idea that SQ is a function of the expectations-performance gap was reinforced by a broad-based exploratory study conducted by Parasuraman, Zeithaml, and Berry (1985). This study also revealed a set of 10 evaluative dimensions that customers use as criteria in judging SQ.

Starting with the 10 SQ dimensions, Parasuraman, Zeithaml, and Berry (1988, 1991) conducted empirical studies in several industry sectors to develop and refine SERVQUAL, a multiple-item instrument to quantify customers' global (as opposed to transaction-specific) assessment of a company's SQ. This scale involved expectations-perceptions gap scores along 5 dimensions: reliability, responsiveness, assurance, empathy, and tangibles. The SERVQUAL instrument and its adaptations have been used for measuring SQ in many proprietary and published studies.

Apart from spawning keen interest in SQ measurement, SERVQUAL has also triggered considerable debate in the literature. The key questions raised in the debate relate to the need for measuring expectations (e.g., Babakus and Mangold 1992; Cronin and Taylor 1992, 1994), the interpretation and operationalization of expectations (e.g., Teas 1993, 1994), the reliability and validity of SERVQUAL's

gap-score formulation (e.g., Babakus and Boller 1992; Brown, Churchill, and Peter 1993), and SERVQUAL's dimensionality (e.g., Carman 1990; Finn and Lamb 1991). In response to these questions, SERVQUAL's developers have presented counterarguments, clarifications, and additional evidence to reaffirm the instrument's psychometric soundness and practical value (Parasuraman, Berry, and Zeithaml 1991,1993; Parasuraman, Zeithaml, and Berry 1994a). Moreover, based on further empirical work, Parasuraman, Zeithaml, and Berry (1994b) have broadened the SERVQUAL scale to capture two different levels of expectations (adequate service, a lower level, and desired service, a higher level) that define a customer's zone of tolerance (Zeithaml, Berry, and Parasuraman 1993). Other empirical studies on SQ (e.g., Bolton and Drew 1991a, b; Boulding, Kalra, Staelin, and Zeithaml 1993; Zeithaml, Berry, and Parasuraman 1996) have demonstrated the role of expectations in SQ assessment and the impact of SQ on perceived value and behavioral intentions.

Three broad conclusions that are potentially relevant to defining, conceptualizing, modeling, and measuring perceived e-SQ emerge from the literature outlined above: (1) the notion that quality of service stems from a comparison of actual service performance with what it should or would be has broad *conceptual* support, although some still question the *empirical* value of measuring expectations and operationalizing SQ as a set of gap scores; (2) the SERVQUAL dimensions capture the general domain of SQ fairly well, although (again from an empirical standpoint) questions remain about whether they are five distinct dimensions, and whether the number of dimensions varies across contexts; and (3) customer assessments of SQ are strongly linked to perceived value and behavioral intentions.

A noteworthy feature of the extant SQ literature is that it is dominated by people-delivered services. As such, whether the preceding conclusions extend to e-SQ contexts and what the similarities and differences are between the evaluative processes for SQ and e-SQ are open questions. We address these questions later in the paper.

In addition to explicating how customers evaluate SQ, the exploratory research by Parasuraman, Zeithaml, and Berry (1985) produced a conceptual model suggesting that SQ deficiencies experienced by customers externally may be a function of four key internal (i.e., organizational) shortfalls or "gaps." We define these gaps and discuss their relevance for understanding and improving e-SQ in a subsequent section.

Customer Interactions with New Technologies

The rapid proliferation of new technologies and the consequent growth in customers' use of self-service technologies (SSTs) have been accompanied by recent research offering frameworks and guidelines for designing effective SST-based service-delivery systems (Bitner, Brown, and Meuter 2000; Dabholkar 2000; Meuter, Ostrom, Roundtree, and Bitner 2000). However, although some of the SST encounters discussed in this research are Internet-based transactions, the primary focus of the research is not on perceived e-SQ. Nevertheless, by highlighting the distinctions between SST-based and human-server-based interactions, this research stream reinforces the need for a fresh examination of the nature and drivers of perceived e-SQ, the focus of our research.

Insights from other recent studies dealing with people-technology interactions also imply that customer evaluation of new technologies is a distinct process. For instance, findings from an extensive qualitative study of how customers interact with and evaluate technology-based products (Mick and Fournier 1995) suggest that (a) customer satisfaction with such products involves a highly complex, meaning-laden, long-term process, (b) the process might vary across different customer segments, and (c) satisfaction in such contexts is not always a function of preconsumption comparison standards. Another major qualitative study by the same authors (Mick and Fournier 1998), focusing on people's reactions to technology, suggests that technology may trigger positive and negative feelings simultaneously. Moreover, other research involving both qualitative and empirical components demonstrates that customers' propensity to embrace new technologies (i.e., their *technology readiness*) depends on the relative dominance of positive and negative feelings in their overall technology beliefs (Parasuraman 2000).

Earlier studies focusing on specific technologies have also illustrated differences among customers in terms of their beliefs about and reactions to the technology in question. For instance, studies by Cowles (1989) and Cowles and Crosby (1990) on interactive media suggested the presence of distinct customer segments with differing perceptions and acceptance of the media. Likewise, research by Eastlick (1996) indicated that people's attitudes and beliefs about interactive teleshopping were good predictors of their propensity to adopt this mode of shopping. In a study of consumers' evaluations of and intentions to use technology-based self-service options, Dabholkar (1996) found that consumers varied in terms of their beliefs/feelings about the various options, and that those beliefs/feelings were positively correlated with intentions to use.

None of the aforementioned studies deals directly with customer assessment of e-SQ. Collectively, the findings reveal important differences in acceptance and usage of technologies among customers depending on their technology beliefs, and suggest that similar differences might exist in the evaluative processes used in judging e-SQ. In other words, customer-specific attributes (e.g., technology readiness) might influence, for instance, the attributes customers desire in an ideal website and the performance levels that would signal superior e-SQ.

Given that Internet-based transactions might seem complex and intimidating to many customers, it is reasonable to expect the *ease-of-use* (EOU) of websites to be an important determinant of perceived e-SQ. No scholarly research to our knowledge has studied EOU in the context of websites. However, a set of related studies dealing with computer technologies (e.g., software products) has examined the effect of perceived EOU and perceived *usefulness* (U) on customers' attitudes, behavioral intentions, and actual behavior. The initial research in this line of inquiry (Davis 1989; Davis, Bagozzi, and Warshaw 1989) developed scales to measure perceived EOU and U and empirically demonstrated the impact of the two constructs on attitudes, intentions, and behavior. This research also discovered a differential impact of EOU and U, with U being a stronger predictor of the dependent variables than was EOU. Several replication studies (Adams, Nelson, and Todd 1992; Hendrickson, Massey, and Cronan 1993; Keil, Beranek, and

Konsynski 1995; Segars and Grover 1993; Subramanian 1994) have confirmed these relationships and also suggested customer and task characteristics as potential moderators of the relationships. The consensus from this research stream implies that customers' assessment of websites will likely be influenced not only by how easy the sites are to use but also how effective they are in helping customers accomplish their tasks.

Methodology

Because this research was exploratory, the methodological approach involved in-depth focus-group discussions with consumers who had purchased on the Web. A total of six focus-group interviews were conducted in early 2000 in Ewing, Pennsylvania (near Princeton, NJ). We opted for this geographic area over others (such as Washington D.C. or New York) that were not representative of the population in general or did not offer the full spread of experience with Internet usage that we were seeking. Silicon Valley, for example, contains a highly skewed group of experienced users but may not have adequately captured the low-to-moderate user segment. On the other hand, far less cosmopolitan areas may not have generated a sufficient incidence of high-experience users. After discussion with multiple focus-group facilities, we chose the Princeton area as a location that satisfied our screening criteria, which are discussed below.

By design the six focus groups, with six to seven participants per group on average, differed in terms of age and experience with Internet purchasing. The age groups were established to represent three major segments—teen+ (18-21 years, believed to be the core market for Internet shopping in the future), young adult (22-39 years), and middle age (40-60 years, the group currently spending the most money on the Internet). Groups were balanced 50/50 by sex, replicating the current percentage of Internet users. Shown below is the matrix with the screening requirements for each group.

	18-21 years old	22-39 years old	40-60 years old
High Internet-buying experience	Approximately 8 Internet purchases per month, at least 24 in last 3 months ½ female, ½ male	Approximately 8 Internet purchases per month, at least 24 in last 3 months ½ female, ½ male	Approximately 8 Internet purchases per month, at least 24 in last 3 months ½ female, ½ male
Low to moderate Internet-buying experience	1-4 purchases per month, 3-12 purchases in last 3 months ½ female, ½ male	1-4 purchases per month, 3-12 purchases in last 3 months ½ female, ½ male	1-4 purchases per month, 3-12 purchases in last 3 months ½ female, ½ male

We used the focus-group protocol, shown in the appendix, as a guide in probing participants on their expectations about and perceptions of buying on the Web. We asked questions about characteristics of sites that were desirable and undesirable, positive and negative service experiences, and criteria used in forming evaluations of service quality. We probed the meaning of the criteria expressed. For example, if a participant mentioned that reliability was important, we asked what reliability meant and continued to probe until participants expressed their evaluation criteria fully.

