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Ganesan-Lim, Cheryl and Russell-Bennett, Rebekah and Dagger, Tracey (2008)
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Quality Perceptions. *Journal of Services Marketing* 22(7):pp. 550-561.

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The Impact of Service Contact Type and Demographic Characteristics on Service Quality Perceptions

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Citation: Ganesan-Lim* C., Russell-Bennett, R. and Dagger, T. (2008) The Impact of Service Contact Type and Demographic Characteristics on Service Quality Perceptions” *Journal of Services Marketing*, Vol 22(7): 550-561

The Impact of Service Contact Type and Demographic Characteristics on Service Quality Perceptions

ABSTRACT

Purpose

This study aims to develop and test a service-based demographic framework for studying service quality perceptions. Specifically, the effect of level of service contact and key demographic variables of age, gender and income on service quality perceptions is examined.

Methodology

A total of 224 customers of high and low contact passenger transport services were surveyed using a self-administered questionnaire.

Findings

The findings indicated that service quality perceptions differed according to the level of contact inherent to the service. Consumer age was also found to affect service quality perceptions, however, no differences in service quality perceptions on the basis of gender or income were found.

Implications

The results of the study enhance our understanding of service quality perceptions and provide useful insight for the management and delivery of service quality. Overall, the results suggest that managers in the train travel industry need to take the level of contact as well as the views of certain demographic segments into account if they want to maximize perceived service. Demographics provide managers with a means of determining which segments of the market are feasible in terms of achieving greater market penetration. The findings of this study show the importance of

considering variables relating to individual characteristic or the service itself when investigating service quality.

Originality

Prior research has not empirically examined whether service quality dimensions vary on the basis of service type thus this paper contributes to knowledge in this field.

Keywords: service quality, demographics, contact type, travel

Classification of paper: Research paper

INTRODUCTION

Imagine the following – a person boards a plane as a first class passenger, at the end of the flight they complete a customer survey and rate the service quality highly, more highly in fact than a survey on a previous flight when they were an economy passenger. Why the difference in service quality scores for the same airline, on the same route by the same passenger? One possibility is that service quality perceptions may vary according to service type. While research provides some guidance for a service type impact on consumer perceptions in general (Kellogg and Chase, 1995; Soteriou and Chase, 1998; Haywood-Farmer, 1987), prior research has not examined whether service quality dimensions vary on the basis of service type. The first objective of this study, therefore, is to investigate whether the nature of a service and in particular, the extent to which a particular service can be classified as high or low contact will impact on service quality perceptions.

We also suspect that quality perceptions may vary from one segment of the population to another primarily because individual consumers perceive service differently (Braus, 1990). Scott and Sheiff (1993), for example, found that different customer segments ascribe dissimilar levels of importance to the dimensions of service quality. Given that demographic information is a fundamental and generally necessary consideration for segmentation and targeting (McCarty and Shrum, 1993) understanding the effect of key demographics such as age, income, and gender on customer perceptions of quality is important. The second objective of this study, therefore, is to investigate gender, age and income effects on service quality perceptions.

As an extension of these two research objectives, we also examine whether demographics moderate the

relationship between level of contact and perceptions of service quality. That is, we investigate the moderating effect of age, gender and income on the relationship between the level of service contact as reflected by high or low contact services and service quality perceptions. Thus, we derive our third research objective.

This article is organized as follows: first we review prior theory and research relevant to service quality and the level of contact and demographic effects on service quality perceptions. We also develop hypotheses to describe the proposed interrelations between constructs. Then we describe the method and present the results from our field study of travel train services. We conclude by discussing the findings and implications of the research program.

SERVICE QUALITY

Researchers have generally defined perceived service quality as the consumer's judgment of, or impression about, an entity's overall excellence or superiority (Cronin and Taylor 1992; Parasuraman, Zeithaml and Berry 1985, 1988). The foundation of service quality measurement is the Gap model, which suggests that the difference (gap) between expectations and actual performance drives the perception of service quality (Cronin and Taylor 1992; Parasuraman, Zeithaml and Berry 1988). According to Grönroos (1982, 1984) expectations act as a standard of reference against which performance can be judged. Although a commonly applied approach the Gap approach to quality measurement has been the subject of substantial criticism and debate (e.g., Babakus and Boller, 1992; Brown, Churchill, and Peter, 1993). Babakus and Boller (1992), for example, suggest that the measurement of expectations adds limited information beyond what is gained from measuring service performance alone. Cronin and

Taylor (1992) similarly suggest researchers discard expectation measures when evaluating service quality perceptions, and most recently Dabholkar, Thorpe and Rentz (1996) and Brady and Cronin (2001) discard expectations in favour of the performance-only measures when modeling service quality perceptions.

