Journal of Service Research

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Service Quality Attribute Weights

How Do Novice and Longer-Term Customers Construct Service Quality Perceptions?

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Service experiences often unfold over a series of consumption episodes, yet customer perceptions of these experiences are often treated as static events. This prevents a good understanding of the impact of consumption stage on service perceptions. Prior research reveals little about the variation in the salience of service quality attributes between novice and longer-term customers, especially in terms of contribution to overall service quality perceptions or about the effect of service quality and service satisfaction on behavioral intentions across consumption stages. This study examines these issues using cohort analysis within the context of ongoing health care services. Results indicate that the contribution of attributes to overall service quality differs across novice and longer-term customer cohorts, as does the interrelationship of service quality, satisfaction, and behavioral intentions. These findings have important implications for managing service processes, improving service provider performance, and enhancing customer service.

Keywords: *service relationship; consumption stage; service quality; service satisfaction; behavioral intentions*

Service production and consumption often unfold over a series of consumption episodes (Bolton and Lemon 1999). Services such as physiotherapy, banking, education, and beauty care, among others, require the customer to engage in multiple service encounters in an extended period of time. In these instances, the service experience is dynamic, and managers need to understand how customer needs change as consumption progresses. Understanding the nature of this change is important, given the emphasis placed on customer retention and loyalty (Rust and Zahorik 1993; Zeithaml 2000) and building long-term customer relationships (Verhoef 2003).

As service encounters accumulate, it is particularly important for marketers to understand the service quality attributes that drive positive service outcomes at different stages of the consumption process. Although researchers have called for the development of dynamic service quality models (e.g., Rust and Oliver 1994), empirical research to this effect is limited. The primary goal of our research, therefore, is to examine the effect of consumption stage on service quality perceptions and, given the cross-sectional nature of the study, whether and how the salience of service attributes to overall quality perceptions

FIGURE 1
Service Quality Attributes and Overall
Service Quality Perceptions

Service Quality Attributes and Overall Service
Quality Perceptions

Relationship among Service Quality, Satisfaction, and
Behavioral Intentions
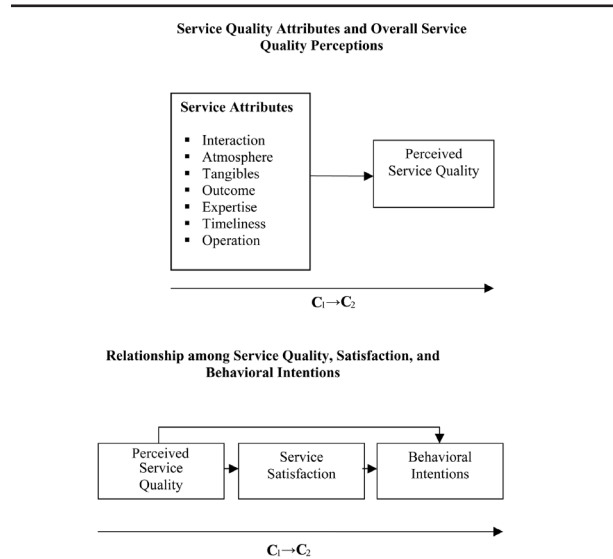
NOTE: C_1 = novice customers, C_2 = longer-term customers. The present study examines (a) whether the impact of service quality attributes (as shown in the upper section) on customers' overall perceptions of service quality differ significantly between novice (Cohort 1) and longer-term customers (Cohort 2) and (b) whether the relationship among service quality, satisfaction, and behavioral intentions (as shown in the lower section) differs significantly between novice and longer-term customers.

varies across novice and longer-term customers. A second purpose is to examine the effects of consumption stage on key service constructs; thus, we explore the well-established relationship between service quality and service satisfaction as well as the interrelationship of these constructs with behavioral intentions (e.g., Cronin, Brady, and Hult 2000; Cronin and Taylor 1992). We do so in light of our focus on novice and longer-term customer cohorts. Figure 1 presents our conceptual model and provides a visual summary of the key issue addressed in this study.

SERVICE EXPERIENCES OVER THE CONSUMPTION PROCESS

Although service encounters take many forms, differing in terms of their duration and complexity (Bolton 1998; Singh 1991), service consumption is generally studied from a static perspective (Grönroos 1993; Rust and Oliver 1994). This approach is limited in terms of its application to continuously provided services, for which the service experience occurs through multiple consumption episodes and customers are likely to update their perceptions during the duration of the experience (Grönroos 1993; Rust and Oliver 1994). For these services (e.g., health care, finance, higher education), a process-based perspective is most relevant

because this approach allows researchers to examine the effect of consumption stage on service perceptions (Mittal, Kumar, and Tsiros 1999; Mittal, Ross, and Baldasare 1998; Slotegraaf and Inman 2004). We adopt this perspective to examine the effect of consumption stage on service attribute weights and on the relationship between key service constructs. In particular, we examine differences in the evaluation of service quality attributes between novice and longer-term customers and whether the effect of these attributes on overall service quality perceptions changes from the novice stage to the more established customer stage of service consumption. We extend this analysis to examine the effect that consumption stage has on the relationship among overall service quality perceptions, service satisfaction, and behavioral intentions. In the following sections, we discuss these effects.

The Dynamic Effect of Service Attributes on Service Quality Perceptions

The growing recognition of the importance of quality in service industries has been driven by the realization that high service quality results in positive behavioral intentions as well as greater market share and profitability (Rust and Zahorik 1993; Zeithaml 2000). Given the need to maintain high service quality and the likelihood that service quality perceptions are formed during the entire life of the customer relationship, practitioners and academics must understand how customer perceptions unfold during the consumption experience (Bolton and Lemon 1999; Rust et al. 1999). More specifically, we need to understand the dynamics of how quality perceptions are formed and updated and how these perceptions impact customer retention (Rust et al. 1999). Understanding how service attributes jointly contribute to judgments of service provision, how they interact, and how their relative influence changes as the service script unfolds thus makes an essential contribution to theory and practice (Rust and Oliver 1994).

Previous research has shown that different product characteristics vary in importance across the consumption process (Mittal et al. 1994; Mittal, Kumar, and Tsiros 1999). The majority of such research has focused on the effect of various attributes on customer satisfaction over time. Mittal, Kumar, and Tsiros (1999) and Slotegraaf and Inman (2004), for example, found that attribute weights in determining customer satisfaction shift over time for automobile ownership experiences. Similarly, research in low-contact services such as credit card ownership (Mittal, Katrichis, and Kumar 2001) supports the concept of satisfaction attribute shifts.

Shifts in attribute weights on service quality (rather than satisfaction), however, have not been explored either from

a time-based perspective or from a consumption-stage perspective. That is, although service quality has been represented as comprising a series of attributes or dimensions (e.g., Brady and Cronin 2001; Parasuraman, Zeithaml, and Berry 1988, 1994), the impact of consumption stage (e.g., novice or longer-term customer) on attribute perceptions has not been examined. This gap is particularly important for two reasons. First, the long-established view that consumers rely more on search qualities when forming their perceptions of the quality of service than on experience qualities, which are evaluated following their use of the service (Murray and Schlachter 1990), has not been tested to our knowledge. Furthermore, whether some aspects of service quality are easier to evaluate than others, as suggested by attribute evaluability (Hsee 1996; Hsee et al. 1999) and attribute knowledge theory (Alba and Hutchinson 1987; Beattie 1982), has not been examined in the case of service quality attributes. Attributes such as the design, layout, and style of the service environment, for example, may have a stronger impact on perceptions of service quality during initial service experiences. The impact of these search attributes, however, is expected to weaken in time as consumers become better able to evaluate more complex experience- or credence-based service attributes, such as service outcome and provider expertise (Darby and Karni 1973; Nelson 1970). Second, it is important to assess the effect of service quality attributes on overall quality perceptions because service quality and satisfaction have been recognized as different conceptualizations and because it is generally agreed that service-quality evaluations are formed prior to satisfaction (Brady and Robertson 2001; Dabholkar, Shepherd, and Thorpe 2000; Gotlieb, Grewal, and Brown 1994). Such an approach leads to an understanding of how customers at different stages of the consumption process differentially "construct" perceptions of service quality.