One of the three researchers moderated all six focus groups, while the other two attended all groups and took notes. We then transcribed the notes and watched the videotapes of the focus groups. All three researchers digested the transcribed focus-group information individually prior to assembling to synthesize the results.

Consumer Evaluation of e-SQ

We define e-service quality (e-SQ) as *the extent to which a website facilitates efficient and effective shopping, purchasing, and delivery*. Listening to the focus-group participants and studying the transcribed information revealed three important aspects of e-SQ from the consumer's point of view. First, consumers held both Internet-wide criteria—criteria pertaining to shopping on the Web in general compared to other forms of shopping and purchasing—and website-specific criteria. Although our study focused predominantly on the latter aspect, we will briefly discuss some observations about the former as well. Second, consumers' evaluative criteria for e-SQ existed at various levels of the means-end chain (Cohen 1979; Myers and Shocker 1981; Olson and Reynolds 1983; Zeithaml 1988)—ranging from concrete cues (e.g., one-click ordering) to perceptual attributes (e.g., perceived checkout speed) to broader dimensions (e.g., ease of navigation) to higher-order abstractions (e.g., convenience). Third, consumers used different criteria for evaluating the e-SQ of typical transactions and for exceptions, which included such situations as service recovery and complex purchasing. The following sections will describe each of these aspects of consumer evaluation.

Internet-wide Criteria versus Website-specific Criteria

Participants held fairly uniform and predictable reasons for shopping on the Web rather than other forms of shopping (e.g., in-store shopping, catalogs, and telephone shopping). Dominant among these reasons were convenience, the ability to buy unusual items, ease of comparison shopping, and lower prices. Convenience was mentioned many times and in many ways, and included comments such as the following that illustrate the ability to shop at any time and to avoid the frustrations of alternative means of shopping and buying.

> "There are 10 feet of snow outside and you are still buying it [on the Internet]!"

> "The greatest convenience is that you don't have to move from where you are."

> "I don't have to deal with people."

> "I don't have to be put on hold."

Participants also cited the ability to find unusual things (e.g., rare books), and to obtain more information about products than in a store. One participant illustrates this point:

> "Sometimes you don't know if you will find an item when you go to a physical store. But you can find out in 10 minutes if an online store has it."

The ease with which consumers can comparison-shop across stores was also a primary reason for shopping online. Participants could access price information from many places quickly and find the lowest price available. They could also compare different items and styles to find what they want.

On the other hand, there were aspects of online shopping in general that led customers to prefer offline purchasing. The need to see, feel, and experience certain types of products was one general theme, with respondents feeling the need to use all their senses to purchase certain items.

> "I really want to see what I'm buying—fresh veggies, a bedroom set."

> "I do a lot of arts and crafts. I bought some fabric on the Internet, but I wasn't happy with it. Even though I looked at bigger and bigger pictures, it wasn't the same as feeling and seeing it in the store."

> "There are things that I actually have to see. . . . I will never buy tools online. . . . I need to see [them] first. I need to drive a car before I buy."

> "I want to try my clothes on. I want to drive a car. I want to walk in the shoes before I buy them."

As might be expected, the types of products participants were most comfortable buying online were standardized products (e.g., CDs, books, and pet food) and branded products (e.g., cosmetics, toys, and computers). Customers were not as comfortable buying high-ticket items (although one female participant purchased a convection oven) and items typically classified as experience or credence goods (Darby and Karni 1973).

One compelling issue that surfaced was participant fear of spending too much on the Web. A number of participants indicated that it was easier for them to overspend on the Web than it was in a mall. This fear prevented them from using the medium as much as they might otherwise, as illustrated by these comments:

> "Sometimes it is too easy to buy on the Web. . . . [T]his leads to impulse buying. . . . [Y]ou could end up spending a fortune. . . . [Y]ou'd be more careful if you go to the mall."

> "It's just too tempting to buy on the Net. I'm always cautious about going on the Net."

Myriad aspects of poor customer service were offered as reasons for not using the Internet more frequently than participants already did. Some complaints about poor service were very general, such as the following:

> "Customer service on the Internet is lousy."

> "The Internet is a hassle for major purchases."

Others were very specific and will be discussed in detail in the next section.

Finally, caution about privacy issues in general prevented some respondents from using the Web to purchase as much as they might. Many participants feared entering their credit card information into the site, anxious that the information would then become available to others. One participant, in fact, stated that he changed his credit card number every year because he was so worried that others might find his account number and use his credit.

Evaluation Criteria for e-SQ

The means-end chain approach to understanding the cognitive structure of consumers holds that product information is retained in memory at multiple levels of abstraction (Cohen 1979; Myers and Shocker 1981; Olson and Reynolds 1983, Zeithaml 1988). The simplest level is a product attribute; the most complex level is the value or payoff of the product to the consumer. We found that participants' evaluative criteria for Internet shopping similarly ranged from very specific or concrete cues to very abstract criteria. To show this range of criteria, and to illustrate some of the ideas in this section, Figure 1 is organized in the following way, similar to the "Grey benefit chain" (Young and Feigin 1975).

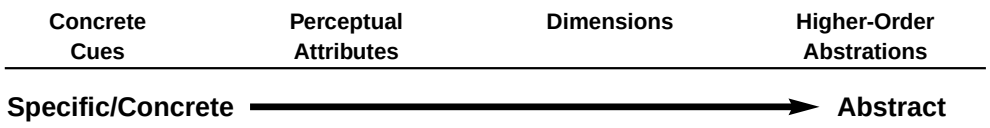
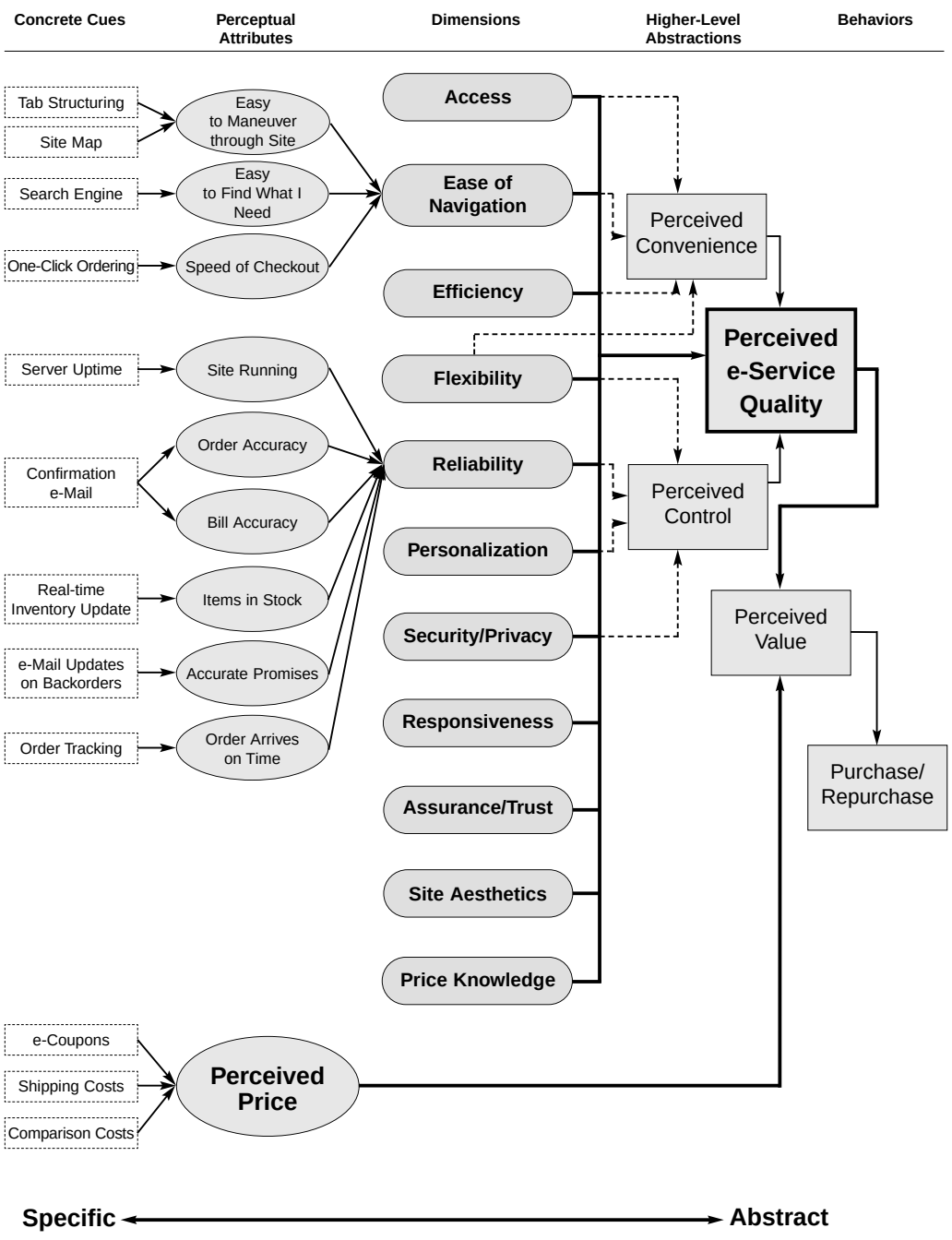


Figure 1. A Means-End Model of Perceptions of e-Service Quality



In discussing the topic of e-SQ, respondents mentioned evaluative criteria that extended along the full range of the means-end chain. As indicated in Figure 1, a means-end model of perceived e-SQ, the left side contains concrete, specific and—in many cases—technologically-based cues. Although we focused on perceived e-SQ in this study, the topic of price was raised frequently, and we therefore show

several of the concrete cues that were mentioned concerning price (such as coupons). These specific cues signal perceived price, which is among the perceptual attributes shown in the second column of Figure 1. In the third column, we show 11 dimensions of perceived e-SQ that were elicited from the focus-group participants. The fourth column, higher-level abstractions, shows two constructs (perceived convenience and perceived control) that feed into perceived e-SQ along with the 11 dimensions. As would be expected, some of the e-SQ dimensions are also antecedents of convenience and control as well as direct antecedents of overall perceived e-SQ. The final column shows the highest-level abstraction, perceived value, which is affected both by price and perceived e-SQ, consistent with academic literature (for a summary, see Zeithaml 1988). Perceived value drives purchase/repurchase behavior. We next discuss the criteria at each level to explicate more fully what the focus-group participants considered in assessing websites.

