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## Attributes of Service Delivery Modes and their Impact on Consumer Satisfaction

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### Abstract

Consumer satisfaction is fundamental to organisational success. It is well recognised that personal service is important in achieving consumer satisfaction. However, the application of self-service technology (SST) is widening and is attenuating traditional exchanges between consumers and service employees. The effect of this reduction of personal service on consumer satisfaction judgements is not well understood. This study addresses this gap by investigating the relative effects of SST and personal service attributes on overall consumer satisfaction. The study highlights important service attributes applicable to SST and personal service. The conceptual framework is tested using data collected from 241 leisure and business travellers drawn from premium hotels in a regional area. Structural equation modelling techniques support the conceptual framework. As expected, the attributes of personal service and SST contribute to consumer satisfaction. However, the impact of personal service attributes on consumer satisfaction is much stronger than the effects of SST attributes. Though SST is an important determinant of consumer satisfaction, interactions with staff are critical. These results have applications for the theory and practice of services marketing, and highlight avenues for further investigation.

Keywords: Consumer satisfaction, personal service, self-service technology.

### Introduction

Technology is altering the manner in which business is conducted. A critical example is the widespread introduction of self-service technology (SST) (Parasuraman, 2000). Self-service technology is broadly defined as technology that enables consumers to complete service encounters without the aid of service employees (Meuter *et al.*, 2000). Examples of SST include Automatic Teller Machines, Pay at the Pump petrol facilities, E-ticketing in transit lounges and automated check-out facilities in hotels. Traditionally, the consumer interacts with a service employee who will complete the service for the consumer. SST is in part or entirely removing the employee from the service encounter. This reduction in personal service has profound implications for services marketing (Bitner, Brown and Meuter, 2000; Parasuraman, 2000).

The service encounter is key to consumers' assessments of the firm (Zeithaml, 1981). Previous research has identified the importance of personal interactions in satisfying consumers (Bitner, 1990; Bitner, Brown and Meuter, 2000; Czepiel, 1990). Consumer satisfaction with service firms may change as SST is introduced. At present, the effect of SST on consumers' satisfaction assessments is largely unknown (Meuter *et al.*, 2000; Parasuraman and Grewal, 2000). This paper extends the services literature by examining the effect of service delivery modes (personal service versus SST) on overall consumer satisfaction. In addition, this paper identifies key service delivery attributes of both personal service and SST. Knowledge of these attributes is key to expertly delivering customer service.

## Conceptual Framework

Organisations place a great deal of emphasis on achieving high levels of consumer satisfaction. It is an important corporate goal and is especially important for service organisations because of the inherent characteristics of services. Consumer satisfaction is important to managers because of its links with firm profitability (Anderson, Fornell and Lehmann, 1994; Yi, 1990). Given the importance of satisfaction to service organisations, it is important that the effect of SST on consumer satisfaction is understood (Meuter *et al.* 2000). Essentially, this study examines the inter-relationships between overall consumer satisfaction, personal service attributes and SST attributes. The conceptual framework for the current study is illustrated in Figure 1. It is argued that overall consumer satisfaction is influenced by personal service attributes and by SST attributes. Understanding their relative impact on consumer satisfaction is the primary contribution of this paper.

Several recent studies have identified various service attributes as direct antecedents of satisfaction (Mittal, Ross and Baldasare, 1998; Oliver, 1993; Spreng, MacKenzie, and Oishavsky, 1996; Voss, Parasuraman and Grewal, 1998). Identifying the drivers of satisfaction is of particular importance to service managers. It is important to managers because understanding the attributes that drive satisfaction helps identify areas for management intervention (Garbarino and Johnson, 1999). Rust, Zoharik and Keiningham (1995) argue that consumer satisfaction measures should concentrate on manageable attributes, as they enable the organisation to identify and thus focus on performance indicators that can be managed and manipulated.

Cronin and Taylor (1992) suggest that as attributes are not consistent across industries, each industry should focus on the attributes which are pertinent to their own unique circumstances. Given that Cronin and Taylor (1992) indicated that attributes would differ across industries, it may also be assumed that attributes will differ across service delivery mode (SST and personal service). It is therefore important that the attributes applicable to the two service delivery modes are highlighted. This is a main purpose of this paper and will enable organisations to tailor services to meet the needs of consumers and boost satisfaction. Identifying the primary attributes of the two service delivery modes will also enable organisations to understand the drivers of each service delivery mode. This information is important for planning and managing service encounters.

