

# Outcomes of service encounter quality in a business-to-business context

**Chanaka Jayawardhena<sup>a</sup>, Anne L Souchon<sup>a,\*</sup>, Andrew M Farrell<sup>a</sup>, Kate Glanville<sup>b</sup>**

<sup>a</sup> *The Business School, Loughborough University, Loughborough, LE11 3TU, UK*

<sup>b</sup> *Nursing Council of New Zealand, Wellington, New Zealand*

\* Corresponding author:

Tel: +44 (0) 1509 22 88 32

Fax: +44 (0) 1509 22 31 45

*E-mail address:* A.L.Souchon@Lboro.ac.uk (A.L. Souchon)

## **Brief Biographical Sketches:**

Chanaka Jayawardhena is a Lecturer in Marketing at Loughborough University, UK. His research interests include service quality and consumer behavior.

Anne L Souchon is a Reader in Marketing at Loughborough University, UK. Her research interests include export marketing, information acquisition and use, and services marketing.

Andrew M Farrell is a Research Associate in Marketing at Loughborough University, UK. His research interests include service quality, leadership, and organizational behavior.

Kate Glanville currently works as the Education Co-coordinator for the Nursing Council of New Zealand. Her research interests include services marketing and service quality.

Article Invited for Re-Resubmission to *Industrial Marketing Management*: October 2005

# Outcomes of service encounter quality in a business-to-business context

## **Abstract**

Service encounter quality is an area of growing interest to researchers and managers alike, yet little is known about the effects of face-to-face service encounter quality within a business-to-business setting. In this paper, a psychometrically sound measure of such service encounter quality is proposed, and consequences of this construct are empirically assessed. Both a literature review and a dyadic in-depth interview approach were used to develop a conceptual framework and a pool of items to capture service encounter quality. A mail survey of customers was undertaken, and a response rate of 36% was obtained. Data analysis was conducted via confirmatory factor analysis and structural equation modeling. Findings reveal a four-factor structure of service encounter quality, encompassing professionalism, civility, friendliness and competence dimensions. Service encounter quality was found to be directly related to customer satisfaction and service quality perceptions, and indirectly to loyalty. The importance of these findings for practitioners and for future research on service encounter quality is discussed.

*Keywords:* service encounter quality, customer satisfaction, service quality, loyalty.

## **Introduction**

The service sector has seen dramatic growth over the years, to the extent that its contribution to global GNP exceeds that of all other sectors combined (The World Bank, 2004). However, a number of dynamic factors affect the service industry including government regulation, social changes, business trends, advances in technology, and internationalization (Hoffman, Kelley and Rotalsky, 1995; Rust and Oliver, 1994). Within deregulated and competitive markets, differentiation strategies, including delivering quality services (Parasuraman, Zeithaml and Berry, 1988; Cronin and Taylor, 1992) are a primary concern of services marketers (Fisher, 1991).

Within the service quality domain, the importance of customers' perceptions of service encounters is increasingly recognized (Mill, 1986; Namasivayam and Hinkin, 2003). In the words of Bitner, Booms and Mohr (1994, p. 95), "from the customer's point of view, the most immediate evidence of service quality occurs in the service encounter or the 'moment of truth' when the customer interacts with the firm. Thus, one central goal in the pursuit of 'zero defects' in service is to work toward 100% flawless performance in service encounters". Consequently, these encounters can become an integral part of the image that the customer has of the firm and, in turn, will play an influential role in determining the success of the firm (Bitner, 1990; Bitner, Booms and Tetrault, 1990). As Hartline, Woolridge and Jones (2003, p. 43) point out, customers "base their evaluations on their perceptions of the service encounter", due to the inter-personal nature of services.

Bitran and Lojo (1993) explain that service encounters are not random events; they can be treated systematically. Scope is thus high for management control over the success or failure of specific

service encounters. Accordingly, “the quality of the service encounter has been recognized as a key strategic competitive weapon” (Mattila and Enz, 2002, p. 269).

Previous work on service encounters has almost exclusively focused upon retail consumers (Kong and Mayo, 1993; Westbrook and Peterson, 1998). Indeed, service encounter quality in a business-to-business context tends to be both overlooked at the managerial level (Bitran and Lojo, 1993) and under-researched academically (Brown, Fisk and Bitner, 1994; Chumpitaz and Paparoidamis, 2004; Durvasula, Lysonski and Mehta, 1999; Gounaris, 2005; Hartline and Jones, 1996). This is surprising given the importance of contact personnel and the social/interpersonal aspects of the encounter in business-to-business services (Paulin, Ferguson and Payaud, 2000). As explained by Drennan and McColl-Kennedy (2003), professional services tend to be “people-directed”.

The business-to-business context has numerous unique characteristics that warrant special attention. First, business-to-business situations are usually typified by a small number of customers, each contributing significant value to the overall business; the importance of each service encounter is thus more pronounced (McNamara, 1972). Second, it is also the case that business-to-business service encounters are often more frequent than in the case of business-to-consumer transactions (Hardy, 1978). In fact, given the advance of technology, professional services firms report increased use of communication equipment (e.g., cellular phones) for business use (Hooks and Higgs, 2002), thus facilitating personal interactions. Third, in most business-to-business exchanges, a service encounter is not the fulfillment of a single effort but an event in a broader endeavor to build and sustain a long-term relationship (Jammerneegg and Kischka, 2005; Miciak and Desmarais, 2001). Fourth, “both academics and practitioners

recognize that business-to-business relationships are characterized by closer and deeper interfaces than consumer relationships” (Mehta and Durvasula, 1998, p. 40). Finally, an examination of the service encounter is crucial as service provider employees must be more flexible and innovative because of the potential non-routine elements in their jobs (Dubinsky, Howell, Ingram and Bellenger, 1986).

Despite the importance of service encounter quality to business-to-business firms (Paulin, Ferguson and Payaud, 2000), to the authors’ best knowledge, no measure of this construct exists. Thus, there is a call for the development of psychometrically sound measures of service encounter quality in a business-to-business sector. Furthermore, consequences of service encounter quality should be empirically examined in order to develop clear managerial guidelines for the development of optimal service encounter quality strategies in business-to-business (Parasuraman, 1998).

The objectives of this study are twofold: a) to develop a psychometrically sound measure of face-to-face, interpersonal service encounter quality in the context of business-to-business exchanges; and b) to empirically examine the consequences of face-to-face, interpersonal service encounter quality, again within the context of business-to-business exchanges.

This study intends to contribute to our growing understanding of customers’ perceptions of service encounters. From the industrial practitioner’s point of view, measurement of service encounter quality is critical for a number of reasons. First, if service encounter quality can be captured, the instrument could be used as a benchmarking tool for service providers in comparing their service provision against that of competitors. According to Rust and Oliver (1994)

delivering a superior service offers an opportunity to achieve competitive differentiation. Secondly, improvements in the quality of service encounters can only be made if the current level of service encounter quality is known. This knowledge can be obtained through use of a reliable and valid measure. Thirdly, effective measurement of service encounter quality can be useful in the allocation of resources and in segmentation of customers, since assessment scores of generic service constructs, such as service quality, can be used as an effective tool for segmentation (Parasuraman, Zeithaml and Berry, 1988). Finally, understanding consequences of service encounter quality has important managerial implications. According to Paulin, Ferguson and Payaud (2000), successful interaction between professional service provider and customer is likely to result in enhanced customer satisfaction and loyalty. In turn, the benefits of satisfaction and loyalty are well documented (Chebat and Slusarczyk, 2005; Heskett, Sasser and Schlesinger, 1997). By understanding the interrelationships between these constructs, management may be able to contribute to increased firm performance (Chumpitaz and Paparoidamis, 2004; Heskett, Jones, Loveman, Sasser and Schlesinger, 1994). These reasons in combination make the findings of this research both timely and relevant.

This paper is arranged as follows. The next section provides a background for the constructs of interest. This is followed by a presentation of conceptual development. The methodology used is then described, followed by the study's results. Discussion of findings and strategic implications for the business-to-business service sector are then provided. Limitations and future research avenues conclude the paper.

## **Literature and theoretical background**

Person-to-person interactions are an essential element in the marketing of services (Czepiel, 1990; Crosby, Evans and Cowles, 1990; Surprenant and Solomon, 1987). Customers' perceptions of face-to-face interaction with service employees have traditionally been considered one of the most important determinants for customer satisfaction and firm loyalty (Berry, 1983; Oliver, Rust and Varki, 1997; Liljander and Mattsson, 2002; Winsted, 2000). Similarly, service quality has been found to be related to customer loyalty, arguably the bedrock of any business (Caruana, 2002). The following sections thus provide a brief background of the service encounter, service quality, customer satisfaction and loyalty constructs.

### *Service Encounters*

To date, the literature on service encounters has mostly focused on the consumer sector (Paulin, Ferguson and Payaud, 2000). Nevertheless, and in terms of conceptual definitions, characteristics of consumer services appear to be applicable to the business-to-business sector (Cooper and Jackson, 1988), though this is not true of their operationalizations (Durvasula, Lysonski and Mehta, 1999).

The literature offers broad definitions of service encounters. For example, Shostack's (1985) definition encompasses elements beyond the interpersonal element of a service encounter, including physical surroundings and self-service technology. On the other hand, more narrow definitions of service encounters also exist, focusing on the interpersonal nature of the encounter.

For instance, Surprenant and Solomon (1987) define the service encounter as a dyadic interaction between the customer and service provider. This definition draws on their earlier work suggesting that service encounters are role performances (Czepiel, Solomon and Surprenant, 1985) in which both customers and service providers have roles to enact. During the service encounter, or ‘moment-of-truth’, the formation of customer perceptions is often more largely based upon the emotional and intangible content of the encounter than on surroundings (Lemmink and Mattsson, 2002; Stauss and Mang, 1999). Indeed, “traditionally, service encounters have been characterized as low tech, high face-to-face contact” (Drennan and McColl-Kennedy, 2003, p. 296). In a business-to-business setting, Paulin, Ferguson and Payaud (2000) explain that contact personnel and social/interpersonal aspects of the encounter play a much greater role than technology in forming quality perceptions. Even in the context of high-tech service organizations, it has been argued that “several reasons make the ability of the customer contact person crucial when delivering complex services” (Mattsson, 2000, p. 24). Thus, for the purposes of this paper, Surprenant and Solomon’s (1987) dyadic conceptualization of service encounters as an interpersonal construct is adopted.