Higher-Level Abstractions. Perceived value, the highest-level abstraction desired by consumers, is affected by both perceived e-SQ and price. Two other higher-order attributes are antecedents of perceived e-SQ—perceived convenience and perceived control. Convenience was discussed extensively both as a reason for shopping on the Web and as a reason for choosing one website over another.

Need for control over the shopping environment was a clear theme in the interviews. Participants made many comments about wanting control, as shown in the two quotes below:

> "I want to be in control of what I can, especially when I'm spending my money."

> "I need to be in control of my time. . . . [T]hey shouldn't be controlling my time."

The discussion of perceived control is consistent with the literature on interactive shopping and could be conceptualized as a dimension of perceived e-SQ. However, we view it as a higher-level abstraction for two reasons. First, it was an aspect that consumers want to *achieve* when shopping on the Web, rather than an aspect of the site itself. In other words, sites do not offer control in the same way that they offer responsiveness or flexibility; instead, desire for control is a customer characteristic that is enabled by the four dimensions of perceived e-SQ preceding it in Figure 1. Just as some aspects of e-SQ make sites more convenient, others allow the customer to perceive that they have more control. The opposite is also true: Some aspects limit the control that customers perceive they can attain. Second, perceived control is a more general, overarching construct than are the dimensions of e-SQ.

Dimensions of Perceived e-SQ. The responses of focus-group participants to e-SQ dimensions were remarkably consistent across the groups, experience levels, and e-service businesses discussed. The focus groups revealed that consumers use basically similar dimensions in evaluating e-SQ regardless of the type of product or service being evaluated on the Internet. These include access, ease of navigation, efficiency,

flexibility, reliability, personalization, security/privacy, responsiveness, assurance/trust, site aesthetics, and price knowledge.

Table 1 contains definitions of the 11 dimensions based on our focus-group findings. This table is not meant to suggest that the 11 dimensions are independent. Because our research was exploratory, measurement of possible overlap across the dimensions (as well as determination of whether some can be combined into more global dimensions) awaits future empirical investigation.

Table 1. Dimensions of Perceived e-SQ

1. **Reliability** involves the correct technical functioning of the site and the accuracy of service promises (having items in stock, delivering when promised), billing, and product information.
2. **Responsiveness** means quick response and the ability to get help if there is a problem or question.
3. **Access** is the ability to get on the site quickly and to reach the company when needed.
4. **Flexibility** involves choice of ways to pay, ship, buy, search for, and return items.
5. **Ease of Navigation** means that a site contains functions that help customers find what they need without difficulty, possesses a good search engine, and allows the customer to maneuver easily and quickly back and forth through the pages.
6. **Efficiency** means that a site is simple to use, structured properly, and requires a minimum of information to be input by the customer.
7. **Assurance/Trust** involves the confidence the customer feels in dealing with the site and is due to the reputation of the site and the products or services it sells as well as clear and truthful information presented.
8. **Security/Privacy** involves the degree to which the customer believes the site is safe from intrusion and personal information is protected.
9. **Price Knowledge** is the extent to which the customer can determine shipping price, total price, and comparative prices during the shopping process.
10. **Site Aesthetics** relates to the appearance of the site.
11. **Customization/Personalization** is how much and how easily the site can be tailored to individual customers' preferences, histories, and ways of shopping.

As shown in Figure 1, the four dimensions proposed to be antecedents of perceived convenience are access, ease of navigation, efficiency, and flexibility. The four e-SQ dimensions that drive perceived control are flexibility, reliability, personalization, and security/privacy.

Perceptual Attributes. Respondents discussed a wide variety of more specific perceptual attributes as being useful in evaluating e-SQ. For example, when respondents were probed about the meaning of reliability on the Web, they discussed a well-functioning site, accurate orders and bills, in-stock items, accurate promises, and timely arrival of orders. Figure 1 shows these perceptual attributes for reliability as an example, and also illustrates some perceptual attributes leading to ease of navigation. The full set of attributes elicited for each e-SQ dimension is delineated in Table 2 along with quotes that illustrate selected attributes.

Table 2. Perceived Dimensions, Attributes, and Concrete Cues for e-Service Quality and Selected Illustrative Quotes

Dimensions of e-SQ	Facets of e-SQ Dimensions	Selected Quotes
Reliability	**Site is up and running** • Available for business • Site does not crash • Pages don't freeze after you have put in all your information • Site is working correctly	*"I entered everything and clicked submit. . . . I got an ERROR."*
	Accuracy • Received the item ordered • Pages confirm exactly what was ordered	*"I bought a convection oven over the Internet. I got a confirmation. Then when we called a few days later they had no record of it. So we ordered again and after 10 days we still didn't get it. When we called they said it was back-ordered. We got tired of waiting and called them to cancel it out. The next day it arrived and by then we didn't even want it! It didn't have any instructions. I just hope it works! It's huge and I don't know how to return it. I'm not going to pay the shipping charges."*
	• Billing is accurate	*"I got a package two months after I ordered it and they still charged me for priority shipping."*
	• Information is accurate - Make accurate promises - Accurate description of products	*"Pictures can be misleading on the Web. We had a very bad experience after looking at a hotel room in Fort Lauderdale based on a picture on the Web."*
	Items are in stock • Items are available • Items are available in my size • Know that items are in stock • Items are available in suitable time frame	*"I tried to order something through the Disney site. I pushed 'order' three times, and every time I pushed 'order' I got 'not available.' Why can't they just take it off the list if it's not available?"*
Responsiveness	**Confirmation of order** • Received a confirmation of item ordered • Quick confirmation • Received an e-mail when order was sent • Received information about when the order was coming • Response time should be fast. "Time is Money"	
	Help available if there was a problem • Message about what to do if your order doesn't go through (such as "Please submit again") • Compensation for problems they create • Taking care of me after the purchase • E-mailing or otherwise following up my purchase and asking how satisfied I am • Taking care of problems promptly • Refund shipping charges when product doesn't arrive in time • Fast response to e-mail queries	*"I don't want them to forget about me in case something goes wrong. I need to know they are paying attention."*
	Speed of placing and order • Speed of execution	*"They don't respond to e-mails . . . and they hide their 800# . . . they don't want you to call."*

Table 2. Continued

Dimensions of e-SQ	Facets of e-SQ Dimensions	Selected Quotes
Responsiveness *(continued)*	**Ability to get answers to questions**	
	Quick delivery	*"When you have a problem [and send an e-mail], they are not responsive . . . they just give me a general answer. I guess they are overwhelmed."*
	Updates on status of order	
Access	**To the site** • Being able to get on the site quickly • Loads fast (and not too many extraneous pictures) • Site should be easy to find	*"15-second rule—that's how long customers can wait."*
	To the company • Contains a telephone number to reach company • Ability to talk to a 'live' person using a telephone number • Ability to talk to the person who processes the order • Has online customer service reps	*". . . being able to find the 800# and be able to get them. It's not like in a store where you can go yell at the manager."*
Flexibility	**Choice of ways to pay** • Would like to pay my way using checking account	*"Priceline.com gives no flexibility. . . . They don't give you much choice."*
	Choice of way to ship • Ability to use different billing and shipping addresses • Ability to get the package without having to sign for it	
	Choice of ways to return the items • Having a brick-and-mortar option to return the items • Being able to return the items to a store	
	Choice of way to buy items	
	Options for the ways you can search	*"I bought tickets for a hockey game. I found it frustrating because I couldn't search by section. I could only search by price. They didn't let me search the way I wanted to. They dictated how I would search."*
	Full information about choices • Options to be on an e-mail list but not receive junk mail	
Ease of Navigation	**Easy to find what I need** • Easy to get anywhere on the website • Shouldn't get you lost • Contains a site map with links to everything on the site	*"Sometimes I seem to go in circles because I don't know which button to push."*
	Has a search engine	*"At Barnes and Noble site, you have total control. You can go from A to F without going through B, C, etc. I want to have control over where I want to go on the site and how I want to get there."*