The complexity of service quality evaluations is also evident in the many failed attempts to replicate the dimensional structure of service quality perceptions (Buttle, 1996). The widely applied SERVQUAL scale (Parasuraman, Zeithaml, and Berry, 1985; 1988), for example, has been criticised in so far as its five dimensions, namely reliability, empathy, tangibles, responsiveness, and assurance, are difficult to replicate across diverse service contexts (Buttle, 1996). Researchers applying the SERVQUAL scale have, for example, identified a range of factors including three factors in an automotive servicing context (Bouman and van der Wiele, 1992), four factors in the retail-clothing sector (Gagliano and Hathcote, 1994), and three factors in the context of MBA students' service quality perceptions (McDougall and Levesque, 1994). Further, Brown, Churchill and Peter (1993) found service quality to be uni-dimensional when applying the five dimension SERVQUAL scale.

Although researchers disagree about the manner in which service quality perceptions should be measured, it is generally agreed that service quality is a multidimensional, higher-order construct (Grönroos 1984; Parasuraman, Zeithaml and Berry 1988; Brady and Cronin 2001). Moreover, it has been suggested that service quality may comprise several overarching or primary quality domains that reflect elements of technical quality, functional quality and environment quality (Brady and Cronin, 2001; Grönroos, 1982; Rust and

Oliver, 1994; McDougall and Levesque, 1994). Grönroos (1982), for example, suggests service quality comprises two distinct components, the technical aspect or what is provided and the function aspect or how the service is provided. Similarly, Brady and Cronin (2001) suggest that service quality comprises the dimensions of interpersonal quality, outcome quality and environment quality. The merging of these dimensions with the SERVQUAL scale has most recently seen the SERVQUAL dimensions positioned as descriptors of these overarching dimensions (See Brady and Cronin 2001 for a detailed discussion).

Based on a review of these prior studies we adopt and extend the service quality conceptualisation of Brady and Cronin (2001) in our present study. That is, we adopt the three dimensions of interaction quality, outcome quality and physical environment quality outlined by Brady and Cronin (2001) and extend this framework to include an additional dimension of systems quality based on the work of Sureshchandar, Rajendran and Anantharaman (2002).

LEVEL OF CONTACT EFFECTS ON PERCEIVED SERVICE QUALITY

Several researchers have discussed the possibility that service quality perceptions may be dependent on the characteristics of a service (e.g. Cronin and Taylor, 1992; Haywood-Farmer, 1987; Kellogg and Chase, 1995; Soteriou and Chase, 1998). Haywood-Farmer (1987), for example, proposed that the dimensions on which a service can be segregated (e.g. degree of labour, service process customization, contact and interaction levels) may determine the appropriate mix of service quality dimensions vital for attaining good service quality. Given that levels of customer contact may affect the success of service encounters (Kellogg and Chase, 1995; Soteriou and Chase, 1998; Haywood-

Farmer, 1987), we suggest that service contact levels may also moderate service quality perceptions.

To examine this notion we adopt Mersha's (1990) contact framework which suggests that customer contact reflects the direct encounter between a customer and the service system. This encounter may be face-to-face, either by the customer's presence in the service system or the presence of the service system's representative in the customer's facilities, or it may be mediated through the use of communication technologies (Mersha 1990). Based on Mersha's (1990) framework high contact, in our study, refers to a service that involves direct contact (face-to-face or remote) between the customer and the service provider as well as customer-service system interaction that would ultimately lead to the customization of the service, for example, orthodontist services or first class travel services. In contrast, low contact refers to a service that involves direct contact (face-to-face or remote), but does not require customer-service system interaction and customization of the service product. Moreover, the level of interaction is greatly reduced in low contact situations. Stated simply, low contact is typical of discrete, routine and mundane services, for example, bill paying or economy class travel. We discuss the impact of level of contact on four primary service quality dimensions, namely, interaction quality, physical environment quality, outcome quality, and systems quality next.

Interaction quality refers to the customer's perception of the quality of their interaction with service employees during service delivery (Brady and Cronin, 2001). Inherent to the definition of high contact services is the notion that the customer is involved in the process of service delivery and as a result will affect the time of demand, the exact nature of the service and the

service quality (Chase, 1978). This, coupled with the suggestion that interpersonal attributes are key criterion for workforce skills in high contact systems (Chase and Tansik, 1983), suggests that there may be differences in interaction quality in high and low contact services.