There are a number of distinguishing characteristics of service encounters (Czepiel, 1990). First, service encounters are purposeful. The contact takes place to achieve a specific goal. Second, service encounters are limited in scope, and restricted by the nature and content of the service to be delivered. Third, the roles played by the service provider and the customer in the service encounter are generally well-defined and understood by both parties. This suggests that service encounters are shaped by individual behaviors and the nature and quality of customer and employee interactions (Bitner, 1990; Bitner, Booms and Mohr, 1994; Heskett, Jones, Loveman, Sasser and Schlesinger, 1994). Zeithaml and Bitner (2003) refer to the strategic framework within



which these interactions take place as the ‘services triangle’. They show how the three interlinked groups (i.e., customers, company and company employees) work together to develop, promote and deliver services.

Recent work examining service encounters has attempted to formulate conceptualizations of the number of dimensions contained within the construct (e.g., Keillor, Hult and Kandemir, 2004; Raajpoot, 2004; Winsted, 2000). Chandon, Leo and Philippe (1997) developed a dyadic assessment of service encounters encompassing competence of staff, listening behaviors of staff, dedication of staff, and effectiveness of staff. Winsted (2000) developed a three-dimensional measure to assess service encounter evaluation which encompassed concern, civility and congeniality. Raajpoot (2004) developed a measure of service encounter quality encompassing seven-dimensions including tangibility, reliability, assurance, sincerity, personalization, formality, and responsiveness. Finally, Keillor, Hult and Kandemir (2004) sought to examine service encounters in a multi-country investigation, and measured service encounter evaluation as physical goods quality, service quality, the servicescape, and behavioral intentions.

What is apparent from this brief review of the literature, however, is that all of the prior work was conducted in a business-to-consumer context, and only three of the studies (Parasuraman, Zeithaml and Berry, 1985; Raajpoot, 2004; Winsted, 2000) sought input from employees as well as customers with regards to what constitutes a high quality service encounter.

### *Service Quality*

Parasuraman, Zeithaml and Berry (1985) initially identified ten dimensions of service quality. These ten dimensions were then empirically reduced to five (SERVQUAL), namely: tangibles, reliability, responsiveness, assurance and empathy (Parasuraman, Zeithaml and Berry, 1988). In a business-to-business context, Durvasula, Lysonski and Mehta (1999, p. 140) further found that “SERVQUAL’s five dimensions could be reduced to a smaller number”, and claim that “other research is needed to determine if the SERVQUAL scale can be reduced to a more parsimonious structure”.

Early work (Grönroos, 1982; 1984; Lewis and Booms, 1983) conceptualized service quality as a disconfirmation process. However, subsequent authors noted conceptual, theoretical and measurement problems with the disconfirmation model (Brown, Churchill and Peter, 1993; Teas, 1993; 1994). The topic of perceptions-minus-expectations or perceptions-only measures of service quality dominated the services marketing literature during the 1990s (Babakus and Boller, 1992; Cronin and Taylor, 1992; 1994; Parasuraman, Zeithaml and Berry, 1994; Teas, 1993; 1994; Zeithaml, Berry and Parasuraman, 1996). More recently, evidence has been pointing towards perceptions-only measures as being more psychometrically robust (Brady, Cronin and Brand, 2002; Cronin and Taylor, 1992; Dabholkar, Shepherd and Thorpe, 2000). As a result, it is now more common to see perceptions-only subsets of the SERVQUAL battery being applied to measure service quality (e.g., Cronin, Brady and Hult, 2000; Keillor, Hult and Kandemir, 2004; Hartline and Ferrell, 1996; Laroche, Ueltschy, Abe, Cleveland and Yannopoulos, 2004; Witkowski and Wolfinbarger, 2002). This is also true for service quality in a business-to-business context (Durvasula, Lysonski and Mehta, 1999).

### *Customer Satisfaction*

Customer satisfaction is generally conceptualized as an attitudinal judgment about purchase (Yi, 1990). It can pertain to an individual transaction or to a series of purchases over time (Fournier and Mick, 1999), although much of past research on customer satisfaction has taken the transaction-specific perspective (Anderson and Fornell, 1994). Thus, while service quality is an overall construct of perceptions about a firm's service provision, satisfaction is based on an individual service encounter (c.f., Boulding Kalra, Staelin and Zeithaml, 1993). As stated by Voss, Roth, Rosenzweig, Blackmon and Chase (2004, p. 213), "service quality is a distinct construct from customer satisfaction". Similarly, service encounter quality and customer satisfaction are also distinct. The former pertains to cognitive judgments on the service provider's behavior during purchase (e.g., Winsted, 2000). On the other hand, customer satisfaction is a emotive post-consumption evaluation of the service performance (e.g., Caruana, 2002).

In a consumer context, service encounters have been linked to customer satisfaction; Winsted (2000) found that service encounter dimensions (concern, civility, and congeniality) were positively related to satisfaction. More recently, Chumpitaz and Paparoidamis (2004) called for more empirical investigation of the relationships between business-to-business service quality and satisfaction.

### *Loyalty*

Early views on loyalty focused on repeat purchase behavior. For example, Brown (1952) classified loyalty into four categories based on the purchase patterns of customers: undivided loyalty; divided loyalty; unstable loyalty; and no loyalty. Other researchers of this period (e.g., Kuehn, 1962) measured loyalty by the probability of product repurchase. Day (1969) and Jacoby and Chestnut (1978) have suggested that such behavioral definitions are insufficient because they do not distinguish between true loyalty and spurious loyalty that may result, for example, from a lack of available alternatives for the consumer. In response to these criticisms, researchers have proposed measuring loyalty by means of an attitudinal dimension in addition to the behavioral dimension. In this context, Engel and Blackwell (1982) asserted that loyalty is the preferential attitudinal and/or behavioral response towards one or more brands in a product category expressed over a period of time by a customer. What is clear from this brief review of early research on customer loyalty is the pronounced focus on products and brands, rather than services. While more recent work has started to address this imbalance (Bloemer, de Ruyter and Peeters, 1998), loyalty to service organizations remains under-explored (Caruana, 2002). For the purposes of this paper, we seek to explore differing facets of loyalty, namely loyalty to the employee and loyalty to the organization (c.f., Fullerton, 2003).

## **Conceptualization**

A body of literature exists to support the conceptual notion that the quality of customer-employee interactions plays a critical role in the development of service quality perceptions (Bitran and Lojo, 1993; Danaher and Mattsson, 1994; Stauss and Mang, 1999). As explained by Farrell, Souchon, and Durden (2001, p. 577), “service quality represents a customer’s assessment of the

overall level of service offered by an organization, and this assessment is often based upon perceptions formulated during service encounters”. Czepiel (1990) also places the specific short-term service encounter at the heart of customers’ general long-term perceptions of service quality. It appears from this that positive perceptions of service encounter quality may lead to normative expectations of the overall quality of the service. Service quality is considered to be a holistic judgment of quality, and the quality of individual service encounters should contribute towards this judgment. Thus, we expect that:

H1: Service encounter quality perceptions will be positively related to overall service quality evaluations.

In accepting the classical conceptualization of customer satisfaction as relating to a post-purchase emotive judgment of an individual service encounter (Caruana, 2002), one can argue that customer satisfaction will play a mediating role between service encounter quality (a cognitive evaluation of the encounter as it occurs) and overall service quality (based upon the customer’s experience with the firm over time). Indeed, “the satisfaction process often has a strong *social* dimension” (Fournier and Mick, 1999, p. 15, emphasis in the original), indicating that it may be related to the quality of the interaction between service provider and customer. We therefore anticipate the following:

H2: Service encounter quality perceptions will be positively related to customer satisfaction.

The literature on service quality and customer satisfaction demonstrates the interrelationships between the constructs (e.g., Voss, Roth, Rosenzweig, Blackmon and Chase, 2004). In general, the literature treats these constructs as static, at least for estimation purposes. Expectations play a very important role in both constructs. Expectations can be standardized along two main themes, predictive expectations and normative expectations (Boulding, Kalra, Staelin and Zeithaml, 1993). Work carried out by Prakash (1984) suggests that customer satisfaction literature relies on expectations as a prediction of future events. Normative expectations of future events are operationalized as either desired or ideal expectations (Prakash, 1984; Swan and Trawick, 1981). This is the standard typically used in the service quality literature (Parasuraman, Zeithaml and Berry, 1988). Yet, there is a clear difference between overall quality as opposed to satisfaction/dissatisfaction with a specific incident (Boulding, Kalra, Staelin and Zeithaml, 1993). Paulin, Ferguson and Payaud (2000, p. 454) depict the chronological chain of reactions to a successful business-to-business service encounter: “being very satisfied, rating service quality highly, intending to continue purchasing the services, desiring to purchase new services and willing to recommend the firm to others”. In addition, recent work by Tian-Cole, Crompton and Willson (2005) demonstrates that the quality of an individual service experience predicted satisfaction, which in turn predicts overall service quality. Hence, we expect to see a positive relationship between transaction-specific satisfaction and overall service quality evaluation, as follows:

H3: Customer satisfaction will be positively related to overall service quality perceptions.