The Dynamic Relationship of Quality, Satisfaction, and Intentions

Although the relationship between service quality and service satisfaction, as well as the impact of these constructs on behavioral intentions, has been the subject of considerable research effort and debate (e.g., Cronin, Brady, and Hult 2000; Cronin and Taylor 1992), few studies have considered the effect of time or consumption stage on these relationships. Studies that have empirically addressed the possibility that time impacts these relationships have tended to focus on product satisfaction and loyalty (Mittal, Kumar, and Tsiros 1999), service quality variability and retention (Bolton, Lemon, and Bramlett 2006), or simply decreases in the absolute level of satisfaction and loyalty over time (Bendall-Lyon and Powers 2003). Prior studies examining

the effect of consumption stage (e.g., early versus late stage, novice versus longer-term) on these relationships have not been forthcoming.

Given that individuals change their beliefs in reaction to successive experiences (Hogarth and Einhorn 1992), that service quality is primarily cognitive whereas satisfaction comprises not only cognitive but also emotional aspects derived from consumption (Dabholkar 1993, Oliver 1997), and that an emotional response may be built over time, we suspect that the relationship between service quality and service satisfaction, as well as the impact of these constructs on behavioral intentions, may differ between novice and longer-term customer cohorts. Thus, we believe that the relationships among these constructs differ based on the customer's stage in the consumption process (e.g., novice or longer-term customer).

Our investigation is likely to be particularly relevant to continuously provided services, such as the health setting of this study, because there is greater opportunity for change across cohorts in such service types. We further suggest that firms failing to acknowledge the variability of attribute weights among customers at different stages of the consumption process may run the risk of resource misallocation, primarily because firms may need to emphasize different service attributes in these different stages. Understanding the dynamic nature of customer perceptions will assist firms in developing separate strategies for newly acquired and more established customers (Mittal and Katrichis 2000).

In the next section, we present the findings of a qualitative study aimed at gaining a greater understanding of the differences between novice and longer-term customers' service quality perceptions. We then test these effects on a sample of health care customers who have received services for varying lengths of time.

STUDY 1: QUALITATIVE RESEARCH

Method

To investigate the effect of consumption stage on service quality perceptions, we conducted an initial qualitative study to identify relevant service attributes for the study context and to gain an initial understanding as to how salient each was to overall service quality perceptions at different stages of consumption. Our chosen research context of oncology clinics represents medical care that is provided on a long-term, continuing basis. The ongoing, chronic nature of oncology care makes this environment appropriate for studying differences in customer perceptions during the consumption experience.

Qualitative data were obtained from four focus group interviews, which were conducted by the researchers.

TABLE 1
Qualitative Findings

Differences Between Novice and Longer-Term Customers

Novice Customers <6 Months	Longer-Term Customers >3 Years
"I listen to what they tell me and follow their advice, after all they know what is best for me."	"I tell them what I want to do, I have a say in what is happening to me and I make my ideas and views heard."
"They are the skilled ones, they have years of training, what would I know."	"We have an understanding, I am my own boss and they know I make up my own mind."
"I am new to this place, I am relying on them to do what is best for me, and what else can I do?"	"I used to think the doctors were gods, I would do anything they told me to without question…. I don't think that way anymore, now I question what I am told and ask for better explanations."
"I don't feel comfortable asking questions or being insistent about things because they should know what is best for me."	"They don't know everything, even if they think they do…. I mean they are highly skilled and all but they don't know me and they don't necessarily know what is best for me, the person, the mother, the wife."
"I just do as I am told."	"I want to know what their qualifications are, where they did their training, I want to know they are good."
"All you can do is look around you and get a feel for the kind of place this is from what you see, maybe when I have been here more I will know more about the actual quality of my treatment."	"The staff are obviously competent…. Their knowledge and skill is evident…. This is the most important thing to me."
"I like the layout of this clinic, it is inviting."	"They are dedicated and professional in everything they do, they work as a team to get you the best outcome possible."
"When I first came I was so glad that it wasn't anything like I expected, it's so nice."	"You get to know your condition very well, and any change in the way that condition is treated becomes very pronounced to you ... my treatment and its quality is so crucial to me."
"When you walk through those doors the first few times you are terrified, it's the feeling and the way it looks that makes you less worried."	"They are all really trained, I'm willing to wait forever to get good care, it's the care that counts and that we relate to each other to get it done."
"It just looks good and that makes you feel better when you are new and don't know what to expect."	"The doctors have years of experience … it makes me feel good to know they are treating me as the outcome they get is so important."
"It's easy to come into, it's pleasant … the whole layout is well thought out…. When you are new it makes a different in making you confident."	"I don't really know if what they do is the best or not; I see how I feel and that is the key."
"I was so anxious about coming to the clinic at first but it's so nice here it made me feel better, it looks nice and the staff are kind."	"A measure of their skill is if the disease goals they set are being met."
"The billing is confusing and hard for me to understand…. I'm new and I didn't feel comfortable going to the desk and asking for help even though I really need it."	"Once you are here a while and know this disease you become skilled yourself, I have helped the nurses give my treatment, I know what to do and how to do it."
"You look around, you see what it is like and you make assumptions, it's how it works."	

Participants were purposively recruited from clinics at private, major metropolitan hospitals in two Australian cities. The procedures used to form the focus groups were in accordance with the guidelines used in traditional marketing research (e.g., Morgan 1997). Respondents ranged from 18 to 72 years of age, and both genders were equally represented. Data from the sessions were analyzed using a standard content analysis procedure (e.g., Denzin and Lincoln 1994). Given our focus on changes between cohorts, two of the focus group sessions were conducted with a cohort representative of novice customers and two with a cohort representative of longer-term customers. Specifically, novice customers were those who had been attending a clinic for less than 6 months, and longer-term customers were those who had been attending a clinic for more than 3 years, as can be seen in Table 1. Thus, novice customers were significantly less experienced in the service process than were longer-term customers, because they had had, on average, only two to three interactions with the service provider. These cutoff levels were chosen in conjunction with the hospital management based on its experience of working with patients.

Service Quality Perceptions

Conceptually, service quality is often specified at an abstract level, most commonly as a multidimensional, higher-order construct (e.g., Brady and Cronin 2001; Parasuraman, Zeithaml, and Berry 1988). Given the general agreement in the literature about the conceptual definition of service quality, our qualitative study asked general questions about experiences with oncology services, as is common in qualitative research. We then selected those aspects of the customers' experiences that were consistent with the generally accepted conceptual understanding of service quality in the literature. We used these aspects, along with the general service quality and health care literature, to suggest dimensions of oncology service quality and items for measuring oncology service quality. For

example, if customers mentioned their interaction with the service provider and the literature also supported this aspect, we included it in our service quality model.

Combining findings from our qualitative research with our review of the service quality literature, we identified several important service attributes—namely, interaction, expertise, outcome, atmosphere, tangibles, timeliness, and operation. Appendix A contains a list of these attributes and their respective scale items. These attributes are similar to and extend those proposed in general service quality scales (e.g., Brady and Cronin 2001; Parasuraman, Zeithaml, and Berry 1988). A categorization of the 7 attributes we identified based on prior literature can be found in Appendix B.

Shifts in Service Quality Perceptions

In addition to assisting in identifying the service quality attributes relevant to our study context, the qualitative study also examined whether the service attributes differed across novice and longer-term customer cohorts. The findings of our study indicated that the different service attributes were more or less salient depending on whether the customer was a novice or longer-term service patron, as shown in Table 1. Thus, it seems that a customer's stage in the consumption process influences the importance of the service quality attributes in determining overall quality perceptions. Although longer-term customers were more likely to discuss issues of expertise and outcome than were novice customers, novice customers tended to focus on the tangible aspects of the service as well as its administration and operation when discussing service quality. This finding suggests that novice customers may rely more heavily on aspects of the service that are easy to evaluate (e.g., search qualities such as furniture and décor) than on those aspects that are more difficult to evaluate (e.g., credence qualities such as the outcome of a highly technical service) when assessing service quality. Qualitative comments supporting these differences can be seen in Table 1.

Given these tentative findings, we undertook the empirical study described next to examine the service-attribute shift between novice and longer-term customers.