Table 2. Continued

Dimensions of e-SQ	Facets of e-SQ Dimensions	Selected Quotes
Ease of Navigation *(continued)*	**Ability to maneuver through the site** • Good user interface • Ability to find a page previously viewed • Being able to go back when you make a mistake **Speed of maneuvering through the site** • Not too many web pages • Not too many graphics that take time to download **Speed of checkout**	*"It's annoying when you have to go back and it takes forever for previous pages to load up because of graphics"; "I give up, type www and just start over again."*
Efficiency	**Simple to use** • Site that contains just the basics **Doesn't require me to input a lot of information** **Structured properly** • Gives information in reasonable chunks • Gives information on command rather than all at once • No scrolling from side to side • No fine print that is difficult to read and hard to find	*"My biggest gripe is that every time I have to put in so much information. Just give me the cheapest ticket and I'd go any time. But still they want me to put in a lot of information. That's why I haven't bought any airline tickets. It's frustrating."*
Assurance/ Trust	**Well-known site** • Reputation of the site • Advertises on other media so that name is well known • Well known name **Sells known brand names** Provides clear information about the products • More description along with the pictures • Objective information • Being able to see the products clearly **Offers a guarantee** **Ratings provided by other customers**	*"I only buy from online sites whose back ends I know something about (e.g., Land's End)."* *"I trust Barnes and Noble because I have come to trust them through repeated positive experiences."*
Security/ Privacy	**Secure site** • Symbols and messages that signal the site is secure • Verification from third parties **Shows care in how it collects my credit card information** • Not having to give my credit card information until right at the end • Doesn't keep my credit card information on file	*"Security is important to me. The lock and little message are reassuring. Actually, I would feel more secure if I saw such a reassurance while ordering over the phone."*

Table 2. Continued

Dimensions of e-SQ	Facets of e-SQ Dimensions	Selected Quotes
Security/ Privacy *(continued)*	**Does not share private information** • Personal information should not be compromised • Doesn't give other sites or companies access to my information • Doesn't use banner ads with cookies to collect information on me • Doesn't give my information away to other companies	*"I do worry about the banner ads that act as cookies. It is not fair for them to track that much information about me."*
Price Knowledge	**Speed of maneuvering through the site** • Not too many web-pages • Not too many graphics that take time to download	
	Ability to compare prices (with other sites) • A site that brings you all the bids/prices from other sites	
	Knowledge of Shipping Prices • Want to know up-front what shipping charges are	*"If I had known what the shipping charges were, I wouldn't have wasted all that time. I'd rather spend $5 for gas to go to the store."*
	Knowledge of what I am spending as I go • Running total of purchases as the order progresses • Running total of purchases and shipping costs • Prices shown with the items on the screen • Up-front pricing	*"Shipping charges must be reasonable and must be explained clearly"; "They didn't give me anything about shipping and handling until I got to the end. Then I found out it was too high"*
	Knowledge that site has low prices • Incentives to shop • Knowing that shipping is free • Knowing that a discount coupon is available	
Site Aesthetics	**Good pictures of items on sale** • Color of items same as what it is on the screen.	
	Eye catching • Color is intriguing • Brighter rather than dark background	
	Simple • Free of distraction • Uncluttered • Clean, not too busy • No flashing things going across the screen • Not too much movement • No or few advertisements	*"I don't mind logos, but I don't need designs. I just want it to be simple, easy to understand."*

Table 2. Continued

Dimensions of e-SQ	Facets of e-SQ Dimensions	Selected Quotes
Customization/ Personalization	**Sites that help me find exactly what I want** • Sites that make recommendations about what I might like • Site is targeted to me • Has a wish list capability that allows me to save items I might want to buy	*"Amazon is cool even though it was bit spooky because they knew so much about me."*
	Gives many options for merchandise • Wide selection	
	Easy to customize	*"Being able to try clothes on a model—you fit in your measurements and it shows you a model with clothes on."*
	Stores customer information to facilitate future transactions	*"I can understand them needing some information, but I don't like to have to fill out lengthy questionnaires. I don't do that in stores"; "Having to register each time is frustrating. How would you feel if you had to fill out a form every time you went to a store?"*

At the perceptual-attribute level of evaluation, both experienced and inexperienced respondents mentioned fairly similar attributes as evaluative criteria. Thus, in terms of measuring perceived e-SQ, it should be possible to develop a general scale at this level of abstraction that is equally applicable to customers with varying degrees of e-shopping experience (more on this later).

Concrete Cues. At the most specific level, some respondents (particularly very experienced respondents) were able to articulate concrete technology cues that they look for in evaluating a site's e-SQ. These respondents would talk about tab structures, live chats, site maps, and real-time inventory updates—cues that not all respondents were able to articulate. However, even low to moderately experienced respondents discussed concrete cues such as Amazon.com's "one-click ordering," privacy icons, pop-up advertisements, and banner advertisements. The words used for these cues varied more across groups and participants than those at any other level. Furthermore, in contrast to the perceptual attributes, which could all be scaled from low to high, some of these concrete cues were yes/no cues—a site, for instance, either had a privacy icon or a banner ad or it did not.

Many of these concrete cues could be characterized as transitory, meaning that they may tend to evolve as technology changes. For this reason, a scale measuring perceived e-SQ at this level would date itself quickly and need to be revised to keep abreast of the newest concrete features of websites. Instead of measuring perceived e-SQ at this level, a scale positioned at the perceptual-attribute level seems unlikely to need frequent modification, if at all, because it measures customer's requirements rather than specific design features that an Internet company provides to meet these requirements. Using a perceptual-attribute-level scale, managers of e-businesses can change physical attributes and then measure the impact of those changes on perceived e-SQ.

Criteria for Typical Transactions versus Exceptions

Respondents wanted shopping and buying on the Internet to be efficient and trouble-free, as might be expected. They seemed to emphasize the basic dimensions of reliability, access, ease of navigation, and efficiency when making their day-to-day Web transactions. However, they appeared to weigh other dimensions more highly when confronting a problem or a complex decision. For example, when problems occurred, the responsiveness of the site (either through the help features, live chat, or ability to contact someone from the company directly) became critical. Similarly, when difficult questions about the products or services on the site could not be answered using the site's transactional features (particularly if the product or the purchase process was complex, as it is in online auctions or high-end purchases), the dimensions of flexibility, responsiveness, and price knowledge seemed more critical. Which dimensions and attributes are pivotal for transactions remains to be tested empirically, but we infer from the focus groups that these differences occur.

e-Service Quality versus Service Quality

Expectations

Because expectations play such a strong role in perceived SQ, we directed several questions in the focus groups to what respondents expected of service on the Internet and where they obtained these expectations. Unlike focus-group participants who articulated with ease the nature and sources of their expectations for traditional SQ (Parasuraman, Zeithaml, and Berry 1985; Zeithaml, Berry, and Parasuraman 1993), participants in our study often seemed at a loss to articulate their e-SQ expectations except when it came to issues of order fulfillment. Respondents were able to express their expectations about reliability issues such as having items in stock, delivering what is ordered, delivering when promised, and billing accuracy. However, they had difficulty expressing expectations about other dimensions. This difficulty is consistent with a key conclusion reached by Mick and Fournier (1995) based on their in-depth probing of consumer reactions to new technologies: "In buying and owning technological products, an individual's preconsumption standards are often nonexistent, weak, inaccurate, or subject to change as life circumstances shift" (p. 1). Expectations for e-SQ and the sources of these expectations were especially difficult to tease out in the low-experience customer groups but were also not clear in many of the moderate to high-experience groups.

Among the standards of comparison mentioned were catalog shopping, stores, and—probably most importantly—high quality websites. Here are comments about these sources:

Catalog:

> "I expect it to look like a catalog and maybe even a little more. I don't want to miss out on anything."
>
> "I want it to be a condensed catalog."
>
> "I comparison shop against a catalog or against newspaper ads to compare prices."

Stores:

> "I always compare websites to Nordstrom's or Macy's type service. . . . I don't like Macy's because I get lousy service from them. Many of the websites have Macy's service. Nordstrom's—it's quick. If I need alterations, it can be done right there. Amazon's site is like a Nordstrom's store. American Girls' site is like a Macy's store."

Other sites:

> "Barnes and Noble is well laid out. The search engine is very efficient, [the purchase] process is very easy, and they follow up."

Equivalence of Dimensions and Perceptual Attributes for SQ and e-SQ

In comparing the dimensions of SQ (Zeithaml, Parasuraman, and Berry 1990) and those participants discussed in this study, we can make three observations. First, approximately half of the dimensions of SQ (reflected both in the original 10-dimension conceptualization and in the 5 SERVQUAL factors identified empirically in subsequent research) are evaluated by consumers in e-SQ. Second, several completely new dimensions emerge as important in e-SQ, whereas they had not been relevant in SQ. Third, perceptual *attributes* related to the dimensions of perceived e-SQ and SQ tend to differ more than the dimensions themselves.

The themes or dimensions of reliability, responsiveness, access, assurance, and customization/personalization were all discussed frequently by participants, and these were also key dimensions or subdimensions of SQ. Many of the perceptual attributes remain the same as in SQ—honoring promises, being available when the customer wants to do business, having a reputable name, and knowing customers. Some of the perceptual attributes of reliability and access of e-SQ, however, deal with online-specific issues such as system crashes, and operation and availability of the network, attributes not present in assessing SQ.