Human interaction in services can increase the level of variability which then affects the service delivery (Folkes and Patrick 2003). High contact services involve human interaction and thus this introduces the potential for both negative and positive service experiences. However this human factor, although unpredictable, has also been shown to reduce the effects of potential negative experiences particularly through a mimicking effect (Folkes and Patrick 2003). The mimic effect is where customers unconsciously mirror the behaviour of the service-provider, so in the case of service quality, if the service provider appears to be doing their job well and appears satisfied, then it is likely that the customer will also be satisfied. Similarly, high contact services require greater investment in relationship building and offer higher levels of familiarity, confidence, trust and rapport which implies that interaction quality will be higher in a high contact service compared to a low contact service because of the customization inherent in the former type of service. Hence, we hypothesize that:

H1^a Perceptions of interaction quality will be significantly higher in high contact services compared to services characterized by low contact.

Physical environment quality refers to the customer's perceived quality of the physical environment in which the service takes place (Brady and Cronin 2001). Given that facilities are often designed to accommodate the physical and psychological needs of customers in high contact services (Chase and Tansik, 1983)

and maximize production in low contact services (Chase and Tansik, 1983) there may be differences in perceptions of physical environment quality in high and low contact services. In addition, Haywood-Farmer's (1987) proposition that physical facilities are essential to services that are high in interaction implies that perceptions of physical environment quality may be greater in high contact services because of their highly interactive nature.

High contact services are also more likely to have high levels of credence qualities (Lovelock, Patterson and Walker 2001). Most professional services, for example, are highly credence based. Credence qualities being those that cannot be discerned even after service consumption has taken place (Lovelock, Patterson and Walker 2001). When credence qualities are high customers tend to rely on the tangible or physical cues in the service environment as surrogate indicators of quality. That is, consumers find it difficult to determine the technical quality of the service and turn to the more easily evaluated tangible and physical aspects of the environment as surrogate indicators of quality. Therefore, it is possible that physical environment quality will be perceived as higher in high contact services compared to low contact services. Specifically, we hypothesize that:

H1^b Perceptions of physical environment quality will be significantly higher for services characterized by high compared to services characterized by low contact.

Outcome quality pertains to customers' perceptions of the quality of the service outcome (Brady and Cronin, 2001). Given that high contact services entail a higher level of customization compared to low contact services (Mersha, 1990) it is possible that these consumers also receive better service outcomes. For example, an airline flight attendant serving in first class will interact more with passengers and often

customize the service experience thus creating a better service outcome. This gives the customer the impression of a tailored service and thereby enhances their first class experience. In contrast, a stewardess serving in economy class is likely to only use more general terms and apply a standardized approach to service delivery. Therefore, we hypothesize that:

H1^c Perceptions of outcome quality will be significantly higher for high contact compared to services characterized by low contact.

Systems quality refers to the technological capability of a service as well as the degree to which the service process is simplified and standardized (Sureshchandar et al, 2002). Chase and Tansik's (1983) suggestion that digital communication (e.g., information about objects and transmission of knowledge) is emphasized in low contact systems, while analogic communication (e.g., relationships, non-verbal communication) is vital in high contact systems indicates that there may be differences in perceptions of systems quality between high and low contact services. Moreover, high customer contact systems are difficult to control and limited in their production efficiency due to the uncertainty that people bring to the service process (Chase and Tansik's 1983). This was supported by Mersha (1990) who proposed that active contact (high contact) services are more suitable for customized customer preferences and demands. Mersha (1990) further proposed that the delivery processes of passive contact (low contact) services are more suitable for standardization and automation as they are not constrained by factors affecting front office operations. As such, it is possible that perceptions of systems quality will be relatively higher for low contact services which can be standardized to reduce operation errors

compared to high contact services. Therefore, we hypothesize that:

H1^d Perceptions of systems quality will be higher for service characterized by high contact compared to service characterized by high contact (Hall, 1978, 1984), especially of facial expressions (Rosenthal et al., 1979) increases their sensitivity to the non-verbal behavior of contact employees, which can in turn affect perceptions of interaction quality. This postulation was supported by Mattila, Gradey and Fisk (2003) who found that women were less satisfied than men when the customer contact employee displayed negative emotions. Overall, given women's socialization towards emotional expressivity and their enhanced decoding ability, gender differences may exist in perceptions of interaction quality.

DEMOGRAPHIC EFFECTS ON PERCEIVED SERVICE QUALITY

As well as the impact of service contact levels on service quality perceptions, we also examined whether quality perceptions varied between demographic segments of the population (Braus, 1990). Although interest in life-style or psychographic information has increased among marketing practitioners, demographic information is still a fundamental and generally necessary consideration for segmentation and targeting (McCarty and Shrum, 1993). Indeed, understanding the affect of key demographics such as age, income, and gender on customer perceptions of quality is important.

Gender

Gender may impact on perceptions of interaction quality, physical environment quality, outcome quality and systems quality due to gender role socialization, decoding ability, differences in information processing, traits, and the importance placed on core or peripheral services (Brody and Hall, 1993; Dittmar, Long and Meek, 2004; Mattila, Gradey and Fisk, 2003).