Research on consumer loyalty in a services marketing context reports a high positive correlation between satisfaction, quality and loyalty (Anderson, Fornell and Lehmann 1994; Bitner 1990; Bolton and Drew, 1991; Cronin, Brady and Hult, 2000; Dabholkar, Shepherd and Thorpe, 2000; Farrell, Souchon and Durden, 2001; Zeithaml, Berry and Parasuraman 1996). Boulding, Kalra, Staelin and Zeithaml (1993) explain that the greater the perceptions of overall service quality, the more likely the customers will engage in behaviors beneficial to the firm, such as loyalty to the organization. Indeed, service quality encompassing an assessment of the general services provided by an organization rather than an individual service transaction (Boulding, Kalra, Staelin and Zeithaml, 1993), it seems likely that it will be related to loyalty to the organization. When a customer uses service quality as their frame of reference, they consider the whole organization, including the employees, who are seen to represent it (Bitner, Booms and Mohr, 1994). In a series of studies, Parasuraman, Zeithaml and Berry, (1988; 1991; 1994) found a positive and significant relationship between customers' perceptions of service quality and their willingness to recommend the company. Overall service quality has a significant effect upon customers' intention to repeat purchase (Cronin, Brady and Hult 2000), and on general customer loyalty (c.f., Too, Souchon and Thirkell, 2001). Equally, equity theory suggests that providing superior service quality leads to repurchase intentions (Kelley and Davis, 1994), in a business-to-business setting as well (Bendapudi and Leone, 2002). Thus it is hypothesized that:

H4: Overall service quality will be positively related to loyalty to the organization.

Marketers have often emphasized the need to provide customer satisfaction to achieve loyalty (e.g., Szymanski and Henard 2001). Customer satisfaction is often seen as derived from

individual transactions (Host and Knie-Andersen, 2004), where the employee is the frame of reference. Further, business customers' relationships with the employee who serves them can be stronger than the relationship with the organization (Bendapudi and Leone, 2002). As a result, customer satisfaction is likely to be directly linked to loyalty to an individual service provider, rather than to the organization as a whole. Indeed, as explained by McAlexander, Kim and Roberts (2003), the way in which loyalty develops is more dynamic and complex than commonly modeled, and may include important personal and social aspects. Fullerton (2003, p. 335) further discusses the emotional attachment which customers can develop towards their "partner in a consumption relationship". He equates affective commitment to friendship, rapport, and trust towards the service provider. Given the importance of personal contacts in business-to-business organizations (Bendapudi and Leone, 2002), we expect that:

H5: Customer satisfaction will be positively related to loyalty to the employee.

The development of customer loyalty can also be an evolutionary process driven by experience (McAlexander, Kim and Roberts, 2003). Morgan and Hunt (1994) found that transactional variables such as quality and trust ultimately lead to customer retention. As a result of this, Fullerton (2003) suggested that commitment to the individual service provider may be an important driver of organizational loyalty in services industries. In his experimental study of undergraduate students, he found that an affective commitment to a service provider was indeed a powerful determinant to customer retention. Affective commitment is characterized by an emotional bond of friendship with the individual service provider and leads to the highest levels of overall loyalty (Curasi and Kennedy, 2002). This is likely to be the case in a business-to-business context as well where vendor firms implement relationship marketing through key



contact personnel in a bid to secure repeat business (Bendapudi and Leone, 2002). Thus, the following is hypothesized:

H6: Loyalty to the employee will be positively related to loyalty to the organization.

The model shown in Figure 1 postulates that service encounter quality and customer satisfaction influence service quality, which in turn, contributes to loyalty to the organization. It further shows a relationship between customer satisfaction and loyalty to the individual service provider.

Figure 1: Conceptual Model

[Take in Figure 1 about here]

## **Methodology**

The study was conducted in a single industry in order to overcome contextual bias (see Hartline and Jones, 1996). The first objective was to develop a measure of service encounter quality, applicable to a business-to-business context. Scale development procedures mirror the work of earlier researchers (Churchill, 1979; Parasuraman, Zeithaml and Berry, 1988). The process of developing an instrument in this paradigm involves: (i) identifying the domain of the construct; (ii) generating a sample of items; (iii) collecting data; (iv) purifying measures; (v) assessing reliability, dimensionality and validity; and (vi) developing norms. Secondly, the study sought to examine the consequences of service encounter quality, namely overall service quality,

satisfaction, loyalty to the employee, and loyalty to the organization. Again, traditional methods involving structural equation modeling were used.

### *Sample and Procedures*

The project was financially supported by a private safety inspection organization in New Zealand. A database consisting of 50 service providers and 778 customers was obtained from this organization. Each service provider had between 10 and 20 customers. Service provider-customer dyads were researched in a qualitative in-depth study, the purpose of which was to assist in the development of the conceptual framework and a pool of items for service encounter quality measurement. Nine in-depth interviews of safety inspection customers and providers were conducted. Three initial interviews were conducted with general customers to identify the important dimensions they associate with service encounter quality. A further six interviews (three safety inspection providers and three safety inspection customers) were conducted. Each interview was analyzed according to the sequence of steps advocated by Miles and Huberman (1984) and followed by Bitner, Booms and Tetrault (1990). From this analysis we generated a pool of 41 items measuring perceptions of service encounter quality.

Both the literature review and the results of the preliminary study were used to develop a formal structured instrument (see section below on measures used). The questionnaire was pre-tested using peer reviews and protocols of two service providers and three customers. Questionnaires were mailed out to customers and follow-up cards and follow-up letters were subsequently sent to non-respondents after one and two weeks respectively. In order to ensure the results were a true

reflection of what occurs within the business-to-business context, anonymity and confidentiality of respondents and their organization was assured and outlined in a cover letter sent with the questionnaire.

A total of 329 questionnaires were returned, including 281 usable and 47 non-usable replies, indicating a response rate of 36%. A non-response bias analysis was conducted utilizing a time-trend extrapolation test, and t-tests comparing early and late respondents (Armstrong and Overton, 1977). The t-tests were found to be non-significant at a 5% level, indicating the probable lack of non-response bias (see Appendix A).

Respondents were found to be mostly male (94% of the total sample), aged 46 on average, with an undergraduate degree (30% of the sample). The organizations they work for command an average annual turnover of NZ\$71,820,423 (though 50% of the sample reported a turnover of NZ\$4,000,000 or less). On average, firms had been established for 33 years. Performance measures included subjective self-reported 7-point scales (from 1=poor to 7=outstanding) capturing profitability, sales growth, profit growth, competitiveness, fulfillment of objectives, and market share. Means and standard deviations were, respectively, 4.5/1.4 (for profitability), 4.4/1.3 (for sales growth), 4.3/1.4 (for profit growth), 5.4/1.2 (for competitiveness), 5.3/1.2 (for fulfillment of objectives), and 4.2/1.3 (for market share).

### *Measures Used*

Questionnaire items for the service encounter quality scale were derived from both the literature and the qualitative study. Service quality (e.g., Parasuraman, Zeithaml and Berry, 1988), customer satisfaction (e.g., Oliver, 1997), loyalty (e.g., Mowday, Steers and Porter, 1979) were derived from the literature review. Where necessary, minor modifications were made to suit a business-to-business service context (Durvasula, Lysonski and Mehta, 1999).

In line with arguments proposed by Cronin and Taylor (1992), and our previous discussion of the service quality literature, we adopted perceptions-only as opposed to a perceptions-minus-expectations measures of service encounter quality and service quality.

It should be noted that the perceptions-specific items of SERVQUAL scale developed by Parasuraman, Zeithaml and Berry (1988) can be applied to a business-to-business context (e.g., Mehta and Durvasula, 1998). However, the factor configuration of the scale is open to change, and likely to yield a smaller number of factor than the traditional five, namely tangibles, responsiveness, assurance, empathy and reliability (e.g., Durvasula, Lysonski and Mehta, 1999).

In general, 7-point Likert-type scales were employed. This was due to most scales being directly applied in their pre-existing form (e.g. Parasuraman, Zeithaml and Berry, 1988). However, in two instances, 9-point Likert-type scales were used, since the protocols identified limited variation in responses to some of the items. The 9-point scale used was unbalanced to reduce the number of negative (i.e., “disagree”) options, and allow for more variation in the “agree” side of the Likert-type scale (Cadogan, Paul, Salminen, Puumalainen and Sundqvist, 2001). Appendix B illustrates the questionnaire items.

## *Results*

The analysis was run on a consistent sample of 234 customers. The first data analytical stage consisted of an exploratory principal axis factoring of all constructs of interest. This resulted in the first deletions of poorly performing items from the scales based on weak or cross-loadings. Confirmatory factor analysis (CFA) was then run using LISREL 8.3. The final CFA fit indices were all found to be above recommended thresholds (see first row in Table 1). The fit indices chosen in Table 1 were used because a combination of such indices has been shown to achieve a good balance between Type I and Type II error rates when assessing model fit (Hu and Bentler, 1999). Appendices B and C contain the items retained in the final model, and the correlation/covariance matrices of items and higher order variables, respectively.

Table 1: CFA Fit Measures

| Model | $\chi^2$ (d.f.) | $\Delta \chi^2$ ( $\Delta$ d.f.) | RMSEA | GFI | NNFI | CFI |
|-------|-----------------|----------------------------------|-------|-----|------|-----|
| CFA   | 453.58 (308)*   | na                               | .042  | .88 | .96  | .96 |
| Model | 525.35 (311)*   | 71.77 (3)**                      | .046  | .87 | .94  | .95 |

CFA = Confirmatory Factor Analysis

Model = As above plus structural model for H1 to H6

RMSEA = Root Mean Square Error of Approximation.

GFI = Goodness of Fit Index.

NNFI = Non-Normed Fit Index.

CFI = Comparative Fit Index.