Several of the dimensions or subdimensions of perceived e-SQ are new, including ease of navigation, flexibility, efficiency, site aesthetics, and price knowledge. Most, but not all, new dimensions relate specifically to technology. Ease of navigation, for example, involves a good search engine and functions that help customers find what they need without difficulty. The ease-of-navigation and efficiency dimensions of perceived e-SQ are consistent with and capture facets of the *ease-of-use* and *usefulness* attributes that previous research has identified as being key drivers of consumer acceptance of information technologies (Davis 1989; Davis, Bagozzi, and Warshaw 1989). One of the new dimensions that did not involve technology was *price knowledge*—the extent to which the customer can determine shipping price, total price, and comparative prices during the shopping process. This was not an issue with perceived SQ but appeared to be an important component for e-SQ.

Tangibles, one of the five key dimensions of SQ, is not explicitly a dimension in e-SQ but is most related to site aesthetics, a frequently discussed aspect of online service.

Personalization versus Personal Service (Empathy)

The focus groups did not indicate that personal service (the empathy dimension of SQ) is critical in the transactional aspects of e-SQ. Although customers seek understanding, reassurance, courtesy, and other aspects of personal attention in perceived SQ, these service requirements did not seem to be key issues in perceived e-SQ. Only in service recovery or in highly complex decisions when customers sought special assistance (often on the telephone as follow-up) did aspects of per-

sonal service appear to be considered. Focus-group comments such as the following demonstrate this difference between e-SQ and SQ:

> "If personal interaction is all that important, you would go to a store."
>
> "The best service is no interaction at all—but you should have somebody that you could talk to just in case."
>
> "I don't need personal service."
>
> "You don't get personal [service] in the retail store anyway, so I don't miss it."

In summary, the personal (i.e., friendly, empathetic, understanding) flavor of perceived SQ's empathy dimension is not required except in nonroutine situations. Participants described another facet of empathy—knowing the customer—as a dimension of perceived e-SQ (customization/personalization). It is notable that many participants associated anonymity with efficiency and preferred to remain anonymous. For these individuals, attempts by a site to get to know them appeared intrusive.

Compared to SQ, e-SQ seems to be more of a cognitive evaluation than an emotional one. Although emotions such as anger and frustration were expressed when subjects reported on problems arising from e-SQ, these appeared to be less intense than those associated with SQ experiences. Moreover, positive feelings of warmth or attachment that are engendered in SQ situations did not surface in the focus groups as characteristics of e-SQ experiences.

Price-Value Themes

The SQ literature distinguishes clearly between service quality and price, but we found that these issues were more strongly intertwined in web shopping. As mentioned above, we believe that *price knowledge* is actually a dimension of e-SQ, with the clear presentation of price as an important service provided by sites. In general, the perceived e-SQ, price, and value themes were frequently interwoven, perhaps due to the pervasiveness of price as a reason for shopping on the Internet.

Curvilinear Relationships

SQ could be described and measured as "more is better" in virtually all attributes and dimensions. Most customers want as much reliability, responsiveness, empathy, and assurance as they can obtain from traditional service providers. In contrast, many of the expressed attributes of e-SQ involved ideal points that varied among customers. In other words, inverted U-shaped relationships, rather than linear relationships, appeared to exist between performance in many dimensions and perceived e-SQ in those dimensions.

For example, customers wanted responsiveness in terms of e-mails sent to them about products and services ordered. Once an order has been placed, customers expected confirmation of the specifics of the order on the website and through e-

mail. At a later point in the order-fulfillment process, they also appreciated a follow-up e-mail when the order was shipped or delayed. There existed a point, however, at which there was too much e-mail being sent, as described in this quote:

> "With Barnes and Noble, responsiveness is almost to the point of ridiculousness with their 25 e-mails giving me updates on the status of my $9.95 purchase."

Personalization is another attribute about which desires vary across customers. Many websites ask customers to provide preference information to personalize the look and the feel of the site. To this end, customers are typically asked to provide detailed shipping, billing, and credit-card information. For some participants, personalization enhanced perceived e-SQ but for other participants, who only wanted to buy items and check out quickly, the personalization decreased e-SQ perceptions:

> "Personalization cuts both ways."

> "I like personalization."

> "Sometimes I don't want the personalization because I just want an efficient transaction."

A final example of the curvilinear pattern involved the amount of information and graphics presented on a site. Some respondents wanted a large amount of information and high quality graphics to make their choices. They desired multiple images to view the product from several angles, or three-dimensional, rotating renderings of products. However, other respondents preferred simplicity in both information and graphics, in part because their presence slowed down the transaction and in part because too much information became confusing.

> "Too much information [is] annoying."

> "[A web page] should have just four or five things to click on, not a lot of things all at once."

> "I like the graphics but not at the expense of speed."

In sum, customer preferences for e-SQ are not always linear as they are to a great degree with SQ.

Conceptual Model for Understanding and Improving e-SQ

Our focus-group research, in addition to revealing the multiple dimensions that customers use as criteria in assessing e-service quality (e-SQ), provided insights about internal organizational deficiencies that could contribute to inferior e-SQ experienced by customers. Combining these insights with inferences from the traditional SQ literature on causes of poor service, we propose a conceptual model for understanding and improving e-SQ.

The extant SQ literature strongly suggests that various organizational shortfalls hinder the delivery of superior customer service. A conceptual model of SQ developed by Parasuraman, Zeithaml, and Berry (1985) defines customer-perceived SQ as the magnitude and direction of the discrepancy between service expectations and perceptions, and depicts this discrepancy as a function of four organizational gaps associated with the design, marketing, and delivery of services:

Gap 1: Difference between customer expectations and management perceptions of customer expectations.

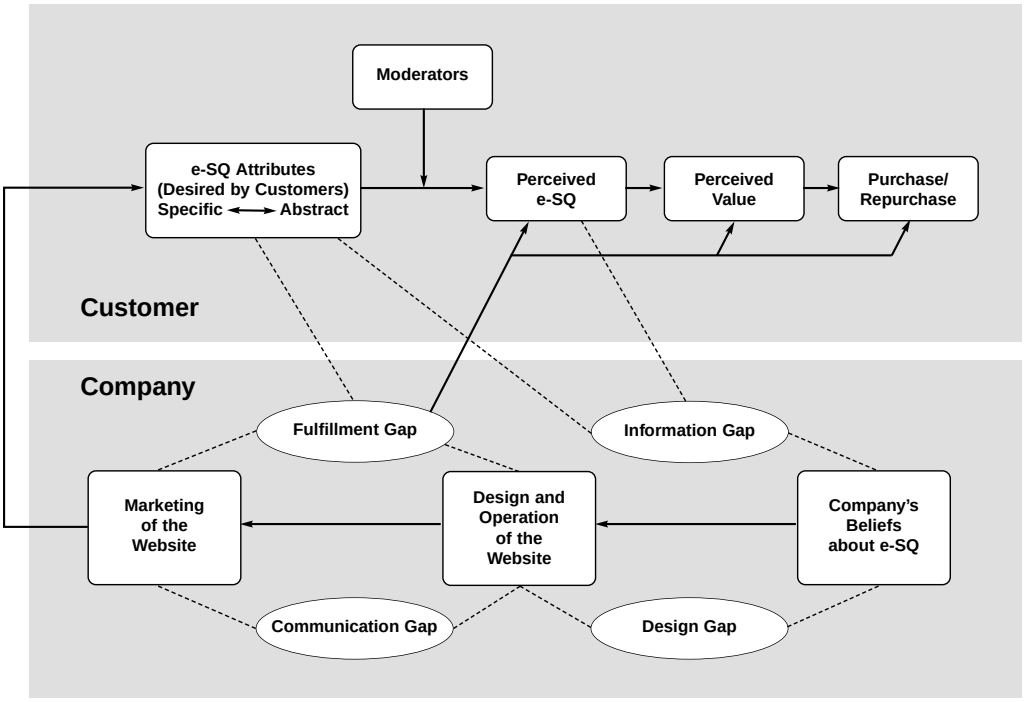
Gap 2: Difference between management perceptions of customer expectations and SQ specifications.

Gap 3: Difference between SQ specifications and the service actually delivered.

Gap 4: Difference between service delivery and what is communicated about the service to consumers.

Though the above gaps were identified in the context of traditional SQ, focus-group comments pertaining to customers' experiences with websites suggest the presence of similar—but not exactly the same—shortfalls in companies interacting with their customers through the Internet. Figure 2 presents a conceptual model that brings together in a common framework: (1) customer assessment of e-SQ and its consequences (top half of the model), and (2) a simplified sequence of steps that a company might follow in designing and marketing its website (bottom half of the model). The customer side of Figure 2 is merely a condensed version of the detailed perceived e-SQ model shown in Figure 1. The company side shows a series of potential disconnects—depicted as gaps—between the two halves of the model, as well as between steps in the process of designing, operating, and marketing websites.

Figure 2. Conceptual Model for Understanding and Improving e-Service Quality



Information Gap

What a company—in particular, the group of managers responsible for guiding its website design and operations—believes to be an ideal website for its target market might be incomplete or inaccurate because of insufficient or incorrect information about website features desired by customers, and about the customers' assessment of the company's e-SQ. The following customer comments from our focus groups illustrate the possible presence of such an information gap:

> "I get frustrated when they don't have a search engine because I don't know how their navigation is set up. I don't want to take the energy or time to figure [it] out."