HYPOTHESIS DEVELOPMENT

The central premise of our study is that the *salience* of service quality attributes in contributing to overall quality perceptions differs between novice and longer-term customers. In the following section, we review theory supporting this proposition. We begin by examining the search, experience, and credence attribute framework. We then discuss the relevance of decision theory and, in

particular, attribute evaluability theory to our study. We also draw on attribute knowledge theory in developing our theoretical framework. Finally, we present the research hypotheses guiding our study.

Search, Experience, and Credence Attribute Framework

The information economic theory of search, experience, and credence qualities (Darby and Karni 1973; Nelson 1974) proposes that attributes can be of three types: search attributes, which refer to qualities that can be evaluated prior to purchase; experience attributes that can be evaluated only after consumption; and credence attributes that can only be evaluated after extensive product usage, if at all (Darby and Karni 1973; Maute and Forrester 1991). Thus, search, experience, and credence qualities reflect the level of ease of evaluation of attributes at different points in the consumer decision process (Darby and Karni 1973; Maute and Forrester 1991). The distinction between search, experience, and credence qualities is well-established not only in the consumer behavior literature (e.g., Steenkamp 1989) but also in the industrial organization (Carlton and Perloff 1994) and economic (e.g., Darby and Karni 1973; Nelson 1970) literature.

As search, experience, and credence attributes are rated differently at the time of initial purchase of a product than when repeat buying, it is likely that attribute importance differs between initial and repeat purchasing as a result of increased consumption experience (Voeth, Rabe, and Weissbacher 2005). Kaas and Busch (1996), for example, emphasized that the assessability of search, experience, and credence qualities changes as the customer gains more information and buying experience, and Ford, Smith, and Swasy (1988) interpret information economic qualities as hinging on the customer's level of experience. Attributes considered relevant to novice customers in the early stages of consumption are therefore likely to be different from those considered relevant to longer-term customers in later stages of the consumption experience (Voeth, Rabe, and Weissbacher 2005). Longer-term customers have information on which they can base their evaluations that is not available to novice customers early in the consumption experience (Voeth, Rabe, and Weissbacher 2005). The information economic theory of search, experience, and credence qualities (Darby and Karni 1973; Nelson 1970) thus suggests that easy-to-evaluate service quality attributes are likely to be relevant to novice consumers early in consumption because of their search-based classification, whereas other attributes are more likely to be relevant to longer-term customers later in consumption because of their credence-based classification.

Attribute Evaluability

The proposition that the importance of service quality attributes to overall quality perceptions may differ between novice and longer-term customers is also consistent with discussions surrounding the evaluability hypothesis (Hsee 1996; Hsee et al. 1999). The concept of attribute evaluability provides a theoretical background for why some aspects of service quality may be easy to evaluate and others may be more difficult and thus are not taken into account until later in the consumption experience. Hsee (1996; Hsee et al. 1999) posited that attributes are either difficult or easy to evaluate depending on how much information or knowledge the decision maker has about a particular attribute.

Attributes that are considered difficult to evaluate are characterized by a lack of information and knowledge about where a given value of that attribute lies in relation to the other values of the attribute (Hsee 1996). The decision maker lacks a point of reference for comparison and hence does not know how to evaluate the attribute at that point in time (Hsee 1996). An easy-to-evaluate attribute, in contrast, reflects a situation in which the decision maker knows how good the attribute is relative to other attributes, based on evaluability information such as prior experience and knowledge (Hsee 1996). The information that a customer has about certain attributes thus forms a frame of reference to which customer ratings are related (Marsh 1984). To illustrate, consider evaluating the friendliness versus the technical expertise of the staff in a service organization. The friendliness of the staff can be easily judged because a frame of reference has probably been established through prior experience with other service providers and in similar situations. The technical-expertise attribute, however, cannot be easily related to an external frame of reference and, as a consequence, is more difficult to evaluate. As experience increases, however, evaluability information—that is, the evaluator's knowledge about the appropriate value to give to an attribute—also increases, and the customer is better able to evaluate attributes that were once considered difficult to judge (Hsee 1996). Thus, easy-to-evaluate attributes are likely to be more prominent for novice customers early in consumption when external frames of reference can be applied across contexts to judge these attributes and when evaluability information on other attributes is low. In contrast, more difficult-to-evaluate attributes are likely to be more prominent for longer-term customers later in the consumption experience when the evaluability information of such attributes is high (Hsee 1996; Marsh 1984).

Attribute Knowledge Theory

Customer knowledge consists of two primary components: namely, familiarity, which is defined as the number of product-related experiences accumulated by the customer; and expertise, which is defined as the ability to perform product-related tasks successfully (Alba and Hutchinson 1987). The relationship between these components suggests that increased product familiarity results in increased customer expertise (Alba and Hutchinson 1987; Beattie 1982). As a result of accumulated experience, experts' schemata contain knowledge of which attributes are the most important (Beattie 1982; Johnson and Russo 1981). Novice consumers do not have the necessary knowledge to distinguish important attributes; instead, their attention is captured by perceptual features that are easy to evaluate (Beattie 1982). Familiarity, built during a series of experiences, thus provides the knowledge structure needed to direct attention to important attributes or features (Beattie 1982). In this way, customer knowledge is useful in explaining why experts evaluate attributes differently from novices and thus why longer-term customers use different attributes in service evaluations than do novice customers (Fiske, Kinder, and Larter 1983). As experts possess highly developed knowledge structures, they are better able to understand the meaning of product (or service) information; furthermore, expert customers seek greater amounts of information about product attributes simply because they are more aware of their existence or because they are better able to formulate questions about specific attributes than are novices (Alba and Hutchinson 1987; Miyake and Norman 1979). Experts are also able to restrict information processing to salient information (Johnson and Russo 1984), whereas novices are likely to take a more superficial approach to attribute evaluation (Beattie 1982; Fiske, Kinder, and Larter 1983) and thus rely on nonfunctional evaluation attributes (Alba and Hutchinson 1987). Alba and Hutchinson (1987) gave the example of a consumer who is experienced with computer jargon and evaluates a computer on the basis of a careful inspection of its specifications versus a novice who simply scans the information and finds support for product claims in the sheer amount of technical information presented. Similarly, Beattie (1982) provided the example of a racquetball expert who notices racquet weight and grip size as two of the most important features in a racquet. A novice consumer does not have the schema needed to direct attention to important attributes and thus tends to notice features such as a flashy color or some other nonessential attribute. The novice consumer in both examples is likely to simplify information processing by eliminating difficult-to-evaluate attributes (Alba and Hutchinson 1987; Capon and Kuhn 1980) and relying more on nonfunctional or easy-to-evaluate attributes (Alba and Hutchinson 1987). Given that novice consumers store more physical or descriptive attribute information than experts (Cowley and Mitchell 2005; Mitchell and Dacin 1996), they tend to rely

on surface structures when making judgments (Chi, Feltovich, and Glaser 1981).

Hypotheses

Based on the search, experience, and credence attribute framework, attribute evaluation theory, and attribute knowledge theory, we developed several hypotheses about the salience of our service quality attributes—namely, tangibles, operation, interaction, timeliness, outcome, expertise, and atmosphere for novice and longer-term customers. We provide the rationale for the development of our hypotheses in the subsequent discussion. The categorization of the 7 service quality attributes pertinent to the study context was developed on the basis of existing literature, our qualitative study, and a panel of expert judges.[1]

Hypothesis 1: Tangibles. The activities of professional service firms can vary according to a mix of search, experience, and credence qualities (Brush and Artz 1999). Search qualities are generally associated with goods and any tangible elements of services, such as documentation, facility design, and price (Brush and Artz 1999). These attributes are thus likely to have a stronger impact on perceptions of service quality during initial service experiences, primarily because they are relatively easy to evaluate, consistent with the view that consumers rely more on search qualities when selecting a service (Maute and Forrester 1991; Murray and Schlachter 1990) and that search-based attributes are easy to evaluate because novice customers are likely to have an external frame of reference for such attributes against which they can judge quality levels (Marsh 1984). The tangible aspects of a service, which reflect the appearance, comfort, and functionality of the physical environment, are relatively easy for customers to evaluate based on external frames of reference, such as experience with other medical facilities or service environments. As novice consumers have a high level of evaluability information on which they can make judgments about these service aspects and a low level of evaluability information on other, more difficult-to-evaluate attributes, it is likely that novices would place more emphasis on tangibles than longer-term customers would (Hsee 1996; Hsee et al. 1999). Our qualitative study and our panel of judges supported the view of tangibles as a search attribute that requires little expertise to evaluate. We therefore hypothesize the following:

> *Hypothesis 1:* The effect of tangibles on overall perceptions of service quality will be stronger for novice customers than for longer-term customers.