\* Not significant; \*\* Significant at .05

After exploratory and confirmatory factor analysis, perceptions of service encounter quality yielded four dimensions: professionalism, civility, friendliness and competence. Four dimensions of service quality (Parasuraman, Zeithaml and Berry, 1988) emerged (tangibles, assurance, empathy, and reliability) and customer satisfaction, loyalty to the organization, and loyalty to the employee were unidimensional. Following Homburg and Pflesser (2000), we calculated composite reliabilities and average variance extracted for scales composed of more than two items, and coefficient alpha for two-item scales. This resulted in values above the minimum recommended thresholds of 0.7 for composite reliability and coefficient alpha (Nunnally and Bernstein, 1994), and 0.5 for average variance extracted (Fornell and Larcker, 1981) for all scales (see Table 2). Discriminant validity between all constructs was assessed by examining correlations between all pairs of multi-item scales. The correlations were first set at unity, and then freed. In every case, significant decreases in  $\chi^2$  were observed on freeing the correlation between the scales, demonstrating evidence for discriminant validity. Thus, the measures used for this study were both reliable and valid. In terms of testing for common method bias, results of the Harman test using principal axis factoring revealed a 5-factor structure with no general factor present (the first factor accounted for only 18.6% of the variance).

Table 2: Coefficient Alpha, Composite Reliabilities and Average Variance Extracted

| Scale                                       | Number of Items | Means       | Standard Deviations | Coefficient Alpha | Composite Reliability | Average Variance Extracted |
|---|-----------------|-------------|---------------------|-------------------|-----------------------|----------------------------|
| <i>Service Encounter Quality Dimensions</i> |                 | <i>6.74</i> | <i>1.41</i>         |                   |                       |                            |
| Professionalism                             | 2               | 6.83        | 1.61                | .89               | n/a                   | n/a                        |
| Civility                                    | 2               | 7.19        | 1.38                | .85               | n/a                   | n/a                        |
| Friendliness                                | 2               | 5.95        | 1.91                | .81               | n/a                   | n/a                        |
| Competence                                  | 2               | 7.00        | 1.64                | .81               | n/a                   | n/a                        |
| <i>Service Quality Scales*</i>              |                 | <i>5.49</i> | <i>.78</i>          |                   |                       |                            |
| Tangibles                                   | 2               | 4.73        | .92                 | .81               | n/a                   | n/a                        |
| Reliability                                 | 3               | 5.68        | 1.00                |                   | .92                   | .71                        |
| Assurance                                   | 2               | 5.86        | 1.12                | .78               | n/a                   | n/a                        |
| Empathy                                     | 2               | 5.66        | 1.20                | .73               | n/a                   | n/a                        |
| Customer Satisfaction                       | 3               | 5.98        | 1.03                |                   | .85                   | .66                        |
| Loyalty to the Organization                 | 4               | 4.48        | 1.20                |                   | .87                   | .72                        |
| Loyalty to the Employee                     | 3               | 4.64        | 1.11                |                   | .76                   | .60                        |

\* Measured on a 9-point scale

In testing for the support of the hypotheses, a structural model was run using LISREL 8.3. The fit indices are in the “Model” row of Table 1. The results are presented diagrammatically in Figure 2. All t-values are significant at the 1% level, except in the relationship between perceptions of service encounter quality and perceptions of service quality. In this case, the t-value is 2.224, which falls just below the critical value of 2.32 for a 1% significance.

Figure 2: Structural Model of Outcomes of Service Encounter Quality

(Please take in Figure 2 about here)

Figure 2 reveals that all hypotheses were supported. Specifically, service encounter quality is positively associated with both service quality and customer satisfaction, confirming the

importance of personal customer-employee interactions in developing positive emotive judgments and longer-term perceptions towards the firm. Customer satisfaction was found to be positively related to service quality and loyalty to the employee. Thus, the emotive aspect of post-purchase evaluation plays a part in enhancing long-term perceptions of the overall organization as well as the commitment to purchasing regularly to the individual with whom the original interaction occurred. In turn, service quality has a positive association with loyalty to the organization. This is an important finding which indicates that the quality of staff-customer interactions does not simply enhance the customer's feelings of loyalty to the individual. This could actually be a dangerous situation particularly in the context of high staff turnover (c.f., Hooks and Higgs, 2002). Rather, satisfactory staff-customer interactions also indirectly influence the extent to which customers feel loyalty towards the organization as a whole. Finally, it was found that loyalty to the employee is also positively related to loyalty to the organization, thus justifying any strategy aiming to increase loyalty to staff, in a business-to-business context.

## **Discussion of Managerial Implications**

### *Service Encounter Quality Measurement*

From a theoretical point of view, the paper fills a research gap in that it represents, to the authors' best knowledge, the first attempt at measuring service encounter quality in a business-to-business context. Our research reveals that service encounter quality as perceived by customers in a business-to-business context is defined by four dimensions: professionalism, civility, friendliness, and competence. This operationalization differentiates from the traditional perspective of service



quality in that it pertains specifically to the inter-personal aspects of customer-supplier interactions, the most critical side of business-to-business exchange (Paulin, Ferguson and Payaud, 2000).

The scale also has a variety of potential managerial applications, in that it can facilitate a business-to-business service encounter quality program through a multitude of methods. First, the dimensional format of the instrument allows the organization to assess its level of service encounter quality in detail, as well as holistically. Thus, the relative importance of the four dimensions of service encounter quality can be determined and used to direct employees to focus on the 'more salient' elements. Second, it can be used to periodically track customer perceptions of service encounter quality of an organization relative to that of its competitors. This may be useful in assessing overall company performance compared with that of the competition. By extension it can be used to gauge effectiveness of changes in service delivery. Third, the instrument can be used to identify dissatisfied customers, so that service recovery can be attempted. Fourth, it can be used to track the level of service provided by individual employees of the service provider organization. An evaluation of employee characteristics in different clusters may reveal attributes that are critical for ensuring high service encounter quality. This can facilitate the appraisal of the service performance of individuals and terms for evaluation, recognition, and rewards. Finally, the scale can be used to categorize an organization's customers into several service encounter quality segments, on the basis of their individual instrument scores. These segments can then be compared and contrasted on characteristics such as firm size, location, business volume, etc. Such a process may allow the service provider to apply the concept of customer orientation by targeting optimal segments more effectively. It may be argued that assessments of service encounter quality would change with time and the nature of the

interaction. Hence the service encounter quality construct is unlikely to be stable and therefore caution should be employed if using it as a valid segmentation criterion. However, services by their very nature are intangible, perishable, inseparable and heterogeneous. Therefore, it is true that with time and the nature of the interaction, assessments of service encounter quality could change. It can also be argued that with the ingredients of time and nature of interaction, any related construct of the service, such as service quality, customer satisfaction, etc. could change. However, it is well-established that assessment scores of service constructs, such as service quality, can be used as an effective tool for segmentation (Parasuraman, Zeithaml and Berry, 1988). In this research, we have demonstrated that there is a significant relationship between service encounter quality and service quality and therefore it is likely that the service encounter quality scale can likewise be used to categorize an organization's customers into segments.

#### *Consequence of Service Encounter Quality*

The theoretical framework tested also raises several challenging implications. Academically, the results lend further strength to established models. Namely, the impact of service quality and satisfaction upon customer loyalty demonstrates the theoretical soundness of the service profit chain (Heskett, Jones, Loveman, Sasser and Schlesinger, 1994; Heskett, Sasser and Schlesinger, 1997). Prior work has supported the service profit chain in banking (Kamakura, Mittal, de Rosa and Mazzon, 2002) and our work lends some strength to its cross-industry and cross-contextual applicability by examining the service profit chain at work in the context of business-to-business services.

In terms of managerial implications, firms may be able to contribute to the achievement of organizational objectives through careful and creative management of the service encounter. In

addition to ascertaining the dimensions of service encounter quality, the research indicates that service encounters have an influence on customer satisfaction, service quality and loyalty to both employees and organizations (the service profit chain). The research suggests that customers perceive service providing employees as the vital link capable of enhancing customer satisfaction and service quality. The advantages accruing to organizations as a result of improved service quality and customer satisfaction are well-documented (Cronin, Brady and Hult, 2000; Heskett, Sasser and Schlesinger, 1997). Perhaps most importantly it is empirically shown that enhanced customer satisfaction leads to improved forms of customer loyalty. Business-to-business customers appear to demonstrate their loyalty on two levels: first, loyalty towards the employee at an individual level, and second, towards the organization as a whole. This is a finding of significant value to business organizations since enhanced loyalty has been recognized as a key strategic competitive weapon.

### **Limitations and suggestions for future research**

When evaluating the results of research it is always pertinent to consider the limitations inherent in the work. Firstly, a longitudinal study could assess causality between constructs in a way the current study cannot; however, the number of respondents in this study and the complicated nature of having to match respondents' answers over a long period of time negated the use of longitudinal work in this instance.

Secondly, the research was conducted in a single industry. While this has the obvious benefits of controlling for cross-industry variation, we must stress that caution be employed if attempting to

generalize these results to other industries. As explained by Drennan and McColl-Kennedy (2003, p. 298), “businesses in the service industry cannot and must not be regarded as the same”. In this context, for service firms characterized by high technology service provision, the importance and repercussions of the personal service encounter may be reduced. Further research into the consequences of service encounter quality in a business-to-business context should thus include the direct replication of the presented structural model in other service industries, employing longitudinal data collection if possible.

Third, the research is of a limited dyadic nature, in that whilst employees and customers were canvassed for measure development, only customers were surveyed for quantitative analytical purposes. Future research work should look to assess both employees’ and customers’ perceptions of service encounter quality.

Fourth, we acknowledge the blossoming stream of literature examining the impact of self-service technology (SST) in service encounter evaluations (e.g., Bitner, Brown and Meuter, 2000; Curran, Meuter and Surprenant, 2003; Meuter, Bitner, Ostrom and Brown, 2005), and suggest that the future researcher in the field of service encounters includes dimensions related to technology in their instrument.

Finally, a study on antecedents to service encounter quality in a business-to-business context is warranted in order to ascertain the relative impact of organizational, environmental, and customer-specific factors on the extent to which business customers perceive service encounter quality to be high. Of particular relevance is the idea of the consumer as a co-producer of the service (Vargo and Lusch, 2004).