> "[The website] should have a record of where you have been so you don't have to go back, back, back, back . . . [to find out]."

> "[In the case of] airline tickets . . . even to get the [price or schedule] information you have to put in a lot of [personal] information and then tell them you are going to buy and then cancel if you don't want it. That's annoying."

> "Why don't they show the prices along with the merchandise—e.g., furniture? Why do they want us to call for more information?"

In each of the above contexts, customers who persevere will eventually be able to accomplish their goals such as finding the appropriate product or price information. Therefore, the companies in question might feel their websites are satisfactory. As implied by the customer comments above, however, such complacency suggests an information gap in that the companies are apparently oblivious to the customers' reluctance to expend undue effort on websites and their annoyance when forced to do so.

The significance of the information gap in the context of e-SQ is heightened by the fact that customers are likely to desire an optimal level of performance that is neither too high nor too low on some website attributes. As discussed earlier, even for attributes such as response speed and provision of order-status information, "more" may not always translate into higher perceived e-SQ. Furthermore, the optimum performance level on any given attribute might also vary across customers (e.g., experienced vs. inexperienced customers; customers who are just browsing vs. those who are ready to buy) and contexts (e.g., purchase of rare vs. readily available items; a normal vs. a problem-plagued transaction). The result is that closing the information gap calls for regular, if not continuous, monitoring of the marketplace to update the company's knowledge about website attributes desired by customers and their assessment of the company's e-SQ.

The information gap is similar to Gap 1 in the traditional SQ model. However, it is a broader construct in that it pertains to management's understanding of not only customers' desires about perceived e-SQ attributes but also customers' evaluation of a company's website (i.e., their perceived e-SQ).

Design Gap

The initial design of a website should be informed by the company's knowledge about features desired by customers. Likewise, the ongoing operations of the website should incorporate appropriate adjustments in response to customer feedback about the site's performance. Unfortunately, even when a company has complete and accurate knowledge (i.e., the information gap is absent), this knowledge may not always be fully reflected in the site's design and functioning. The consequence is an additional gap that we call "the design gap." The presence of an information gap would exacerbate the design gap because incomplete or incorrect understanding of customers might adversely affect the design of the website, thereby compounding customer frustration.

Because our study focused on understanding e-SQ from the customer's perspective, we did not collect data from e-commerce providers. As such, our inferences about the design gap and its drivers are somewhat speculative. However, existing literature on organizational deficiencies that lead to poor SQ, coupled with insights from our focus groups on e-SQ, offer at least indirect evidence of the presence of the design gap in e-companies. For instance, the following customer comments suggest the possibility of insufficient or inaccurate knowledge about customers' website preferences and experiences leading to design deficiencies:

> "They should test out what's the best organization [for the website] not just assume how it should look."

> "I would rather get to where I want to go quickly rather than have all the fancy graphics. . . . The extra things that really slow it down should be avoided, especially on the home page."

The design gap is akin to Gap 2 in the model of conventional SQ. However, as in the case of the information gap relative to Gap 1, the design gap is a broader construct because it encompasses more than just determining design specifications for the website; it includes the operation of the website as well. Thus, to some extent the design gap also reflects Gap 3, which deals with service delivery in the traditional SQ model. Analogous to the potential causes of Gaps 2 and 3 (Zeithaml, Berry, and Parasuraman 1988), inadequate management commitment to e-SQ, resource constraints, and a lack of capabilities for delivering superior e-SQ may be key drivers of the design gap.

In the traditional SQ model, Gap 4—the discrepancy between what is externally communicated (typically by marketing personnel) to customers about the service and what is actually delivered (typically by operations personnel)—is portrayed as a direct contributor to a customer-perceived SQ gap. Our focus-group research suggests that similar shortfalls occur in e-SQ contexts as well, and manifest themselves as two related, but distinct, gaps: a communication gap and a fulfillment gap.

Communication Gap

This gap reflects a lack of accurate understanding on the part of marketing personnel about a website's features, capabilities, and limitations. Under the ideal scenario, the marketing of the website will be based on sound knowledge about what it can and cannot offer, with those responsible for designing and operating the website communicating regularly with marketing personnel to ensure that promises do not exceed what is possible. The lack of effective communication between marketing and operations documented in traditional SQ contexts (Parasuraman, Zeithaml, and Berry 1985; Zeithaml, Berry, and Parasuraman 1988) is likely to be present in e-SQ contexts as well. In fact, because of the increasing competitive intensity in the e-commerce arena, with rival players seemingly ready to do whatever it takes to stake a claim in it, the propensity for e-marketing to ignore the reality of website capabilities might be even higher.

The communication gap represents more than just inaccurate or inflated promises about a website through traditional media such as print and television. It also includes such promises being made on the website itself (e.g., guaranteed delivery of purchased merchandise by a certain date), apparently because personnel or systems making those promises lack—or ignore—knowledge about shortfalls in the infrastructure underlying the website. Regardless of whether the erroneous promises stemming from the communication gap are made through traditional promotional media or through the website, they contribute to the "fulfillment gap" as discussed next.

Fulfillment Gap

The fulfillment gap is, in part, an external manifestation of the communication gap. When the communication gap exists, explicit promises made to e-shoppers (represented by the solid arrow on the left-hand side of Figure 2) are likely to be exaggerated. Consequently, the e-shopping experience the website delivers might fall short of what customers had hoped for based on the promises, resulting in a fulfillment gap. The quotes below illustrate:

> "The site says they have it in stock, but the next day I get an e-mail saying they are out of stock. . . . They should have known that up front."

> "What they had said I would get—such as free shipping—didn't happen after I had put all my information in."

> "I had a lot of trouble trying to process the gift certificate that they themselves had sent. They made me go through a lot of hassle."

> "Just tell me up front whether it will arrive or not [by the promised time]. If you can't deliver, just say it up front. Be honest."

Another facet of the fulfillment gap is the frustration that e-shoppers might experience even in the absence of external promises. As the following focus-group comments illustrate, shortfalls such as a customer's inability to complete an e-purchase transaction are also manifestations of the fulfillment gap in that they reflect unfulfilled customer desires:

> "It's frustrating when you have filled out all the fields and they still come back and say, 'You haven't filled out this field.' But I did . . . several times! And I'm talking to a computer that keeps saying the same thing!"

> "There are times when you click on more dead ends . . . you'd be better off going to the store."

> "I tried to cancel one time, but I couldn't. The site wouldn't let me."

> "I purchased a bunch of stuff for a computer. They had back-ordered one of the parts . . . but then they sent me an e-mail saying they had 'canceled it out.' What do I do then? That was frustrating! They didn't suggest any alternatives . . . just canceled it and credited my credit-card account."

The kinds of frustrations implied in the above customer comments are not a result of exaggerated external promises, but rather due to deficiencies in the design and operation of the website in terms of their failure to fully incorporate customers' desires. This type of fulfillment gap stems from the cumulative effect of the information and design gaps, just as the fulfillment gap triggered by inflated promises is a consequence of the communication gap. Thus, the overall fulfillment gap reflects

the combined effect of the information, design, and communication gaps. As such, unless the latter three gaps are eliminated, some amount of fulfillment gap will exist and adversely affect customers' assessment of the website. As Figure 2 shows, the fulfillment gap is a potential driver of perceived e-SQ, perceived value, and purchase/repurchase behavior.

As discussed earlier, consumers' assessment of e-SQ, and the extent to which higher performance on various evaluation criteria signal higher e-SQ, can vary depending on customer characteristics, task characteristics (e.g., transactions vs. exceptions), and the like. We represent such contingencies in Figure 2 by including a general "Moderators" construct in the customer side of our model.

Future Research Directions

The research reported in this paper conceptualizes e-SQ from the customer's point of view and thereby provides a foundation for developing a scale to measure customer perceptions of e-SQ. The means-end approach we have used to present customer requirements suggests several guidelines that should be useful in creating such a scale. First of all, we recommend that the scale contain items that are all at the level of perceptual attributes rather than concrete cues. Because concrete cues change frequently, the duration of the scale's usefulness would be far greater if these transient cues are not contained as scale items. As was the case in the development of SERVQUAL for perceived SQ, the level of perceptual attributes appears to be both diagnostic and enduring. As is evident from Table 2, the number of perceptual attributes generated in the focus groups is large. Therefore, an empirical research phase, building on the conceptual insights emerging from this study and including factor and other appropriate analyses, is needed to create a parsimonious multiple-item scale (e-SERVQUAL) with sound psychometric properties. In the process of creating the scale, the dimensionality of e-SQ proposed herein needs to be examined as well.

A scale for measuring perceived e-SQ is both a marketing metric and a measure of marketing performance. Because the Internet is a purchasing context where companies can directly measure consumer purchases, costs, profitability, and some of the antecedents to purchase (e.g., number of hits to a site, amount of time spent at a site, percentage of first-time customers, average time between visits to a site, number of "click throughs"), many of the behavioral performance measures already exist. Needed are measures that capture the effectiveness of marketing variables in stimulating initial e-purchases and fostering customer loyalty. According to a recent study by BizRate.com reported in the *Wall Street Journal* (July 12, p. R20), e-SQ is the most important of those marketing variables in terms of inducing repeat purchases from an e-store. Having a measure of perceived e-SQ would greatly enhance a company's ability to capture customer perceptions of this important driver of e-purchase. It would also allow researchers to study such issues as customer loyalty on the Web, relationship marketing, and perceived e-SQ.