> *Hypothesis 2: Interaction, timeliness, operation, and atmosphere.* Experience qualities are generally associated

with attributes such as attention to the needs and feelings of customers, service reliability, and timeliness, and they are relatively easy to evaluate once the consumer has experience in the consumption process (Brush and Artz 1999). Thus, both novice and longer-term consumers can readily evaluate experience attributes. However, a customer's ability to evaluate these attributes is not sufficient for the attribute to impact service quality perceptions; the attribute also needs to be salient to the customer. Thus, we also argue that because the experience attributes pertain to the service *process*, which is a core aspect of service delivery, these aspects are important regardless of the service relationship stage.

Interaction, timeliness, operation, and atmosphere represent experience-based attributes that are relatively easy for customers to evaluate once they have some service experience (Brush and Artz 1999). Service interaction relates to the communication and manner of interaction between the service provider and customer and as such, is likely to be high in evaluability and also important throughout the consumption experience. The same principle applies to the attribute of timeliness, which reflects waiting time, the availability of the service, and the ease of arranging to receive the service; operation, which refers to the administrative procedures and processes such as record keeping and documenting; and atmosphere, which reflects the general "feel" of the clinic, including background elements such as smell, temperature, and air quality. Although such atmospheric elements may not be at the forefront of the customer's awareness (Bitner 1992) in a first visit to the clinic, we believe that such a factor would not take a great deal of experience to evaluate. Our qualitative study and the panel of expert judges supported such a suggestion as well as our classification of interaction, timeliness, and operation attributes. Because interaction, timeliness, operation, and atmosphere can be evaluated on the basis of prior frames of reference once the customer has gained some experience in consumption, we expect that these attributes will remain salient to quality evaluations throughout consumption. We therefore hypothesize the following:

> *Hypothesis 2:* The effect of interaction, timeliness, operation, and atmosphere on overall perceptions of service quality will be consistently important to novice and longer-term customers.

> *Hypothesis 3: Expertise and outcome.* Credence attributes are costly or difficult to evaluate even after purchase and consumption (Darby and Karni 1973; Nelson 1970) and have a higher level of predictive value than search and experience attributes (Becker 2000). These attributes may include, for example, the degree of service professionalism, level of care, or extent of knowledge possessed by the service provider (Brush and Artz 1999).

As the long-term consequences of credence attributes are only known in the course of time (Brush and Artz 1999), the customer's ability to evaluate credence attributes increases with the accumulation of experience, primarily because product familiarity results in increased customer expertise (Alba and Hutchinson 1987; Beattie 1982).

As a result of experience, experts' schemata contain knowledge that can be used to evaluate these more complex attributes, though credence attributes may never be fully evaluable (Beattie 1982; Johnson and Russo 1981). Service provider expertise and outcome are credence-based attributes that are inherently difficult to evaluate and, as a consequence, are not taken into account until later in consumption, when the consumer has gained considerable experience in consumption. Expertise, which reflects the provider's competence, knowledge, and skill, is difficult for novice consumers to evaluate because they lack a suitable frame of reference against which an evaluation can be made (Hsee 1996). The level of evaluability information available to longer-term customers, however, is much higher, and thus, they are better able to judge provider expertise (Alba and Hutchinson 1987). The same principle applies to the outcome attribute, which reflects what is accomplished as a result of the service. Outcome is necessarily time oriented and can only be determined or evaluated during the course of time (Brush and Artz 1999). As evaluability information increases, the customer becomes better able to evaluate service outcomes and, more specifically, whether a favorable or unfavorable outcome relative to service goals has been achieved. On the basis of the literature, our qualitative study, and the expert judges' classification of outcome and expertise as credence attributes that require a great deal of expertise for evaluation purposes, we hypothesize that

> *Hypothesis 3:* The effect of expertise and outcome on overall perceptions of service quality will be stronger for longer-term customers than for novice customers.

STUDY 2: EMPIRICAL RESEARCH

Method

The research sample was derived from a mail survey of five private oncology clinics located at large metropolitan hospitals in two different Australian cities. The survey was pretested on a representative sample of customers and mailed with a cover letter and postage-paid return envelope to all customers in the sample. As the primary goal of our study was to analyze customer perceptions at different stages of the consumption experience, cohort analysis

was used (Rentz, Reynolds, and Stout 1983; Venkatesan and Kumar 2004) across two groups, novice and longer-term customers. On the basis of our qualitative findings and discussions with hospital management, we defined novice customers as those who had been attending the clinic for less than 6 months and longer-term customers as those who had been attending the clinic for more than 3 years.

We considered Cohort 1 to represent novice customers (C_1) and Cohort 2 to represent longer-term customers (C_2). Approximately 800 questionnaires were mailed by the hospitals to customers in each cohort (incentives were not provided to participants), achieving responses from 320 novice customers and 315 long-term customers, a response rate of approximately 40% in both cases. These samples were not only of sufficient size to achieve a high level of statistical power (McQuitty 2004), but they also represented a response rate greater than that reported in many other service quality studies (e.g., Bell, Auh, and Smalley 2005). Analysis of a sample of questions revealed no evidence of nonresponse bias (Armstrong and Overton 1977). A chi-square test revealed that the samples did not differ in terms of the key demographic variables of age and gender. Furthermore, the cohort profiles were highly comparable to the national oncology population; for example, in both cohorts, 83% of respondents were aged 45 years and older, which is comparable to national statistics indicating that 89% of all cancers occur in those older than 45 years of age (Australian Institute of Health and Welfare 2001). The most common cancers identified in both cohorts were breast and colorectal cancer, which also reflect national statistics for cancer occurrence.

Measures

We generated the research measures for the 7 service-quality attributes (i.e., interaction, expertise, outcome, atmosphere, tangibles, operation, and timeliness) from previous service quality literature (e.g., Brady and Cronin 2001; Parasuraman, Zeithaml, and Berry 1988) and our qualitative study. The overall perceived service quality (e.g., Brady and Cronin 2001; Parasuraman, Zeithaml, and Berry 1988), service satisfaction (Oliver 1997), and behavioral intentions (Zeithaml, Berry, and Parasuraman 1996) scales were also derived from the literature (see Appendices A and B). All scales comprised at least three items and were measured using 7-point, Likert-type scales.

Reliability and Validity of Measures

The measures used in the study were first subjected to exploratory and then confirmatory factor analyses. The

result of these analyses supported the distinction of the 7 service quality attributes as well as the overall service quality, service satisfaction, and behavioral intentions constructs. Specifically, analysis of the measurement model for the 10 constructs resulted in good fit, and all items were found to serve as strong measures of their respective constructs (C_1 χ^2 = 419.515, $p < .05$, df = 186, comparative fit index [CFI] = 0.97, incremental fit index [IFI] = 0.97, root mean square error of approximation [RMSEA] = 0.06; C_2 χ^2 = 582.81, $p < .00$, df = 186, CFI = 0.96, IFI = 0.96, RMSEA = 0.08).

The analysis also indicated high levels of construct reliability and average variance extracted for all latent variables. As all t-values were significant ($p < .01$) and the average variances extracted were greater than 0.50, convergent validity was established. Discriminant validity between the constructs was established through the chi-square difference test (Anderson and Gerbing 1988) and Fornell and Larcker's (1981) stringent test. The analysis indicated that most construct pairs met the chi-square test ($\chi^2_{0.05(1)}$ = 3.841) for discriminant validity (Anderson and Gerbing 1988). Furthermore, almost all construct pairs met Fornell and Larcker's criteria. Chi-square differences between all pairs of constructs can be seen in Appendix C, as can the correlation matrix.