Notwithstanding these limitations, the area of service encounter quality in a business-to-business context remains significantly under researched and subsequent work in this important area of the literature is certainly both timely and warranted.

## References

- Anderson, E. W. & Fornell, C. (1994). A Customer Satisfaction Research Prospectus. In R. T. Rust & R. L. Oliver (Eds.), *Service Quality: New Directions in Theory and Practice*. Thousand Oaks, CA: Sage Publications, 241-268.
- Anderson, E. W., Fornell, C., & Lehmann, D. (1994, July). Customer Satisfaction, Market Share and Profitability: Findings from Sweden. *Journal of Marketing*, 58, 53-66.
- Armstrong, J. S. & Overton, T. S. (1977, August). Estimating Nonresponse Bias in Mail Surveys. *Journal of Marketing Research*, 14, 396-402.
- Babakus, E. & Boller, G.W. (1992). An Empirical Assessment of the SERVQUAL Scale. *Journal of Business Research*, 24(3), 253-268.
- Bagozzi, R. P., Baumgartner, H., & Yi, Y. (1992). Appraisal Processes in the Enactment of Intentions to Use Coupons. *Psychology and Marketing*, 9(6), 469-486.
- Bendapudi, N. & Leone, R. P. (2002). Managing Business-to-Business Customer Relationships Following Key Contact Employee Turnover in a Vendor Firm. *Journal of Marketing*, 66(2), 83-102.
- Berry, L. L. (1983). Relationship Marketing. In L. L. Berry, G. L. Shostack, & G. D. Upah (Eds.), *Emerging Perspectives in Services Marketing* (pp. 25-28). Chicago, IL: American Marketing Association.
- Bitner, M. J. (1990). Evaluating Service Encounters: The Effects of Physical Surrounding on Employee Responses. *Journal of Marketing*, 54(2), 69-82.
- Bitner, M. J., Booms, B. H., & Tetrault, M. S. (1990, January). The Service Encounter: Diagnosing Favorable and Unfavorable Incidents. *Journal of Marketing*, 54, 71-84.

- Bitner, M. J., Booms, B. H., & Mohr, L. A. (1994, October). Critical Service Encounters: The Employees' Viewpoint. *Journal of Marketing*, 58, 95-106.
- Bitner, M. J., Brown, S. W., & Meuter, M. L. (2000). Technology Infusion in Service Encounters. *Journal of the Academy of Marketing Science*, 28(1), 138-149.
- Bitran, G. & Lojo, M. (1993). A Framework for Analyzing the Quality of the Customer Interface. *European Management Journal*, 11(4), 385-396.
- Bloemer, J., de Ruyter, K., & Peeters, P. (1998). Investigating Drivers of Bank Loyalty: The Complex Relationship Between Image, Service Quality and Satisfaction. *International Journal of Bank Marketing*, 16(7), 276-286.
- Bolton, R. N. & Drew, J. H. (1991, January). A Longitudinal Analysis of the Impact of Service Changes on Customer Attitudes. *Journal of Marketing*, 55, 1-9.
- Boulding, W., Kalra, A., Staelin, R., & Zeithaml, V. A. (1993, February). A Dynamic Process Model of Service Quality: From Expectations to Behavioral Intentions. *Journal of Marketing Research*, 30, 7-27.
- Brady, M. K., Cronin Jr., J. J., & Brand, R. R. (2002). Performance-only Measurement of Service Quality: A Replication and Extension. *Journal of Business Research*, 55(1), 17-31.
- Brady, M. K. & Robertson, C. J. (2001). Searching for a Consensus on the Antecedent Role of Service Quality and Satisfaction: An Exploratory Cross-National Study. *Journal of Business Research*, 51(1), 53-60.
- Brown, G. H. (1952, 9 June). Brand Loyalty - Fact or Fiction? *Advertising Age*, 23, 53-55.
- Brown, T. J., Churchill, G. A., & Peter, J. P. (1993). Improving the Measurement of Service Quality. *Journal of Retailing*, 69(1), 127-139.
- Brown, S. W., Fisk, R. P., & Bitner, M. J. (1994). The Development and Emergence of Services Marketing Thought. *International Journal of Service Industry Management*, 5(1), 21-48.

- Cadogan, J. W., Paul, N. J., Salminen, R. T., Puumalainen, K. and Sundqvist, S. (2001). Key Antecedents to “Export” Market-Oriented Behaviors: A Cross-National Empirical Examination. *International Journal of Research in Marketing*, 18(3), 261-282.
- Caruana, A. (2002). Service Loyalty: The Effects of Service Quality and the Mediating role of Customer Satisfaction. *European Journal of Marketing*, 36(7/8), 811-828.
- Chandon, J-L., Leo, P-Y., & Philippe, J. (1997). Service Encounter Dimensions – A Dyadic Perspective: Measuring the Dimensions of Service Encounters as Perceived by Customers and Personnel. *International Journal of Service Industry Management*, 8(1), 65-86.
- Chebat, J. & Slusarczyk, W. (2005). How Emotions Mediate the Effects of Perceived Justice on Loyalty in Service Recovery Situations: An Empirical Study. *Journal of Business Research*, 58(5), 664-673.
- Choi, K-S, Cho, W-H, Lee, S., Lee, H., & Kim, C. (2004). The Relationships Among Quality, Value, Satisfaction and Behavioral Intention in Health Care Provider Choice: A South Korean Study. *Journal of Business Research*, 57(8), 913-921.
- Chumpitaz, R. & Paparoidamis, N. G. (2004). Service Quality and Marketing Performance in Business-to-Business Markets: Exploring the Mediating Role of Client Satisfaction. *Managing Service Quality*, 14(2/3), 235-248.
- Churchill, G. A. (1979, February). A Paradigm for Developing Better Measures of Marketing Constructs. *Journal of Marketing Research*, 16, 64-73.
- Churchill, G. A. & Iacobucci, D. (2002, Fall). *Marketing Research Methodological Foundations* (8<sup>th</sup> Ed.), Chicago, IL: Dryden Press.
- Cooper, P. D. & Jackson, R. W. (1988). Applying a Service Marketing Orientation to the Industrial Services Sector. *Journal of Services Marketing*, 2, 66-70.



- Cronin Jr., J. J. & Taylor, S. A. (1992, July). Measuring Service Quality - A Re-Examination and Extension. *Journal of Marketing*, 56, 55-68.
- Cronin Jr., J. J & Taylor, S. A. (1994, January). SERVPERF Versus SERVQUAL: Reconciling Performance-Based and Perceptions-Minus-Expectations Measurement of Service Quality. *Journal of Marketing*, 58, 125-131.
- Cronin Jr., J. J., Brady, M. K., & Hult, G. T. (2000). Assessing the Effects of Quality, Value, and Customer Satisfaction on Consumer Behavioral Intentions in Service Environments. *Journal of Retailing*, 76(2), 193-218.
- Crosby, L. A., Evans, K. R., & Cowles, D. (1990, July). Relationship Quality in Services Selling: An Interpersonal Influence Perspective. *Journal of Marketing*, 54, 68-81.
- Curasi, C. F. & Kennedy, K. N. (2002). From Prisoners to Apostles: A Typology of Repeat Buyers and Loyal Customers in Service Businesses. *Journal of Services Marketing*, 16(4), 322-342.
- Curran, J. M., Meuter, M. L., & Suprenant, C. F. (2003). Intentions to Use Self-Service Technologies: A Confluence of Multiple Attitudes. *Journal of Service Research*, 5(3), 209-224.
- Czepiel, J. A. (1990). Service Encounters and Service Relationships: Implications for Research. *Journal of Business Research*, 20(1), 13-21.
- Czepiel, J., Solomon, M., & Surprenant, C. (1985). *The Service Encounter*, Lexington, MA: Lexington Books.
- Dabholkar, P. A., Shepherd, C. D., & Thorpe, D. I. (2000). A Comprehensive Framework for Service Quality: An Investigation for Critical Conceptual and Measurement Issues Through a Longitudinal Study. *Journal of Retailing*, 76(2), 139-173.

- Danaher, P. J. & Mattsson, J. (1994). Cumulative Encounter Satisfaction in the Hotel Conference Process. *International Journal of Service Industry Management*, 5(4), 69-80.
- Day, G. S. (1969, September). A Two-Dimensional Concept of Brand Loyalty. *Journal of Marketing Research*, 9, 29-36.
- Drennan, J. & McColl-Kennedy, J. R. (2003). The Relationship between Internet Use and Perceived Performance in Retail and Professional Service Firms. *Journal of Services Marketing*, 17(2/3), 295-312.
- Dubinsky, A. J., Howell, R. D., Ingram, T. N., & Bellenger, D. N. (1986, October). Salesforce Socialization. *Journal of Marketing*, 50, 192-207.
- Durvasula, S., Lysonski, S., & Mehta, S. C. (1999). Testing the SERVQUAL Scale in the Business-to-Business Sector: The Case of Ocean Freight Shipping Service. *Journal of Services Marketing*, 13(2), 132-148.
- Engel, J. F. & Blackwell, R. D. (1982). *Consumer Behavior*, New York: The Dryden Press.
- Farrell, A. M., Souchon, A. L., & Durden, G. R. (2001). A Conceptualisation of Service Encounters: Employees' Service Behaviours and Customers' Perceptions of Service Quality. *Journal of Marketing Management*, 17(5/6), 577-594.
- Fisher, R. J. (1991). Durable Differentiation Strategies for Services. *Journal of Services Marketing*, 5(1), 19-28.
- Fornell, C. & Larcker, D. F. (1981, February). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18, 39-50.
- Fournier, S. & Mick, D. G. (1999, October). Rediscovering Satisfaction. *Journal of Marketing*, 63, 5-24.