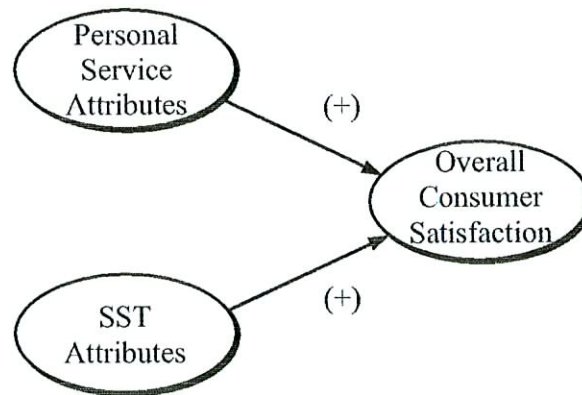
Overall consumer satisfaction is defined as consumers' evaluations of their experiences with a service provider that accumulates over time (Garbarino and Johnson, 1999). It is argued that overall consumer satisfaction is relatively stable over time and is similar to an enduring attitude (Parasuraman, Zeithaml and Berry, 1994). Personal service refers to customer service provided by frontline employees. This construct can be measured by rating the firm's performance along key personal service attributes. SST is defined as customer interactions with technology and technological interfaces, rather than interactions with frontline staff. Again, this construct can be captured by customers' ratings of key SST attributes. Past research has investigated the effect of personal service attributes on consumer satisfaction. However, there has been little research on the impact of SST on consumer satisfaction, and fewer studies of the relative impact of personal service versus SST attributes. An exception is Meuter *et al.* (2000). However, these authors collected empirical data on SST attributes only, with the personal service attributes drawn from other researchers. In the current study, positive relationships between personal service attributes and SST attributes and overall

consumer satisfaction are expected. However, their relative contribution to overall consumer satisfaction is unclear.

H<sub>1</sub>: Personal service attributes will have a positive effect on overall consumer satisfaction.

H<sub>2</sub>: Self-service technology attributes will have a positive effect on overall consumer satisfaction.

**Figure 1. Conceptual Framework of Overall Consumer Satisfaction**



### **Research Methodology**

The research setting for the study was hotels in a regional area. Examples of self-service technology used during hotel stays include: automated check-in and check-out facilities; automated room service ordering systems; automated message services; and automated house keeping services. Respondents for the study included leisure and business travellers. Three premium hotels participated in the fieldwork by distributing survey packets to guests over a two-month period. This followed a random sampling approach. The survey packets included a cover letter from the researcher explaining the study, a self-completed questionnaire and a reply-paid envelope. Approximately 1,000 survey packets were distributed and a total of 241 usable surveys were returned. The effective response rate was approximately 25%. Demographically, there was a 50% male/female respondent split. The average age of respondents was 41 years (std. dev. = 15 years). The majority of respondents had completed at least senior high school. The respondents' average income was \$71,000 per annum (std. dev. = \$110,000). The sampling strategy was successful in generating responses that differed greatly.

The measures for the theoretical constructs were based on previous research in marketing and through a series of depth interviews with business travellers. The overall consumer satisfaction scale was based on items used by Ganesan (1994), and items developed specifically for this research that were relevant to the research context. Respondents were asked to describe their feelings about their overall experience with their last stay in their main hotel. Examples of items included, satisfied/dissatisfied, exploited/rewarded, happy/sad, and pleased/displeased. These items were captured using a five point semantic differential scale. The personal service attributes were derived from past studies in marketing (Bitner 1990; Goodwin and Gremler, 1996; Ostrom and Iacobucci, 1995), and shaped in part by the depth interview results. Respondents were asked to rate the performance of hotel staff during their

last stay at their main hotel. Examples of key attributes include: friendly, responsive, prompt, informative, trustworthy and professional. The SST attributes were selected from previous studies by Dabholkar (1996), Meuter *et al.* (2000) and Walker *et al.* (2000) and, again, the depth interviews. Respondents were asked to rate the performance of the SST during their last stay at their main hotel. Examples of attributes include: reliable, easy to use, user control, enjoyable, low risk and convenient. Both service attribute scales were captured using a five point Likert scale with anchors "1 = poor" and "5 = excellent." The survey was pre-tested following Anderson and Gerbing's (1991) substantive validity test.