The results further indicated that when the overall service quality measure was regressed against the set of 7 attributes, our variables had tolerance values far lower than the recommended 10% cutoff; hence, we concluded that multicollinearity did not appear to be a significant problem in either data set. Furthermore, our measures proved to be reliable and valid, our models' explanatory power was high, and our sample sizes were large, which satisfies Grewal, Cote, and Baumgartner's (2004) conditions for protecting against multicollinearity. Hence, we proceeded to examine the structural model representing differences in relationships between constructs (e.g., attributes and overall service quality) across cohorts.

RESULTS

Differences in Service-Attribute Salience

We began by examining the fit of the service attribute–service quality model to the data. As can be seen in Table 2, the model fit the data well (C_1 $\chi^2_{(df)}$ = 142.94$_{(76)}$, CFI = 0.99, IFI = 0.99, RMSEA = 0.05; C_2 $\chi^2_{(df)}$ = 247.05$_{(76)}$, CFI = 0.97, IFI = 0.97, RMSEA = 0.08).

To test the invariance (equal weights) across cohorts, we conducted a multigroup analysis of structural invariance (Byrne 2004; Deng et al. 2005).[2] The first step was to establish an unconstrained baseline model (Model 1 in Table 2). This baseline model had a $\chi^2_{(df)}$ of 389.99$_{(152)}$ and a CFI, IFI, and RMSEA of 0.98, 0.98, and 0.05, respectively.

Given that the invariance of item-factor loadings is a necessary prerequisite for testing the structural parameters in the model, we began the process of testing for invariance with the measurement model (Byrne 2004; Deng et al. 2005). Measurement equivalence was examined by fixing each item-factor loading (lambda) to be equal across the cohorts, yielding Model 2 in Table 2 ($\chi^2_{(df)}$ = 405.16$_{(160)}$). When compared with the unconstrained model shown as Model 1 in Table 2 ($\chi^2_{(df)}$ = 389.99$_{(152)}$), the item-factor loadings were found to be equivalent across cohorts ($\Delta\chi^2$ = 15.17, Δdf = 8, $p > .05$).

Given that the measurement model was equal across cohorts, we proceeded to test for invariance in structural weights following the procedure of Deng et al. (2005). The standardized structural weights for the attributes–service quality paths are shown in Table 2. These weights were estimated with the item-factor loadings fixed across cohorts (i.e., the measurement parameters fixed) to provide a strong estimate of any change in structural parameters that occurs between cohorts (Deng et al. 2005). This analysis indicated substantial differences in structural weights between the two cohorts C_1 and C_2.[3]

As can be seen, the impact of tangibles (C_1 β = .21, $p < .05$; C_2 β = –.02, $p > .10$) on service quality perceptions was significantly less in C_2, supporting Hypothesis 1. Furthermore, the effect of this attribute on quality perceptions was significant only for the first cohort—that is, novice customers. This may be because this attribute is largely search based and easily evaluated. That is, tangibles may be the only attribute that customers feel competent evaluating early in the service-consumption experience, so they tend to rely on these attributes when assessing service quality in these early stages of the service experience.

Although the interaction attribute was found to be a significant driver of service quality perceptions for both cohorts (C_1 β = .22, $p < .05$; C_2 β = .12, $p < .05$) and the timeliness attribute was significant as a driver of quality perceptions for longer-term customers (C_1 β = .06, $p > .05$; C_2 β = .10, $p < .05$), the impact of these attributes was consistent across the cohorts. That is, their effect on service quality perceptions was relatively consistent across both cohorts. However, the effect of atmosphere (C_1 β = –.14, $p > .10$; C_2 β = .17, $p < .05$) was significantly greater among longer-term customers, and operation (C_1 β = .28, $p < .05$; C_2 β = .17, $p < .05$) was significantly less among longer-term customers. Thus, there was mixed support for Hypothesis 2.

The attribute of expertise also shifted significantly across the cohorts; however, the effect of expertise on

TABLE 2
Structural Invariance Analysis of Service Quality Attributes Across Cohorts

Constraint	Mean(SD)		Weight		Nested Models	$\chi^2(df)$	$\Delta\chi^2(\Delta df)$
	C_1	C_2	C_1	C_2			
1. Fully unconstrained model						389.99(152)	
2. Factor loadings					2-1	405.16(160)	15.17(8)
Factor loadings and equal coefficients for:							
3. Tangibles → Service quality	5.61(1.18)	5.71(1.19)	0.21**	−0.02	7-2	411.00(161)	5.84(1)**
4. Interaction → Service quality	6.12(1.04)	6.11(1.10)	0.22**	0.12**	3-2	406.75(161)	1.59(1)
5. Timeliness → Service quality	5.04(1.83)	5.14(1.67)	0.06	0.10**	8-2	406.32(161)	1.16(1)
6. Atmosphere → Service quality	5.49(1.27)	5.65(1.21)	−0.14	0.17**	6-2	413.39(161)	8.23(1)***
7. Operation → Service quality	6.05(1.07)	6.11(1.03)	0.28**	0.17**	9-2	421.70(161)	16.54(1)***
8. Expertise → Service quality	6.37(0.85)	6.44(0.83)	0.36**	0.66**	5-2	423.23(161)	18.07(1)***
9. Outcome → Service quality	6.27(0.99)	6.27(1.04)	0.07	0.20**	4-2	409.00(161)	3.84(1)**
Model fit:							
$\chi^2(df)$			142.94(76)	247.05(76)		389.99(152)	
CFI			0.99	0.97		0.98	
IFI			0.99	0.97		0.98	
RMSEA			0.05	0.08		0.05	

NOTE: C_1 <6 months; C_2 >3 years. CFI = comparative fix index; IFI = incremental fit index; RMSEA = root mean square error of approximation.
*$p < .10$. **$p < .05$. ***$p < .01$.c

quality perceptions was significantly stronger for longer-term customers (C_1 β = .36, p < .05; C_2 β = .66, p < .05). This suggests that expertise is not only an important driver of service quality perceptions across the consumption experience but that this attribute is particularly salient to longer-term customers. Although the effect of outcome on quality perceptions was significantly greater for longer-term customers, its effect only became significant for longer-term customers (C_1 β = .07, p > .10; C_2 β = .20, p < .05). These findings suggest that the longer customers have been in the consumption process, then the more likely that they are able to evaluate outcomes. These results thus support Hypothesis 3. Overall, expertise was the most salient of all 7 attributes to service-quality perceptions.

Differences in Service-Constructs Interrelationships: Quality, Satisfaction, and Intentions Across Cohorts

A second purpose of our study was to understand the effect that the consumption stage has on the relationship among service quality, service satisfaction, and behavioral intentions. As per the approach outlined for the service attribute–service quality model, we began by examining the fit of the service encounter model to the data. As can be seen in Table 3, the model fit the data well (C_1 $\chi^2_{(df)}$ = 18.44$_{(6)}$, CFI = 0.99, IFI = 0.99, RMSEA = 0.08; C_2 $\chi^2_{(df)}$ = 21.49$_{(6)}$, CFI = 0.99, IFI = 0.99, RMSEA = 0.08).

We then established an unconstrained baseline model (Model 1 in Table 3), which had a $\chi^2_{(df)}$ of 39.93$_{(12)}$ and a CFI, IFI, and RMSEA of 0.99, 0.99, and 0.06, respectively. The measurement and structural parameters were then examined for equivalence by comparing Model 2 (in which each item-factor loading was fixed) to the unconstrained Model 1. The measurement model was invariant across cohorts; that is, the item-factor loadings did not vary between cohorts. There were, however, substantial differences between the structural weights across the cohorts.

As can be seen, the weight of the service quality–behavioral intentions path differed significantly across the cohorts; for example, the constrained model (i.e., factor loadings and equal coefficients for the service quality–behavioral intentions path) produced a $\chi^2_{(df)}$ of 49.68$_{(16)}$, whereas the $\chi^2_{(df)}$ of Model 2, in which only the factor loadings were constrained, was 45.64$_{(15)}$. The difference of 4.04$_{(1)}$ was significant, which suggests that the path coefficient was not equal across the cohorts. Similarly, the weight of the satisfaction–behavioral intentions path differed significantly across cohorts, as can be seen in Table 3.