- Fullerton, G. (2003). When does Commitment lead to Loyalty? *Journal of Services Research*, 5(4), 333-345.
- González, E. A., Fraiz Brea, J. A., & Castro, A. M. (2005). An Investigation of the Relationship Between Service Quality, Satisfaction and Behavioural Intentions: The Case of Health Spas in Spain, in G. Troilo (Ed.) *Proceedings of the 34<sup>th</sup> European Marketing Academy Conference (EMAC)*, 24-27 May, Milan, Italy.
- Gounaris, S. P. (2005). Trust and Commitment Influences on Customer Retention: Insights from Business-to-Business Services. *Journal of Business Research*, 58(2), 126-140.
- Gronroos, C. (1982). A Service Quality Model and Its Management Implications, Research Report. Workshop on Research into the Management of Services, London, UK: European Institute for Advanced Studies in Management (EIASM).
- Gronroos, C. (1984). A Service Quality Model and its Marketing Implications. *European Journal of Marketing*, 18(4), 36-44.
- Hardy, L.W. (1978). The Sales Force: Structures and Organization. *European Journal of Marketing*, 12(6), 381-393.
- Hartline, M. D. & Ferrell, O. C. (1996, October). The Management of Customer-Contact Service Employees: An Empirical Investigation. *Journal of Marketing*, 60(4), pp. 52-70.
- Hartline, M. D. & Jones, K. C. (1996). Employee Performance Cues in a Hotel Service Environment: Influence on Perceived Service Quality, Value, and Word-of-Mouth Intentions. *Journal of Business Research*, 35(3), 207-215.
- Hartline, M. D., Woolridge, B. R., & Jones, K. C. (2003). Guest Perceptions of Hotel Quality: Determining which Employee Groups Count Most. *Cornell Hotel and Administration Quarterly*, 44(1), 43-53.

- Heskett, J. L., Jones, T. O., Loveman, G. W., Sasser Jr., W. E., & Schlesinger, L. A. (1994). Putting the Service-Profit Chain to Work. *Harvard Business Review*, March-April, 164-174.
- Heskett, J. L., Sasser Jr., W. E., & Schlesinger, L. A. (1997). *The Service Profit Chain: How Leading Companies Link Profit and Growth to Loyalty, Satisfaction, and Value*, New York: Free Press.
- Hoffman, K. D., Kelley, S. W., & Rotalsky, H. M. (1995). Tracking Service Failures and Employee Recovery Efforts. *Journal of Services Marketing*, 9(2), 49-62.
- Homburg, C. & Pflesser, C. (2000). A Multiple-Layer Model of Market-Oriented Organizational Culture: Measurement Issues and Performance Outcomes. *Journal of Marketing Research*, 37(4), 449-462.
- Hooks, K. L. & Higgs, J. L. (2002). Workplace Environment in a Professional Services Firm. *Behavioral Research in Accounting*, 14, 105-128.
- Host, V. & Knie-Andersen, M. (2004). Modeling Customer Satisfaction in Mortgage Credit Companies. *International Journal of Bank Marketing*, 22(1), 26-39.
- Hu, L-T. & Bentler, P. M. (1999). Cutoff Criteria for Fit Indices in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1-55.
- Jacoby, J. & Chestnut, R. W. (1978). *Brand Loyalty: Measurement and Management*. New York: John Wiley and Sons.
- Jammernegg, W. & Kischka, P. (2005). Dynamic Customer-Oriented Improvement of Supply Networks. *European Journal of Operational Research*, 167(2), 413-426.
- Kamakura, W. A., Mittal, V., de Rosa, F., & Mazzon, J. A. (2002). Assessing the Service-Profit Chain. *Marketing Science*, 21(3), 294-317.

- Keillor, B. D., Hult, G. T., & Kandemir, D. (2004). A Study of the Service Encounter in Eight Countries. *Journal of International Marketing*, 12(1), 9-35.
- Kelley, S. W. & Davis, M. A. (1994). Antecedents to Customer Expectations for Service Recovery. *Journal of Academy of Marketing Science*, 22(1), 52-61.
- Kong, R. & Mayo, M. C. (1993). Measuring Service Quality in the Business-to-Business Context. *Journal of Business & Industrial Marketing*, 8(2), 5-15.
- Kuehn, A. (1962, March-April). Consumer Brand Choice as a Learning Process. *Journal of Advertising Research*, 2, 10-17.
- Laroche, M., Ueltschy, L. C., Abe, S., Cleveland, M., & Yannopoulos, P. (2004). Service Quality Perceptions and Customer Satisfaction: Evaluating the Role of Culture. *Journal of International Marketing*, 12(3), 58-85.
- Lemmink, J. & Mattsson, J. (2002). Employee Behavior, Feelings of Warmth and Customer Perception in Service Encounters. *International Journal of Retail and Distribution Management*, 30(1), 18-34.
- Lewis, R. C. & Booms, B. H. (1983). The Marketing Aspects of Service Quality. In L. L. Berry, G. L. Shostack & G. D. Upah (Eds.), *Emerging Perspectives in Services Marketing* (pp. 99-107). Chicago, IL: American Marketing Association.
- Liljander, V. & Mattsson, J. (2002, October). Impact of Customer Preconsumption Mood on the Evaluation of Employee Behavior in Service Encounters. *Psychology and Marketing*, 19, 837-847.
- Mattila, A. S., & Enz, C. A. (2002). The Role of Emotions in Service Encounters. *Journal of Service Research*, 4(4), 268-278.
- Mattsson, J. (2000). Learning how to Manage Technology in Service Internationalisation. *Service Industries Journal*, 22(1), 22-40.

- McAlexander, J. H., Kim, S. K., & Roberts, S. D. (2003). Loyalty: The Influences of Satisfaction and Brand Community Integration. *Journal of Marketing Theory and Practice*, 11(4), 1-12.
- McNamara, C. P. (1972, January). The Present Status of the Marketing Concept. *Journal of Marketing*, 36, 50-62.
- Mehta, S. C., & Durvasula, S. (1998). Relationships between SERVQUAL Dimensions and Organizational Performance in the Case of Business-to-Business Service. *Journal of Business and Industrial Marketing*, 13(1), 40-55.
- Meuter, M. L., Bitner, M. J., Ostrom, A. L., & Brown, S. W. (2005, April). Choosing Among Alternative Service Delivery Modes: An Investigation of Customer Trial of Self-Service Technologies. *Journal of Marketing*, 69, 61-83.
- Meuter, M. L., Ostrom, A. L., Bitner, M. J., & Roundtree, R. I. (2003). The Influence of Technology Anxiety on Consumer Use and Experiences with Self-Service Technologies. *Journal of Business Research*, 56(11), 899-906.
- Meuter, M. L., Ostrom, A. L., Roundtree, R. I., & Bitner, M. J. (2000, July). Self-Service Technologies: Understanding Customer Satisfaction with Technology-Based Service Encounters. *Journal of Marketing*, 64, 50-64.
- Miciak, A. & Desmarais, M. (2001). Benchmarking Service Quality Performance at Business-to-Business and Business-to-Consumer Call Centers. *Journal of Business and Industrial Marketing*, 16(5), 340-354.
- Miles, M. B. & Huberman, A. M. (1984). *Qualitative Data Analysis: A Sourcebook of New Methods*. London: Sage.
- Mill, R. C. (1986). Managing the Service Encounter. *Cornell Hotel and Restaurant Administrative Quarterly*, 26(4), 39-46.

- Morgan, R. M. & Hunt, S. D. (1994). The Commitment-Trust Theory of Relationship Marketing. *Journal of Marketing*, 58(3), 20-38.
- Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The Measurement of Organizational Commitment. *Journal of Vocational Behavior*, 14, 224-247.
- Namasivayam, K. & Hinkin, T. R. (2003). The Customer's Role in the Service Encounter: The Effects of Control and Fairness. *Cornell Hotel and Restaurant Administration Quarterly*, 44(3), 26-34.
- Nunnally, J. C. & Bernstein, I. H. (1994). *Psychometric Theory* (3<sup>rd</sup> Ed.). New York: McGraw-Hill.
- Oliver, R. L. (1997). *Satisfaction: A Behavioral Perspective on the Consumer*. New York: McGraw Hill.
- Oliver, R. L., Rust, R. T., & Varki, S. (1997). Customer Delight: Foundations, Findings, and Managerial Insight. *Journal of Retailing*, 73(3), 311-336.
- Parasuraman, A. (1998). Customer Service in Business-to-Business Markets: An Agenda for Research. *Journal of Business & Industrial Marketing*, 13(4/5), 309-321.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985, Fall). A Conceptual Model of Service Quality and its Implications for Future Research. *Journal of Marketing*, 49, 41-50.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing*, 64(1), 12-40.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1991). Refinement and Reassessment of the SERVQUAL Scale. *Journal of Retailing*, 67(4), 420-450.

- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1994, January). Reassessment of Expectations as a Comparison Standard in Measuring Service Quality: Implications for Further Research. *Journal of Marketing*, 58, 114-124.
- Paulin, M., Ferguson, R. J., & Payaud, M. (2000). Business Effectiveness and Professional Service Personnel – Relational or Transactional Managers? *European Journal of Marketing*, 34(3/4), 453-469.
- Prakash, V. (1984, Fall). Validity and Reliability of the Confirmation of Expectations Paradigm as a Determinant of Consumer Satisfaction. *Journal of the Academy of Marketing Science*, 12, 63-76.
- Raajpoot, N. (2004). Reconceptualizing Service Encounter Quality in a Non-Western Context. *Journal of Service Research*, 7(2), 181-201.
- Rust, R. T. & Oliver, R. L. (1994). *Service Quality: New Directions in Theory and Practice*. London: Sage.
- Schellhase, R., Hardock, P., & Ohlwein, M. (1999). Customer Satisfaction in Business-to-Business Marketing: The Case of Retail Organizations and Their Suppliers. *Journal of Business & Industrial Marketing*, 14(5/6), 416-432.
- Shostack, G. L. (1985). Planning the Service Encounter. In J. A. Czepiel, M. R. Solomon, & C. F. Suprenant (Eds.), *The Service Encounter* (pp. 243-254). Lexington, MA: Lexington Books.
- Stauss, B. & Mang, P. (1999). 'Culture Shocks' in Inter-Cultural Service Encounters? *Journal of Services Marketing*, 13(4/5), 329-349.
- Surprenant, C. F. & Solomon, M. R. (1987, April). Predictability and Personalization in the Service Encounter. *Journal of Marketing*, 51, 73-80.
- Swan, J. E. & Trawick, F. I. (1981, Fall). Disconfirmation of Expectations and Satisfaction with a Retail Service. *Journal of Retailing*, 57, 49-67.