Another desirable avenue for research involves company studies to examine the extent and potential causes of the information, design, and communication gaps (the key contributors to the fulfillment gap) hypothesized in our conceptual

model. In-depth interviews of web designers and managers of dot.com companies would yield evidence of these gaps as well as ways that successful companies have closed them. The results could highlight the areas of focus for managers of e-commerce efforts and provide a set of recommendations for ways that companies can improve their e-SQ.

Research is also needed to better understand the nature and roles of the "Moderators" posited in Figure 2. Given that more is not always perceived as better when customers assess e-SQ, developing in-depth, fine-grained knowledge about these moderating effects is an important research priority.

Managerial Implications

> "[There's a] 15-second rule—that's how long customers can wait."
>
> *—A focus-group participant*

The quote above pertains to the ability of a participant to get online at a site. The desire for quick service pervaded the groups. Gaining customer attention on the Web is difficult and—as suggested by participants—more acute than imagined by managers and designers of e-tail websites. Our conceptual model suggests that low customer perceptions of e-SQ result from four gaps in web companies: information, design, communication, and fulfillment gaps. In this section, we suggest ways to close them to provide a roadmap for e-business design.

Information Gap

When designing the interface for increased functionality, companies must ensure that designers understand the requirements of the customers. Many e-tailers today add features and functionality not because they meet the needs of customers but because they are possible and trendy. Closing the information gap requires that ways to monitor the impact of customer evaluation be built into the process of developing the site. An e-SQ scale based on customers' perceptual assessments would be desirable for ascertaining whether customer requirements are being met. Constantly monitoring the site for performance to these criteria is necessary.

Considerable research and anecdotal evidence over the last 20 years show that consumers want and need a voice to communicate with companies, particularly to air their complaints. The web environment lends itself to obtaining customer input quickly and efficiently. Web surveys and chat rooms could be used to stay in constant contact with what customers are thinking.

A compelling reason for companies to set up their own data collection is that outside, independent organizations are collecting customer information about sites and making it available to consumers. BizRate and Forrester regularly monitor the performance of websites and offer their information free to consumers for use in making their site choices. Other sites, such as igripe.com, allow customers to go online and complain about companies; the sites then provide the accumulated information to other customers. The Web makes it easy for customers to gather information about the quality of sites and, as such, makes it imperative that individual companies collect this information as well. Some of our participants suggested that "objective" comments from other consumers about sites would be desirable to them. Companies should consider how to implement such systems.

Design Gap

The design of a website should be informed by accurate knowledge of the features desired by customers. Thus, closing the information gap is a prerequisite for fully closing the design gap. While the specific design of individual sites would depend

on context-specific features (e.g., target market and product characteristics), our focus-group interviews suggest several general changes to current practice.

Judging from our interviews, web pages should be designed to load fast yet convey rich information to the customers. This requires a careful design approach that leverages the hypertext nature of the Web, where the most important information about a product or service is conveyed on the home page. Detailed information is then accessible through hyperlinks to deeper pages. Customers want access to the information they need with a minimum number of clicks.

Advertising on the Web seems to be annoying to most participants. Instead of the intrusive approach currently used, banner ads can be effective if placed where they correspond to the information being sought by the customer. Doing so requires anticipating cross-sell/up-sell opportunities associated with the product/service about which the information is currently being sought. This approach could be presented as a value-added service, with the customer being informed about options. For instance, when buying a Palm product, several e-tailers could advertise the accessories and upgrade components that go with the product.

Price knowledge, particularly shipping costs, was an issue mentioned frequently. One illustrative design solution is used already by some e-tailers such as Barnes and Noble whose site features a shopping cart placed prominently at the top of the page, indicating the running total of the money spent by the customers. This design approach makes it easy to remove items customers do not want to purchase if the amount spent exceeds a certain level. Desired even more by customers would be a shopping cart that shows the shipping costs in the running total. Many customers purchase products on the Internet because their price is lower than what they can find at physical stores. But when shipping and handling charges are shown, which is not till they are about to check out, they find that the price is above what they would have paid at local stores. This is one of the reasons why e-tailers see a very low sales-conversion ratio (number of visitors who actually make a purchase through the web interface as a proportion of the total number of visitors).

Customers like to be in control of the processes that impact them but at the same time they do not want to be overwhelmed by choices and tasks they need to complete in order to purchase anything on the Web. Thus e-tail managers and designers should recognize that the Web could be leveraged to pass on control to customers without overwhelming them. A good design would be one where customers are given rich choices based on their expressed preferences—through past purchases and information provided. Basic information provided by the customers at the time of first transaction on the e-tailer's website can be used to streamline the ordering process on subsequent visits.

Communication Gap

The communication gap occurs when the marketing of the website is not based on sound knowledge about what can and cannot be offered. In recent years, companies such as Victoria's Secret have suffered huge reliability problems when their advertising created more demand to reach the site than could be met. Marketing

and technical people within e-commerce firms must work together to estimate the demand created by marketing efforts and assure that they have the technical resources needed to handle this demand. Without this preparation and planning, heavy traffic can create reliability and access problems. Companies need to plan for demand by forming strategic technology partnerships with backup-server resources. Preparing for the volume of traffic generated by advertising is essential if service-quality perceptions are to be enhanced.

Fulfillment Gap

When customers order online, they expect the items to arrive as promised or service orders to be executed as stated. Their perception of e-SQ is directly related to whether the e-tailers hold up to the promised date of delivery or execution. A common complaint discussed by our focus-group participants is that frequently products arrive late or not at all. Companies must work internally to assure that they are fulfilling what they promise, and what customers desire.

Supply-chain visibility at the back end of the web interface can provide customers with accurate product availability and delivery information. Integration of order-entry systems with supply-chain management back-end systems will be essential to providing this information to customers and creating a good e-shopping experience for them.

Summary

Rather than just acquiring customers, firms today recognize that the goal is to encourage repeat purchases and build customer loyalty. To do so, companies that deal in electronic environments must shift their transactional focus, which depends on presence and price, to a relationship focus. To keep customers coming back, e-tailers must understand customer requirements of e-SQ—all cues and encounters that occur before, during, and after the transactions. This paper has attempted to help companies understand what customers perceive to be good service on the Web at various levels of specificity. Focus-group interviews conducted in an exploratory study generated e-SQ dimensions and attributes, along with a model of how consumers combine these dimensions into higher-level abstractions such as perceived control, perceived convenience, and perceived value. The paper compared and contrasted our exploratory research on e-service quality to the extensive research stream on service quality, thereby generating a conceptual model for understanding and improving e-service quality. We hope the insights offered by this study serve as a strong foundation from which to launch a scholarly journey for developing an e-SQ scale and offering research-based guidelines for improving e-SQ.

Appendix

Focus-Group Questions and Protocol

Introduction and Statement of Purpose of the Focus Group

Warm-up Questions (to be answered by each participant):

1. How many times have you purchased, or tried to purchase, anything on the Internet during the past three months? What types of products or services did you buy (or try to buy)? What is the biggest purchase that you have made through the Internet and what was its approximate dollar value?

2. Think about a *recent* purchase experience on the Internet? How did you feel about it? Why?

General Questions

3. In general, what do you expect from a website? Where do these expectations come from?

4. In general, how do you evaluate the overall service experience in using a website? What, if anything, do you compare it to in forming your evaluation?

5. What specific criteria do you use in assessing how well the website serves your needs?

6. What does "high quality" service on a website mean to you? Has there been an instance when you were especially pleased with a purchase experience you had using the Internet? If so, what aspects of your purchase led to your positive experience?

7. What are some of the things you love about making purchases on the Web that you might not have otherwise?

8. Think back to the last few purchases you have made on the Internet. Were there any aspects that you found to be lacking at those websites, even though you purchased from them? What aspects did you find lacking?

9. What are some of the things you dislike about buying things on the Web? What is your biggest source of frustration in interacting with or purchasing from websites? Can you give specific examples?

10. Have there been instances when, after starting to go through the process of buying from a website, you abandoned the site without making a purchase? If so, what prompted you to terminate the purchase process?

11. There must have been times when you were thinking about purchasing certain items on the Web but then you chose to do so at a physical store.

What were some of the reasons for doing so? What are the advantages and drawbacks of making purchasing through the Internet rather than shopping in physical stores?

12. What are some of the things that keep you from purchasing *more frequently* through the Internet than you currently do? Are there circumstances when you will tolerate these frustrating/negative aspects?

13. Are there things that are keeping you from buying *more expensive* (bigger-ticket) items through the Internet than the purchases that you have made in the past?

14. How would you describe an *ideal* purchase process on the Web?

References

Adams, Dennis A., R. Ryan Nelson, and Peter A. Todd (1992), "Perceived Usefulness, Ease of Use, and Usage of Information Technology: A Replication." *MIS Quarterly* (June), 227-47.

Babakus, Emin, and Gregory W. Boller (1992), "An Empirical Assessment of the SERVQUAL Scale." *Journal of Business Research* 24, 253-68.

_____, and W. Glynn Mangold (1992), "Adapting the SERVQUAL Scale to Hospital Services: An Empirical Investigation." *Health Services Research* 26 (6), 767-86.