A further analysis of the results shows that the effect of service quality on behavioral intentions is significant only for novice customers (C_1 β = .68, p < .05; C_2 β = .33,

p > .10), whereas the weight of the service satisfaction–behavioral intentions path was significant in both cases but significantly greater among the longer-term cohort (C_1 β = .32, p < .05; C_2 β = .68, p < .05). The weight of the path between service quality and service satisfaction did not change significantly between the cohorts (C_1 β = .74, p < .05; C_2 β = .92, p < .05). These findings suggest that service quality is the most important direct driver of behavioral intentions for novice customers, whereas service satisfaction is for longer-term customers. The total effect (indirect and direct) of service quality and service satisfaction on intentions, however, indicated that service quality is the primary driver of intentions for both cohorts (C_1 β = .91; C_2 β = .95), as shown in the lower portion of Table 3.

DISCUSSION

Companies spend millions of dollars annually in an attempt to create repeat patronage, positive word-of-mouth communications, and customer loyalty. As competition in the service sector intensifies, service providers are increasingly looking to service quality to achieve market leadership. The purpose of the present study was to examine the relationship between consumption stage—specifically, novice and longer-term customers—and the attributes used in developing service quality perceptions. We also investigated differences in the interrelationship among service quality, satisfaction, and behavioral intentions across these cohorts. The search, experience, and credence attribute framework (Darby and Karni 1973; Nelson 1970), attribute evaluability information theory (e.g., Hsee 1996; Hsee et al. 1999), and attribute knowledge theory (e.g., Alba and Hutchinson 1987; Beattie 1982) underlie the study foundations, suggesting that some attributes may be used to evaluate service quality early in the consumption process, others later in the process, and some throughout the process. The results of this study show that attribute weights for determining overall service quality perceptions differ across novice and longer-term customers, suggesting that the importance of service attributes in developing service quality perceptions differs depending on the customer's status in terms of consumption experience.

More specifically, the hypotheses relating to the salience of service attributes for service quality, according to whether the customer is novice or longer-term, were generally supported. We found the search attribute of tangibles to be significantly more important to service quality perceptions among novice customers, supporting Hypothesis 1. In contrast, expertise and outcome were significantly more salient to longer-term customers, supporting Hypothesis 3.

TABLE 3
Interrelationship between Service Quality, Service Satisfaction and Behavioral Intentions Across Cohorts

Constraint	Mean(SD) C_1	Mean(SD) C_2	Weight C_1	Weight C_2	Nested Models	$\chi^2(df)$	$\Delta\chi^2(\Delta df)$
1. Fully unconstrained model						39.93(12)	
2. Factor loadings					2-1	45.64(15)	5.71(3)
Factor loadings and equal coefficients for:							
3. Service quality → Service satisfaction			0.74**	0.92**	3-2	45.66(16)	0.02(1)
4. Service quality → Behavioral intentions			0.68**	0.33	4-2	49.68(16)	4.04(1)**
5. Service satisfaction → Behavioral intentions			0.32**	0.68**	5-2	49.97(16)	4.33(1)**
Service quality	6.28(0.95)	6.32(1.01)					
Service satisfaction	6.17(1.00)	6.23(0.99)					
Behavioral intentions	6.28(1.08)	6.39(1.05)					
Model fit:							
$\chi^2(df)$			18.44(6)	21.49(6)		39.93(12)	
CFI			0.99	0.99		0.99	
IFI			0.99	0.99		0.99	
RMSEA			0.08	0.08		0.06	

Effect of → on ↓	C_1 <6 Months Service Quality	C_1 <6 Months Service Satisfaction	C_1 <6 Months SMC for Equation	C_2 >3 Years Service Quality	C_2 >3 Years Service Satisfaction	C_2 >3 Years SMC* for Equation
Behavioral intentions			0.88			0.98
1. Direct path effect	0.67	0.32		0.33	0.68	
2. Indirect path effect	0.24	0.00		0.62	0.00	
3. Total effect	0.91	0.32		0.95	0.68	
Service satisfaction			0.55			0.85
1. Direct path effect	0.74			0.92		
2. Indirect path effect	0.00			0.00		
3. Total effect	0.74			0.92		

NOTE: C_1 <6 Months; C_2 >3 Years. CFI = comparative fix index; IFI = incremental fit index; RMSEA = root mean square error of approximation; SMC = squared multiple correlation.
*p < .10. **p < .05. ***p < .01.

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Two of the four attributes that may be classified as experience, timeliness and interaction, were equally salient across the two cohorts, as expected according to Hypothesis 2; however, operation was found to be more salient among novices and atmosphere among longer-term customers, contrary to expectations.

Collectively, these findings offer empirical evidence that customers may rely more heavily on attributes that are largely search based when evaluating service quality in the initial stages of the service experience and attributes that are predominantly experience or credence based in the later stages of the consumption experience. This is in line with the attribute classification hierarchy proposed by economists (e.g., Darby and Karni 1973) and arguments put forth in the marketing literature (Murray and Schlachter 1990). It is also consistent with evaluability theory, which considers the ability to give a value to an attribute based on a point of reference (e.g., Hsee et al. 1999), as well as attribute knowledge theory, which highlights that knowledgeable consumers are better able to include important information in their evaluation process (e.g., Alba and Hutchinson 1987; Bettman and Sujan 1987).

The present study builds on previous work on attribute impacts over time. Mittal, Kumar, and Tsiros (1999), for example, conducted a longitudinal study among automobile owners investigating the impact of various automobile attributes across time. According to our definitions, these authors included search factors (e.g., roominess, accessories), experience factors (e.g., handling, transmission, honesty), and one potential credence factor (e.g., quality of work done) in their study. Mittal, Kumar, and Tsiros (1999), however, made no predictions as to which attributes change over time or the direction of such changes, nor do they offer any conclusive argument as to why 3 of the 10 attributes shifted in weight from the first time point, 3 to 4 months after the sale, to the second time point, 2 years after the sale, whereas the other 7 attributes in their study did not. The present research, therefore, makes an important theory-based contribution as to which attribute types may shift over time, although as we note, our research is based on two time-based cohorts rather than comprising a longitudinal study.[4]

Finally, we examined whether the relationship among service quality, service satisfaction, and behavioral intentions differed between novice and longer-term customers. The results indicated that the relationship between these constructs did vary across the cohorts. Service quality was found to be a salient driver of service satisfaction for both novice and longer-term customers. The direct impact of service quality on behavioral intentions, however, was significantly lesser and indeed insignificant for longer-term customers. In contrast, the direct impact of service satisfaction on intentions was significantly

greater among longer-term customers. Thus, satisfaction, consistent with its conceptualization as comprising both cognitive and emotional aspects, seems to play more of a role in developing behavioral intentions among more established, longer-term customers because the emotions associated with satisfaction may be derived from experiences over time (Dabholkar 1993; Oliver 1997). Nonetheless, when considering both the direct and indirect effects, the total effect of service quality on behavioral intentions was equivalent between both cohorts.

Although the findings identified significant differences in attribute weights and interconstruct relationships across cohorts, it is remarkable to note that neither the levels (means) of the attribute perceptions nor service quality perceptions, satisfaction, or behavioral intentions differed significantly across the cohorts (see Tables 2 and 3). This means that customers did not change the intensity of their views; however, the *associations* of the attributes with service quality, as well as the associations between service quality and behavioral intentions and satisfaction and behavioral intentions, changed significantly.

MANAGERIAL IMPLICATIONS

The idea of a dynamic consumption relationship has implications for service firms in the areas of customer retention, resource management, segmentation, employee training, and relationship management. Our findings suggest that the attributes that may enable customer retention for newly acquired novice customers differ from those that facilitate customer retention for more established, longer-term customers. Indeed, it was found that customers constructed their overall service quality perceptions differently depending on their consumption stage.

Overall, these findings suggest that service firms cannot treat newly acquired and loyal customers in the same manner, as the needs of these customer groups are considerably different. Service firms must, therefore, recognize that attribute importance is dynamic, changing as the customers' service experience with the firm unfolds. Firms that fail to acknowledge this run the risk of resource misallocation and, more seriously, failing to retain customers.