- Szymanski, D. M. & Henard, D. H. (2001). Customer Satisfaction: A Meta-Analysis of the Empirical Evidence. *Journal of the Academy of Marketing Science*, 29(1), 16-35.
- Teas, R. K. (1993, October). Expectations, Performance Evaluation, and Consumers' Perceptions of Quality. *Journal of Marketing*, 57, 18-34.
- Teas, R. K. (1994, January). Expectations as a Comparison Standard in Measuring Service Quality: An Assessment of a Reassessment. *Journal of Marketing*, 58, 132-139.
- The World Bank (2004). The Growth of the Service Sector.  
[http://www.worldbank.org/depweb/english/beyond/beyondco/beg\\_09.pdf](http://www.worldbank.org/depweb/english/beyond/beyondco/beg_09.pdf)  
 [Accessed 13/06/04].
- Tian-Cole, S., Crompton, J. L., & Willson, V. L. (2002). An Empirical Investigation of the Relationships Between Service Quality, Satisfaction and Behavioral Intentions among Visitors to a Wildlife Refuge. *Journal of Leisure Research*, 34(1), 1-24.
- Too, L. H. Y., Souchon, A. L., & Thirkell, P. C. (2001). Relationship Marketing and Customer Loyalty in a Retail Setting: A Dyadic Exploration. *Journal of Marketing Management*, 17(3/4), 287-319.
- Vargo, S. L., & Lusch, R. F. (2004). Evolving to a New Dominant Logic for Marketing. *Journal of Marketing*, 68(1), 1-17.
- Voss, C. A., Roth, A. V., Rosenzweig, E. D., Blackmon, K. & Chase, R. B. (2004). A Tale of two Countries' Conservatism, Service Quality, and Feedback on Customer Satisfaction. *Journal of Service Research*, 6(3), 212-231.
- Westbrook, R. A. (1987, August). Product/Consumption-Based Affective Responses and Postpurchase Processes. *Journal of Marketing Research*, 24, 258-270.
- Westbrook, K. W. & Peterson, R. M. (1998). Business-to-Business Selling Determinants of Quality. *Industrial Marketing Management*, 27(1), 51-62.

- Winsted, K. F. (2000). Service Behaviors that Lead to Satisfied Customers. *European Journal of Marketing*, 34(3/4), 399-417.
- Witkowski, T.H. & Wolfinbarger, M.F. (2002). Comparative Service Quality: German and American Ratings Across Service Settings. *Journal of Business Research*, 55(11), 875-881.
- Yi, Y. (1990). A Critical Review of Consumer Satisfaction. In V. A. Zeithaml (Ed), *Review of Marketing 1990*. Chicago: American Marketing Association.
- Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996, April). The Behavioral Consequences of Service Quality. *Journal of Marketing*, 60, 31-46.
- Zeithaml, V.A. & Bitner, M.J. (2003). *Services Marketing: Integrating Customer Focus Across The Firm*. New York: McGraw-Hill.

## APPENDIX A: A COMPARISON OF EARLY AND LATE RESPONDENTS

The sample was split so that two groups of roughly equal sizes (both 20% of the total sample) were derived. The first group comprised the respondents who replied the earliest, and the second group was made up of the respondents who replied the latest. The t-tests compare the means of both groups for the 5 scales used in the study. Subsequent to a Levene test for equality of variances, the latter was not assumed.

| Scale | Groups | N  | Mean    | Std. dev | $\Delta$ mean | t     | df      | Sig  |
|-------|--------|----|---------|----------|---------------|-------|---------|------|
| SQ    | E      | 56 | -10.839 | 15.686   | -.639         | -.226 | 103.795 | .821 |
|       | L      | 50 | -10.200 | 13.380   |               |       |         |      |
| SEQ   | E      | 61 | -13.098 | 42.356   | 3.985         | .513  | 104.658 | .609 |
|       | L      | 48 | -17.083 | 38.601   |               |       |         |      |
| SAT   | E      | 61 | 47.033  | 9.092    | 1.706         | 1.070 | 107.785 | .287 |
|       | L      | 49 | 45.327  | 7.622    |               |       |         |      |
| CLO   | E      | 59 | 63.593  | 15.385   | 4.873         | 1.760 | 106.852 | .081 |
|       | L      | 50 | 58.720  | 13.512   |               |       |         |      |
| ILO   | E      | 56 | 63.268  | 14.483   | 4.205         | 1.402 | 96.164  | .164 |
|       | L      | 48 | 59.063  | 15.874   |               |       |         |      |

Key:

SQ: service quality

SEQ: service encounter quality

SAT: customer satisfaction

CLO: loyalty to the organization

ILO: loyalty to the individual

E: early respondent group

L: late respondent group

N: sample size

Std dev: standard deviation

df: degree of freedom

Sig: significance

## **APPENDIX B: SCALE INFORMATION WITH COMPLETELY STANDARDIZED LOADINGS (LAMBDA-X)**

### **Service Encounter Quality Perceptions**

During your most recent service encounter with a XYZ contact person, you found them to...

#### **Professionalism:**

- Focus on not being pushy (SEQ06, .874)
- Focus on not being condescending in their communication (SEQ21, .918)

#### **Civility:**

- Be coherent in their communication (SEQ17, .837)
- Be courteous (SEQ37, .886)

#### **Friendliness:**

- Show familiarity to you during the service encounter (SEQ34, .918)
- Build a friendly relationship with you (SEQ35, .745)

#### **Competence:**

- Be informative in their interaction (SEQ01, .938)
- Be in possession of the necessary qualifications for conducting the required service (SEQ26, .765)

### **Service Quality Perceptions** (Items adopted from Parasuraman, Zeithaml, and Berry, 1988)

#### **Tangibles:**

- XYZ's physical facilities are visually appealing (SQ02, .799)
- The appearance of the physical facilities of XYZ is in keeping with the type of services provided (SQ04, .886)

#### **Reliability:**

- When XYZ promises to do something by a certain time, it does so (SQ06, .971)
- When you have problems, XYZ is sympathetic and reassuring (SQ07, .852)
- XYZ is dependable (SQ05, .862)

#### **Assurance:**

- You can trust employees of XYZ (SQ14, .767)
- Employees of XYZ are polite (SQ16, .867)

#### **Empathy:**

- Employees of XYZ do not give you personal attention (SQ19, .807)
- Employees of XYZ do not know what your needs are (SQ20, .757)

**Customer Satisfaction** (Items adopted from Oliver, 1997)

I am satisfied with XYZ's...

- Level of knowledge of the product(s) serviced (CS06, .798)
- Contact person's commitment to providing a high level of service (CS07, .868)
- Information provided by the contact person on product usage (CS08, .752)

**Firm Loyalty** (Items adopted from Mowday, Steers and Porter, 1979)

- I am willing to put in extra effort to receive services from XYZ (CLO01, .784)
- I am proud to tell others that I purchase service provision from XYZ (CLO06, .853)
- XYZ stimulates me to buy from XYZ repeatedly (CLO08, .771)
- For me, XYZ is the best possible organization to buy service provision from (CLO14, .771)

**Individual Loyalty** (Items adopted from Mowday, Steers and Porter, 1979)

- My values and the values of my current contact person are very similar (ILO05, .706)
- I am extremely glad that I chose my current contact person over other (ILO10, .649)
- I really care about the fate of my current contact person (ILO12, .780)

## APPENDIX C: CORRELATION AND COVARIANCE MATRICES

Key:

SQ : service quality  
 SEQ : service encounter quality  
 CUS\_SAT : customer satisfaction  
 LOY\_ORG : loyalty to the organization  
 LOY\_IND : loyalty to the individual

All correlations in the tables below are significant at .000.

### CORRELATIONS OF SCALES:

|         |      |      |         |         |
|---------|------|------|---------|---------|
| SEQ     | .671 |      |         |         |
| CUS_SAT | .660 | .710 |         |         |
| LOY_ORG | .634 | .586 | .613    |         |
| LOY_IND | .564 | .588 | .563    | .701    |
|         | SQ   | SEQ  | CUS_SAT | LOY_ORG |

### COVARIANCES OF SCALES:

|         |      |       |         |         |         |
|---------|------|-------|---------|---------|---------|
| SQ      | .611 |       |         |         |         |
| SEQ     | .739 | 1.984 |         |         |         |
| CUS_SAT | .529 | 1.025 | 1.051   |         |         |
| LOY_ORG | .595 | .990  | .754    | 1.440   |         |
| LOY_IND | .490 | .920  | .641    | .934    | 1.233   |
|         | SQ   | SEQ   | CUS_SAT | LOY_ORG | LOY_IND |