Bitner, Mary Jo, Stephen W. Brown, and Matthew L. Meuter (2000), "Technology Infusion in Service Encounters." *Journal of the Academy of Marketing Science* 28 (Winter), 138-49.

Bolton, Ruth N., and James H. Drew (1991a), "A Longitudinal Analysis of the Impact of Service Changes on Customer Attitudes." *Journal of Marketing* 55 (January), 1-9.

Bolton, Ruth N., and James H. Drew (1991b), "A Multistage Model of Customer's Assessments of SQ and Value." *Journal of Consumer Research* 17 (March), 375-84.

Boston Consulting Group (2000), http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905355643&rel=true

Boulding, William, Ajay Kalra, Richard Staelin, and Valarie Zeithaml (1993), "A Dynamic Process Model of SQ: From Expectations to Behavioral Intentions." *Journal of Marketing Research* 30 (February), 7-27.

Brown, Tom J., Gilbert A. Churchill, Jr., and J. Paul Peter (1993), "Improving the Measurement of SQ." *Journal of Retailing* 69 (Spring), 127-39.

Carman, James M. (1990), "Consumer Perceptions of SQ: An Assessment of the SERVQUAL Dimensions." *Journal of Retailing* 66 (Spring), 33-55.

Cohen, Joel B. (1979), "The Structure of Product Attributes: Defining Attribute Dimensions for Planning and Evaluation." In *Analytic Approaches to Product and Marketing Planning*, ed. A. Shocker, 110-2. Cambridge, MA: Marketing Science Institute.

Computer Economics (1999), http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905355376&rel=true

Cowles, Deborah (1989), "Consumer Perceptions of Interactive Media." *Journal of Broadcasting and Electronic Media* 33 (Winter), 83-9.

_____, and Lawrence A. Crosby (1990), "Consumer Acceptance of Interactive Media in Service Marketing Encounters." *The Service Industries Journal* 10 (July), 521-40.

Cronin, J. Joseph, Jr., and Stephen A. Taylor (1992), “Measuring SQ: A Reexamination and Extension.” *Journal of Marketing* 56 (July), 55-68.

_____, and _____ (1994), “SERVPERF Versus SERVQUAL: Reconciling Performance-Based and Perceptions-Minus-Expectations Measurement of Service Quality.” *Journal of Marketing* 58 (January), 125-31.

Dabholkar, Pratibha A. (1996), “Consumer Evaluations of New Technology-Based Self-Service Options: An Investigation of Alternative Models of SQ.” *International Journal of Research in Marketing* 13 (1), 29-51.

_____(2000), “Technology in Service Delivery: Implications for Self-Service and Service Support.” In *Handbook of Services Marketing and Management*, eds. Teresa A. Swartz and Dawn Iacobucci, 103-10. Thousand Oaks, CA: Sage Publications.

Darby, M.R., and E. Karni (1973), “Free Competition and the Optimal Amount of Fraud.” *Journal of Law and Economics* 16 (April), 67-86.

Davis, Fred D. (1989), “Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology.” *MIS Quarterly* (September), 319-40.

Davis, Fred D., Richard P. Bagozzi, and Paul R. Warshaw (1989), “User Acceptance of Computer Technology: A Comparison of Two Theoretical Models.” *Management Science* 35 (8), 982-1003.

Eastlick, Mary Ann (1996), “Consumer Intention to Adopt Interactive Teleshopping.” Cambridge, MA: Marketing Science Institute, Report No. 96-113.

eBuyersGuide (1999), http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905355254&rel=true

Finn, David W., and Charles W. Lamb, Jr. (1991), “An Evaluation of the SERVQUAL Scales in a Retail Setting.” In *Advances in Consumer Researc*h, eds. Rebecca H. Holman and Michael R. Solomon, 18. Provo, UT: Association for Consumer Research.

Grönroos, Christian (1982), *Strategic Management and Marketing in the Service Sector*. Helsinki, Finland: Swedish School of Economics and Business Administration.

Hendrickson, Anthony R., Patti D. Massey, and Timothy Paul Cronan (1993), “On the Test-Retest Reliability of Perceived Usefulness and Perceived Ease of Use Scales.” *MIS Quarterly*, (June), 227-9.

International Customer Service Association (ICSA) and e-Satisfy.com (2000), http://sellitontheWeb.com/ezine/news0382.shtml

Jupiter Communications (1999), http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905355444&rel=true

Keil, Mark, Peggy M. Beranek, and Benn R. Konsynski (1995), “Usefulness and Ease of Use: Field Study Evidence Regarding Task Considerations.” *Decision Support Systems* 13 (1), 75-91.

Lehtinen, Uloevi, and Jarmo R. Lehtinen (1982), “SQ: A Study of Quality Dimensions.” Finland: Service Management Group OY, Unpublished research report.

Lewis, Robert C., and Bernard H. Booms (1983), “The Marketing Aspects of SQ.” In *Emerging Perspectives in Services Marketing*, eds. L. L. Berry, G. L. Shostack, and G. Upah, 99-107. Chicago: American Marketing Association.

Mainspring and Bain & Company (2000), http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905355695&rel=true

Meuter, Matthew L., Amy L. Ostrom, Robert I. Roundtree, and Mary Jo Bitner (2000), “Self Service Technologies: Understanding Customer Satisfaction with Technology-Based Service Encounters.” *Journal of Marketing* 64 (July), 50-65.

Mick, David Glenn, and Susan Fournier (1995), “Technological Consumer Products in Everyday Life: Ownership, Meaning, and Satisfaction.” Cambridge, MA: Marketing Science Institute, Report No. 95-104.

Mick, David Glenn, and Susan Fournier (1998), “Paradoxes of Technology: Consumer Cognizance, Emotions, and Coping Strategies.” *Journal of Consumer Research* 25 (September), 123-47.

Myers, James H., and Allan D. Shocker (1981), “The Nature of Product-Related Attributes.” In *Research in Marketing*, Vol. 5, 211-36. Greenwich, CT: JAI Press, Inc.

Olson, Jerry C., and Thomas J. Reynolds (1983), “Understanding Consumers’ Cognitive Structures: Implications for Advertising Strategy.” In *Advertising and Consumer Psychology*, eds. L. Percy and A. Woodside, 3-20. Lexington, MA: Lexington Books.

Parasuraman, A. (2000), “Technology Readiness Index (TRI): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies.” *Journal of Service Research*, 2 (4), 307-20.

Parasuraman, A., Leonard L. Berry, and Valarie A. Zeithaml (1991), “Refinement and Reassessment of the SERVQUAL Scale.” *Journal of Retailing* 67 (Winter), 420-50.

_____, _____, and _____ (1993), “More on Improving SQ Measurement.” *Journal of Retailing* 69 (Spring), 40-147.

_____, Valarie A. Zeithaml, and Leonard L. Berry (1985), “A Conceptual Model of SQ and Its Implications for Future Research.” *Journal of Marketing* 49 (Fall), 41-50.

_____, _____, and _____ (1988), “SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of SQ.” *Journal of Retailing* 64 (Spring), 12-40.

_____, _____, and _____ (1994a), “Reassessment of Expectations as a Comparison Standard in Measuring SQ: Implications for Further Research.” *Journal of Marketing* 58 (January), 111-24.

_____, _____, and _____ (1994b), “Alternative Scales for Measuring SQ: A Comparative Assessment Based on Psychometric and Diagnostic Criteria.” *Journal of Retailing* 70 (3), 201-30.

Sasser, W. Earl, Jr., R. Paul Olsen, and D. Daryl Wyckoff (1978), *Management of Service Operations: Text and Cases*. Boston: Allyn and Bacon.

Segars, Albert H., and Varun Grover (1993), “Re-Examining Perceived Ease of Use and Usefulness: A Confirmatory Factor Analysis.” *MIS Quarterly* (December), 517-25.

Subramanian, Girish H. (1994), “A Replication of Perceived Usefulness and Perceived Ease of Use Measurement.” *Decision Sciences* 25 (No. 5/6), 863-74.

Teas, R. Kenneth (1993), “Expectations, Performance Evaluation and Consumer’s Perceptions of Quality.” *Journal of Marketing* 57 (October), 18-34.

_____ (1994), “Expectations as a Comparison Standard in Measuring Service Quality: An Assessment of a Reassessment.” *Journal of Marketing* 58 (January), 132-9.

Young, Shirley, and Barbara Feigin (1975), “Using the Benefit Chain for Improved Strategy Formulation.” *Journal of Marketing* 39 (July), 72-4.

Zeithaml, Valarie A. (1988), “Consumer Perceptions of Price, Quality, and Value: A Conceptual Model and Synthesis of Research.” *Journal of Marketing* 52 (July), 2-22.

_____, Leonard L. Berry, and A. Parasuraman (1988), “Communication and Control Processes in the Delivery of SQ.” *Journal of Marketing* 52 (April), 35-48.

_____, _____, and _____ (1993), “The Nature and Determinants of Customer Expectations of Service.” *Journal of the Academy of Marketing Science* 21 (1), 1-12.

_____, _____, and _____ (1996), “The Behavioral Consequences of SQ.” *Journal of Marketing* 60 (April), 31-46.

_____, A. Parasuraman, and Leonard L. Berry (1990), *Delivering Quality Service: Balancing Customer Perceptions and Expectations*. New York: The Free Press.