Given that the needs of novice and longer-term customers differ, service firms can use customer experience as a useful behavioral-segmentation variable. Segmenting the customer base according to experience is beneficial primarily because differential approaches to novice and longer-term customers enhance profitability. Separating novice and longer-term customers allows the firm to assess the unique needs of these customer groups and customize service strategies accordingly. Firms will need

to invest in employee training if this strategy is to be effective, such as demonstrating to staff that different aspects of the service need to be emphasized depending on the customer's stage in the service-consumption experience. Identifying how different attributes change in importance during the customer lifetime enables managers to develop effective relationship-management strategies. These strategies should assist firms in enhancing the lifetime value of their customers and retaining a highly loyal customer base. Given that relationship strength has been linked to customer retention and ultimately to profitability, understanding how service-attribute importance changes during the consumption process is essential to many firms.

LIMITATIONS AND FUTURE RESEARCH

As is the case with any research, this study has limitations. The model developed in the study is based on a cross-sectional sample; the research could thus be enhanced by longitudinal studies. Although the present study identifies differences between the two cohorts, longitudinal research is needed to provide an explanation of why these differences exist between novice and longer-term customers. Indeed, our finding that service-attribute weights differ between novice and longer-term customers highlights the importance of investigating the role of customer experience and learning in influencing perceptions. A worthwhile area of future research would thus be longitudinal studies to examine the dynamics of service quality judgment formations. Future research in this area is of great importance to services that require customer involvement and participation during multiple service encounters, because customers in such cases update their service evaluations and associated needs. Although we used a cross-sectional design, our study is no different in this respect from other studies examining evaluations at different time points using a cross-sectional design (e.g., Mittal and Katrichis 2000; Mittal, Katrichis, and Kumar 2001). Indeed, an advantage of this cohort approach is that it can be assumed that external factors that may change in time, such as clinic management and processes, and external environmental factors, such as government health policies, are the same across the two cohorts.

A further limitation was that the study was undertaken within a single service industry. Although this approach may have limited the generalizability of the findings, a high-quality sample was used. This sample was not only large but also based on a far higher response rate compared with many other consumer studies (e.g., Bell, Auh, and Smalley 2005). The sample was also based on the complete listings of patients at each clinic and, hence, represented a census of the participating clinics' patients. Furthermore, similarly restricted samples have been used in many previous empirical modeling studies (e.g., Garbarino and Johnson 1999; Wathne, Biong, and Heide 2001).

It will be important, however, to test our predictions in other categories as well. Replications in other high-involvement, high-contact service environments, such as physiotherapy and counseling, or in nonhealth contexts, such as higher education, financial planning, and retirement services, would further increase confidence in the research model. Given that we built our research hypotheses on the search, experience, and credence attribute framework, attribute evaluability theory, and attribute knowledge theory, we expect that our findings will be broadly relevant to a range of service businesses and specifically relevant to other high-involvement, high-contact services, such as those already discussed. We acknowledge, however, that the oncology context and health care in general represents a unique setting in which consumers may have limited choice in relation to service provision, and this limits the generalizability of our findings. It does, however, emphasize the need for replications in other service settings and for comparative studies across difference service industries. We also note that the Australian health care system (health care is not generally provided by employers in Australia, and approximately 50% of the population pays for private health insurance) differs from other systems. The private health care sector in Australia operates under considerable competitive pressures. The oncology clinics included in this study provide services to private patients and are faced with competition from similar service providers. The competitive nature of the Australian private health care market thus enhances the generalizability of our findings to other consumer settings.

It is also important to acknowledge that the outcome measures we used in our study were relatively simplistic to achieve parsimony. Future research could consider, for example, issues that relate to success of treatment, palliative status, and quality of life. The model could also be extended to include additional technical and functional quality attributes to enhance our cumulative knowledge about the salience of service quality attributes across the consumption process.

NOTES

1. A survey of marketing experts ($N = 21$), academics, and postgraduate students in marketing was undertaken to validate the expected impact of the attributes at various stages of the consumption process. Experts were given definitions of these attributes as well as a description of the study context and were asked to classify the attributes according to search, experience, or credence qualities and on the basis of the degree of experience that they thought a customer required to enable their evaluation. These two approaches correspond with the search, experience, and credence framework and the attribute evaluability and knowledge theories underlying our research.

2. Multigroup analysis of invariance can involve testing for factorial invariance as well as structural invariance (Byrne 2004). Confirmatory factor analysis models of factorial invariance enable the researcher to test

the structure of a model or its individual parameters explicitly for equivalence across subgroups or conditions (Deng et al. 2005). Once measurement invariance is established, researchers can test for structural invariance (Byrne 2004; Wolfle and List 2004). This allows researchers to determine whether path coefficients are equal across different groups or cohorts. Although a variety of techniques have been used to assess various aspects of measurement equivalence, there is general agreement that multigroup analysis represents the most powerful and versatile approach to testing measurement invariance (Steenkamp and Baumgartner 1998). Tests of invariance across multiple groups involve a hierarchical ordering of nested models. Models are considered nested when the set of parameters estimated in the more restrictive model is a subset of the parameters estimated in the less restrictive model (Deng et al. 2005). When one model is a subset of a larger model, the difference between the models can be tested by subtracting the chi-square values for the two models and assessing this value against the critical value associated with the difference in degrees of freedom (Deng et al. 2005).

3. In the present study, we use implicit or statistically derived importance weights rather than explicit or self-reported importance weights. In so doing, we acknowledge that there is debate about the relative merits of the implicit and explicit approach and that this issue remains unresolved (Russell et al. 2006; Sattler and Hensel-Börner 2000).

4. We also note that Mittal, Kumar, and Tsiros (1999) investigated the direct impact of service satisfaction and product satisfaction on intentions toward both the service provider and manufacturer. Interestingly, their findings reveal that product satisfaction had a greater direct effect on intentions toward the service provider (i.e., crossover effect) later in the consumption process. In contrast, service satisfaction had a greater effect on intentions toward the service provider early on in the process, suggesting an increasing salience of the product rather than the service evaluation over time. This has some equivalence to the present study, in that we find that the credence aspects (e.g., outcome, expertise), reflecting "what you get" or the technical element (Grönroos 2000), of the health product are important later on in the service. Although this may be tentative ground, both the present study and that of Mittal, Kumar, and Tsiros (1999) raise important issues regarding the differential impact of service attributes on outcomes across the consumption process.

APPENDIX A
Scales Used to Represent Constructs

Attribute Scales

Interaction (coefficient alpha: $C_1 = 0.97$; $C_2 = 0.97$)[a]
   The clinic's staff treat me as an individual and not just a number.
   The staff at the clinic always listen to what I have to say.
   I feel the staff at the clinic understand my needs.
   The staff at the clinic are concerned about my well-being.
   I always get personalized attention from the staff at the clinic.
   I find it easy to discuss things with the staff at the clinic.
   The staff at the clinic explain things in a way that I can understand.
   The staff at the clinic are willing to answer my question.
   I believe the staff at the clinic care about me.
Atmosphere (coefficient alpha: $C_1 = 0.92$; $C_2 = 0.91$)[a]
   I like the "feel" of the atmosphere at the clinic.
   The atmosphere at the clinic is pleasing.
   The clinic has an appealing atmosphere.
   The temperature at the clinic is pleasant.
   The clinic smells pleasant.
Tangibles (coefficient alpha: $C_1 = 0.95$; $C_2 = 0.95$)[a]
   The furniture at the clinic is comfortable.
   I like the layout of the clinic.
   The clinic looks attractive.
   I like the interior decoration (e.g., style of furniture)
      at the clinic.
   The color scheme at the clinic is attractive.
   The lighting at the clinic is appropriate for this setting.
   The design of the clinic is patient friendly.
Expertise (coefficient alpha: $C_1 = 0.95$; $C_2 = 0.95$)[a]
   You can rely on the staff at the clinic to be well-trained
      and qualified.
   The staff at the clinic carry out their tasks competently.
   I believe the staff at the clinic are highly skilled at their jobs.
   I feel good about the quality of the care given to me at the clinic.
Outcome (coefficient alpha: $C_1 = 0.95$; $C_2 = 0.95$)[a]
   I feel hopeful as a result of having treatment at the clinic.
   Coming to the clinic has increased my chances of improving
      my health.
   I believe my future health will improve as a result of attending
      the clinic.
   I believe having treatment at the clinic has been worthwhile.