### CORRELATIONS OF ITEMS:

|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
| SQ04  | 0.673 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SQ06  | 0.392 | 0.432 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SQ07  | 0.433 | 0.422 | 0.692 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SQ05  | 0.389 | 0.428 | 0.649 | 0.726 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SQ14  | 0.353 | 0.280 | 0.428 | 0.535 | 0.427 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SQ16  | 0.344 | 0.334 | 0.498 | 0.534 | 0.446 | 0.626 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SQ19  | 0.283 | 0.298 | 0.544 | 0.526 | 0.535 | 0.439 | 0.459 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SQ20  | 0.262 | 0.282 | 0.516 | 0.471 | 0.507 | 0.402 | 0.391 | 0.641 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SEQ06 | 0.261 | 0.375 | 0.477 | 0.496 | 0.459 | 0.367 | 0.433 | 0.379 | 0.432 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SEQ21 | 0.329 | 0.415 | 0.520 | 0.512 | 0.475 | 0.421 | 0.437 | 0.400 | 0.449 | 0.821 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SEQ17 | 0.271 | 0.290 | 0.487 | 0.470 | 0.461 | 0.348 | 0.401 | 0.382 | 0.380 | 0.633 | 0.684 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SEQ37 | 0.253 | 0.283 | 0.452 | 0.468 | 0.407 | 0.328 | 0.455 | 0.354 | 0.400 | 0.664 | 0.678 | 0.760 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SEQ34 | 0.324 | 0.330 | 0.542 | 0.489 | 0.421 | 0.447 | 0.446 | 0.402 | 0.437 | 0.637 | 0.652 | 0.525 | 0.629 |       |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SEQ35 | 0.303 | 0.334 | 0.380 | 0.388 | 0.365 | 0.342 | 0.392 | 0.289 | 0.250 | 0.567 | 0.575 | 0.453 | 0.529 | 0.683 |       |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SEQ01 | 0.313 | 0.362 | 0.452 | 0.540 | 0.477 | 0.411 | 0.438 | 0.400 | 0.442 | 0.655 | 0.691 | 0.659 | 0.692 | 0.633 | 0.483 |       |       |       |       |       |       |       |       |       |       |       |  |  |
| SEQ26 | 0.318 | 0.376 | 0.476 | 0.489 | 0.492 | 0.334 | 0.395 | 0.394 | 0.445 | 0.546 | 0.541 | 0.551 | 0.547 | 0.506 | 0.402 | 0.734 |       |       |       |       |       |       |       |       |       |       |  |  |
| CS06  | 0.297 | 0.296 | 0.528 | 0.563 | 0.513 | 0.402 | 0.459 | 0.413 | 0.423 | 0.523 | 0.546 | 0.557 | 0.528 | 0.503 | 0.445 | 0.558 | 0.590 |       |       |       |       |       |       |       |       |       |  |  |
| CS07  | 0.307 | 0.316 | 0.558 | 0.604 | 0.520 | 0.462 | 0.488 | 0.497 | 0.446 | 0.513 | 0.548 | 0.511 | 0.538 | 0.573 | 0.445 | 0.521 | 0.499 | 0.684 |       |       |       |       |       |       |       |       |  |  |
| CS08  | 0.367 | 0.298 | 0.546 | 0.543 | 0.479 | 0.353 | 0.402 | 0.424 | 0.414 | 0.398 | 0.476 | 0.393 | 0.379 | 0.507 | 0.362 | 0.471 | 0.499 | 0.625 | 0.657 |       |       |       |       |       |       |       |  |  |
| CLO01 | 0.335 | 0.317 | 0.477 | 0.483 | 0.406 | 0.358 | 0.356 | 0.317 | 0.374 | 0.367 | 0.422 | 0.354 | 0.421 | 0.482 | 0.389 | 0.358 | 0.376 | 0.433 | 0.479 | 0.429 |       |       |       |       |       |       |  |  |
| CLO06 | 0.393 | 0.361 | 0.521 | 0.507 | 0.438 | 0.333 | 0.384 | 0.362 | 0.385 | 0.361 | 0.457 | 0.355 | 0.339 | 0.444 | 0.375 | 0.406 | 0.408 | 0.503 | 0.543 | 0.542 | 0.686 |       |       |       |       |       |  |  |
| CLO08 | 0.345 | 0.359 | 0.464 | 0.458 | 0.384 | 0.313 | 0.342 | 0.300 | 0.390 | 0.360 | 0.382 | 0.338 | 0.363 | 0.457 | 0.359 | 0.371 | 0.347 | 0.421 | 0.433 | 0.384 | 0.555 | 0.603 |       |       |       |       |  |  |
| CLO14 | 0.383 | 0.350 | 0.478 | 0.456 | 0.408 | 0.358 | 0.334 | 0.410 | 0.346 | 0.327 | 0.380 | 0.318 | 0.314 | 0.388 | 0.318 | 0.354 | 0.393 | 0.370 | 0.478 | 0.401 | 0.557 | 0.638 | 0.554 |       |       |       |  |  |
| ILO05 | 0.282 | 0.308 | 0.471 | 0.404 | 0.332 | 0.397 | 0.324 | 0.351 | 0.388 | 0.395 | 0.371 | 0.392 | 0.327 | 0.473 | 0.330 | 0.382 | 0.407 | 0.399 | 0.410 | 0.365 | 0.457 | 0.466 | 0.452 | 0.457 |       |       |  |  |
| ILO10 | 0.336 | 0.229 | 0.405 | 0.375 | 0.327 | 0.248 | 0.248 | 0.270 | 0.239 | 0.354 | 0.333 | 0.378 | 0.331 | 0.402 | 0.396 | 0.344 | 0.395 | 0.372 | 0.359 | 0.367 | 0.385 | 0.433 | 0.505 | 0.503 | 0.456 |       |  |  |
| ILO12 | 0.368 | 0.316 | 0.491 | 0.441 | 0.359 | 0.370 | 0.282 | 0.331 | 0.252 | 0.325 | 0.373 | 0.294 | 0.307 | 0.506 | 0.378 | 0.337 | 0.338 | 0.369 | 0.409 | 0.356 | 0.532 | 0.511 | 0.513 | 0.535 | 0.524 | 0.567 |  |  |
|       | SQ02  | SQ04  | SQ06  | SQ07  | SQ05  | SQ14  | SQ16  | SQ19  | SQ20  | SEQ06 | SEQ21 | SEQ17 | SEQ37 | SEQ34 | SEQ35 | SEQ01 | SEQ26 | CS06  | CS07  | CS08  | CLO01 | CLO06 | CLO08 | CLO14 | ILO05 | ILO10 |  |  |

Figure 1: Conceptual Model

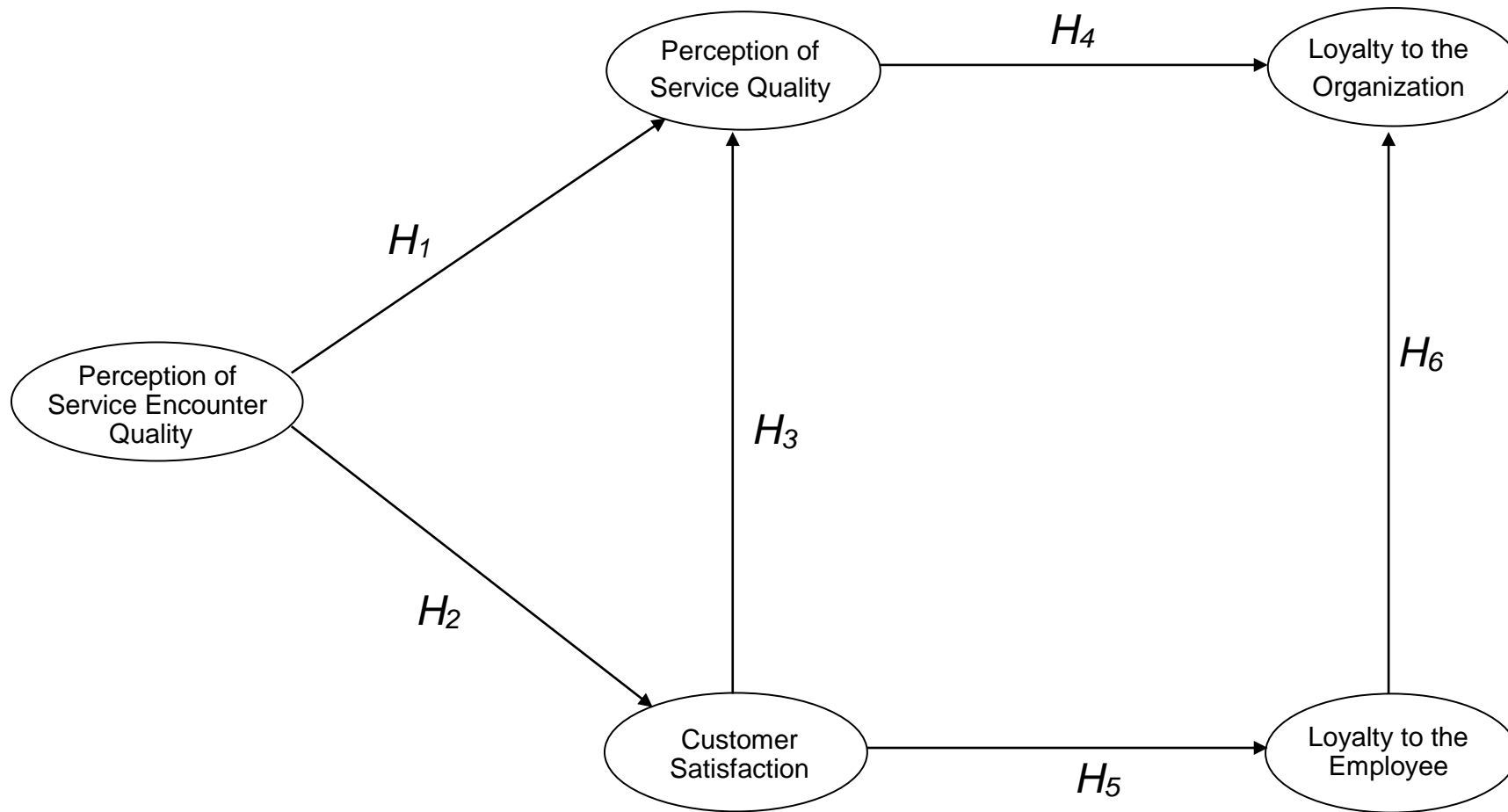




Figure 2: Structural Model