## Results

A two-step approach was used to estimate the model of Figure 1, similar to the procedure described by Anderson and Gerbing (1988). Initially, the set of items for each construct was analysed separately, to show that a one-factor model fit the data (Joreskog and Sorbom, 1996). The final number of items in each scale, goodness of fit statistics and the reliability estimates are reported in Table 1.

**Table 1. Purified dimensions**

Dimension	No. items	$\chi^2$	Reliability
Overall consumer satisfaction	5	1.954; 5 d.f.; $p = .856$	.998
Personal service attributes	6	12.974; 9 d.f.; $p = .164$	.971
SST attributes	7	16.134; 14 d.f.; $p = .305$	.973

Following the estimation of one-factor models, a measurement model was estimated. The measurement model produced a significant chi-square value ( $\chi^2(132) = 253.588, p < 0.01$ ). Though the other fit measures indicated acceptable fit to the sample data (goodness of fit index [GFI] = .996, comparative fit index [CFI] = .998, root mean square residual [RMR] = .225). Several re-specifications were made on the basis of large standardised residuals. One item was removed from overall consumer satisfaction and one from personal service attributes. Two items were removed from SST attributes.

Estimating the structural model produced a non significant chi-square value ( $\chi^2(74) = 89.644, p = 0.104$ ). The other fit indices also suggested a good fit to the sample data (GFI = .995, CFI = .999, RMR = .104). The structural model explains 50.6% of the variance in overall consumer satisfaction. Personal service attributes have a significant positive effect on overall consumer satisfaction ( $\gamma_{11} = .551, t = 10.994$ ), as predicted by  $H_1$ . The impact of SST attributes on overall consumer satisfaction is positive and significant ( $\gamma_{12} = .272, t = 5.254$ ) as hypothesised by  $H_2$ . A chi-square difference test revealed that the impact of personal service attributes is significantly more positive than the effect of SST attributes on overall consumer satisfaction.

The measurement component of the structural model reveals information about the relative importance of personal service and SST attributes. That is, the magnitude of the indicators can be used to gauge their relative importance. With regard to personal service, the important attributes identified in the present study are: responsive, friendly, prompt, informed and professional. With regard to SST, the important attributes highlighted in the present study are:

control, enjoyment, convenience, risk and customisation. Each of SST and personal service attributes make similar contributions toward overall consumer satisfaction.

### **Discussion and Conclusion**

The importance of consumer satisfaction to an organisation's long-term success has been discussed extensively in the marketing literature (Ostrom and Iacobucci, 1995; Patterson, Johnson and Spreng, 1997; Singh, 1991). Given the changes accompanying the introduction of SST, however, there is a need to rethink the importance of service delivery modes. This study is the first to empirically collect data on both SST and personal service within the same study, and to make direct comparisons between these two delivery modes. It is revealed in this study that although both personal service and SST contribute to overall consumer satisfaction, personal service has a much greater effect on overall consumer satisfaction (at least in the context studied). This result extends past research in services by showing the relative impact of these service delivery modes (Bitner, 1990; Brown and Swartz, 1989).

The identification of service attributes in the current research context is particularly pertinent to service managers. The attributes of personal service highlighted in the current study are: responsiveness, friendliness, promptness, informativeness and professionalism. These personal attributes are similar to those identified in previous research such as Goodwin and Gremler (1996) and Suprenant and Solomon (1987) and all relate to front-line staff performance.

The key self-service technology attributes that emerged in the current study are reliability, user control, convenience, risk and customisation. These attributes are similar to those reported by various researchers in different settings (Dabholkar, 1996, Meuter *et al.*, 2000; Walker *et al.*, 2000). These results challenge Cronin and Taylor's (1992) assertion that service attributes are industry specific. A more subtle implication is that service attributes are service delivery mode specific rather than industry specific. However, further research is needed to confirm whether SST attributes are stable across industries.

Service managers must ensure that they carefully balance their investment in SST with competing investments in staff training and development. It is important to understand the trade-offs involved in these decisions and managers must not lose sight of the importance of personal service. It is also important to recognise that SST is still a relatively new phenomenon and consumers' acceptance and use of this delivery mode may increase over time. The contribution of SST to consumer satisfaction may also strengthen as consumers become more familiar with its applications and benefits. It is important that consumer attitudes be tracked over time to ensure that firms are meeting consumers' current needs and can anticipate their future demands where possible.

In summary, service delivery mode is becoming a strategic decision variable for service managers in its own right. It is as important as the service itself and managers must understand the costs and benefits associated with implementing personal service versus SST delivery systems.

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