   I leave the clinic feeling encouraged about my treatment.
   I believe the results of my treatment will be the best they can be.
Operations (coefficient alpha: $C_1 = 0.93$; $C_2 = 0.92$)[a]
   The clinic's records and documentation are error free (e.g., billing).
   The clinic works well with other service providers (e.g., pathology).
   I believe the clinic is well-managed.
   The registration procedures at the clinic are efficient.
   The discharge procedures at the clinic are efficient.
   The clinic's opening hours meet my needs.
Timeliness (coefficient alpha: $C_1 = 0.94$; $C_2 = 0.97$)[a]
   The clinic keeps waiting time to a minimum.
   Generally, appointments at the clinic run on time.
Service Quality Scale (coefficient alpha: $C_1 = 0.96$; $C_2 = 0.96$)[b]
   The overall quality of the service provided by the clinic is excellent.
   The quality of the service provided at the clinic is impressive.
   The service provided by the clinic is of a high standard.
   I believe the clinic offers service that is superior in every way.
Service Satisfaction Scale (coefficient alpha: $C_1 = 0.84$; $C_2 = 0.85$)[c]
   My feelings about the clinic are very positive.
   I feel good about coming to this clinic for my treatment.
   I feel satisfied that the results of my treatment are the best that
      can be achieved.
   The extent to which my treatment has produced the best possible
      outcome is satisfying
Behavioral Intentions Scale (coefficient alpha: $C_1 = 0.96$; $C_2 = 0.96$)[d]
   If I had to start treatment again, I would want to come to this clinic.
   I would highly recommend the clinic to other patients.
   I intend to continue having treatment, or any follow-up care I need,
      at this clinic.
   I intend to follow the medical advice given to me at the clinic.
   I am glad I have my treatment at this clinic rather than
      somewhere else.

NOTE: $C_1 < 6$ months; $C_2 > 3$ years. All scales are 7-point from *strongly agree* (7) to *strongly disagree* (1).
a. Developed for this study; Brady and Cronin (2001); Parasuraman, Zeithaml, and Berry (1988).
b. Brady and Cronin (2001); Cronin and Taylor (1992); Parasuraman, Zeithaml, and Berry (1988).
c. Oliver (1997).
d. Zeithaml, Berry, and Parasuraman (1996).

APPENDIX B
Service Quality Dimensionality: A Review of the Literature

Attribute Definitions and Source

Interaction

Definition: *Interaction* refers to the empathetic, understanding, and caring nature of the service provider and the ability of the provider to communicate clearly with the customer.

Source	Context	Term
Rust and Oliver 1994[b]	NA	Service delivery
McDougall and Levesque 1994[a]	Education	Process, interaction
Grönroos 1984[b]	NA	Functional
Brady and Cronin 2001[a]	Various	Interaction, attitude, behavior, expertise
Parasuraman, Zeithaml, and Berry 1985, 1988[a]	Various	Responsiveness, empathy
Koerner 2000[a]	Health	Mutual liking, family like associations
Ware et al. 1983[a]	Hospital	Provider conduct, concern, consideration, friendliness, patience, sincerity
Wiggers et al. 1990[a]	Oncology	Interpersonal, empathy, communication

Outcome

Definition: *Outcome* refers to what is accomplished as a result of the service.

Source	Context	Term
Parasuraman, Zeithaml, and Berry 1985, 1988[a]	Varied	Reliability, assurance
Rust and Oliver 1994[b]	NA	Service outcome
McDougall and Levesque 1994[a]	Education	Outcome
Grönroos 1984[b]	NA	Technical, outcome
Brady and Cronin 2001[a]	Various	Valence

Expertise

Definition: *Expertise* refers to the provider's competence, knowledge, and skill in diagnosing, treating, and caring for the customer.

Source	Context	Term
Parasuraman, Zeithaml, and Berry 1985, 1988[a]	Varied	Reliability, assurance
Grönroos 1984[b]	NA	Technical, outcome
Ware et al. 1983[a]	Hospital	Technical, skills, abilities, technical training, accuracy
Wiggers et al. 1990[a]	Oncology	Technical competence, skills, knowledge

Atmosphere

Definition: *Atmosphere* refers to the background elements in the service environment that affect the pleasantness of the surroundings and the atmosphere of the setting.

Source	Context	Term
Baker 1986[b]	NA	Ambient conditions, design, social
Bitner 1992[b]	NA	Ambience, temperature, noise, space, signs, symbols, artifacts
Brady and Cronin 2001[a]	Various	Ambience, social features
Ware et al. 1983[a]	Hospital	Atmosphere

Tangibles

Definition: *Tangibles* refers to the physical elements in the service environment; the appearance, comfort, and functionality of the physical environment.

Source	Context	Term
Baker 1986[b]	NA	Design, social
Bitner 1992[b]	NA	Signs, symbols, artifacts
Parasuraman, Zeithaml, and Berry 1985,[b] 1988[a]	Various	Tangibles
Rust and Oliver 1994[b]	NA	Service environment
McDougall and Levesque 1994[a]	Education	Tangibles
Brady and Cronin 2001[a]	Various	Physical environment, design, social features, tangibles
Ware et al. 1983[a]	Hospital	Comfort, attractiveness, noise cleanliness, facilities
	Oncology	Physical features

Timeliness

Definition: *Timeliness* refers to the availability of the service and the ease of arranging to receive the service.

Source	Context	Term/dimension
Brady and Cronin 2001[a]	Various	Waiting time
Holdford and Reinders 2001[a]	Education	Access
Ware et al. 1983[a]	Hospital	Accessibility, convenience, availability, continuity
Brédart et al. 1998[a]	Oncology	Availability, access, coordination, waiting time, continuity, administration

Operation

Definition: *Operation* refers to the administrative procedures and processes involved in the general operation of the service.

Source	Context	Term/dimension
Lovelock, Patterson, and Walker 2001[b]	NA	Facilitating and supporting services
Licata, Mowen, and Chakraborty 1995[a]	Hospital	Billing, scheduling, admissions, diagnostic service
Ware et al. 1983[a]	Hospital	Finance
Brédart et al. 1998[a]	Oncology	Availability, access, coordination, waiting time, continuity, administration

NOTE: NA = not available.
a. Empirical research.
b. Theoretical research.

APPENDIX C
Correlations and Chi-Square Difference Values

	Interaction	Atmosphere	Tangibles	Timeliness	Operation	Outcome	Expertise	Intentions	Satisfaction	Quality
Interaction	1.000	0.601**	0.551**	0.436**	0.731**	0.627**	0.746**	0.733**	0.656**	0.772**
Atmosphere	24.600	1.000	0.759**	0.511**	0.683**	0.483**	0.577**	0.576**	0.568**	0.635**
Tangibles	15.200	14.100	1.000	0.503**	0.556**	0.444**	0.550**	0.555**	0.414**	0.596**
Timeliness	5.500	2.700	2.200	1.000	0.541**	0.424**	0.458**	0.425**	0.377**	0.519**
Operation	6.300	4.900	22.300	12.400	1.000	0.634**	0.738**	0.730**	0.720**	0.761**
Outcome	22.200	21.000	49.400	10.900	31.800	1.000	0.726**	0.716**	0.766**	0.732**
Expertise	35.800	34.000	60.870	23.000	47.700	52.900	1.000	0.752**	0.681**	0.849**
Intentions	9.100	6.100	16.800	7.200	5.300	11.100	34.100	1.00	0.756**	0.874**
Satisfaction	24.800	14.600	65.800	22.500	21.600	19.100	78.400	7.90	1.00	0.756**
Quality	6.800	4.800	21.400	4.200	14.600	21.000	38.000	5.60	26.20	1.00

NOTE: Correlations between all constructs can be seen in the upper triangle, and chi-square difference tests between all constructs can be seen in the lower triangle. While correlations and chi-square differences were calculated on the entire data set ($N = 635$), the findings mirror those of the separate cohort analyses.

**Correlation is significant at the .01 level, two-tailed.

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