Gender differences in perceived interaction quality can be attributed to the influence of stereotypes during gender role socialization. Girls are socialized for interpersonal sensitivity (Cole and Cole, 1997) and are encouraged to be emotionally expressive while boys are socialized to suppress emotions as acceptable masculine behavior (Brody and Hall, 1993). Gilligan (1982) suggested that the socialization of women to maximize the interpersonal

aspects of their relationships contributes to their emphasis on the process component of service encounters. Likewise, women's higher decoding ability of non-verbal cues (Hall, 1978, 1984), especially of facial expressions (Rosenthal et al., 1979) increases their sensitivity to the non-verbal behavior of contact employees, which can in turn affect perceptions of interaction quality. This postulation was supported by Mattila, Gradey and Fisk (2003) who found that women were less satisfied than men when the customer contact employee displayed negative emotions. Overall, given women's socialization towards emotional expressivity and their enhanced decoding ability, gender differences may exist in perceptions of interaction quality.

Females have been found to be comprehensive information processors while males are more selective tending to process heuristically and leave out subtle cues (Darley and Smith, 1995; Meyers-Levy, 1989; Meyers-Levy and Maheswaran, 1991; Meyers-Levy and Sternthal, 1991). Supporting the latter argument, Laroche et al (2000) found that women undertook a comprehensive review of both personal (e.g. store clerks) and non-personal (e.g. advertising, product information signage, packaging, point of purchase displays) in-store information before making purchase decisions. Women tended to rely more heavily on the service environment and tangible cues in the environment to make service evaluations. In comparison, males considered less information and tended to take shortcuts, relying more on the sales clerk for help in a making purchase decision (Laroche et al., 2000) than on non-personal cues such as advertising, signage, packaging, and store environment. Therefore, women will be more sensitive to the quality of the service environment.

Trait-wise, males are more agentic which refers to self-efficacy, mastery and

self-assertion, while females are more communal, which implies an emphasis on interpersonal affiliation (Meyers-Levy, 1988). Customer experiences can be controlled or manipulated through interpersonal interactions with the customer. Hence, because of their communal traits, it may be easier to cultivate positive valence in females. Thus, it is possible that women will be more sensitive to the quality of the service experience, which is synonymous to outcome quality in our study.

Men have been found to be more outcome focused compared to women, valuing efficiency more than the personal interaction during a typical service encounter (Mattila, Karjaluoto and Pento (2003). Similarly, Iacobucci and Ostrom (1993) found gender differences in terms of the importance placed on core and peripheral services. Specifically, compared to males, female customers were more influenced by relational information (e.g. the contact employee is polite and helpful), than by cues regarding service efficiency and accuracy (Iacobucci and Ostrom, 1993). Lending further support to the notion that men place higher value on efficiency compared to women, Dittmar et al. (2004) found that men were more functional in their buying attitude, holding stronger utilitarian values that emphasize efficiency and effectiveness in conventional stores, and that their emphasis on functionality became more pronounced in an online buying environment. Therefore, given that efficiency is dependent on the extent to which a service is standardised or simplified, the findings of the latter studies can be extrapolated to support the proposition that men are more sensitive to systems quality compared to women. This means that women are less judgmental of system quality and thus more likely to rate this dimension higher than men. That is, men are more critical and likely to evaluate systems quality negatively.

Taken collectively our review of prior literature give rise to the following hypothesis:

H2^{a-d} Perceptions of a) interaction quality, b) physical environment quality, c) outcome quality and d) systems quality will be higher for females compared to males

Age

Age is a powerful determinant of consumer behavior which affects a variety of consumer states including interests, tastes, purchasing ability, political preferences and investment behavior (Neal, Quester and Hawkins, 2002). Callan and Bowman's (2000) suggestion that mature travellers (over 55 years) were a discerning group that held high expectations for hotel service quality and placed more importance on value for money than actual price or discounts indicates that there may be age differences in perceptions of service quality.

Mature travellers place more importance on service staff attitude and behavior (Callan and Bowman, 2000) and appreciate friendly, courteous and thoughtful service (Carner, 1988). Lending further support to the notion that older people are more discerning of the quality of service interactions. Similarly, Javalgi, Belonax, and Robinson (1990) found that older consumers perceived personal service and financial advice as important attributes of bank services. The pronounced emphasis on service interactions among the elderly was also highlighted in a study by Mattila, Karjaluoto and Pento (2003) where the lack of personal service in e-banking was found to be a major barrier of Internet banking adoption among mature customers.

The physical environment of a service can hinder or facilitate the performance of a service. Compared to their younger counterparts, mature travellers

significantly perceived the ease of manoeuvrability around the hotel and small food portions as important aspects of service quality (Callan and Bowman, 2000). In contrast, Morrow (2004) suggested that traditional shopping centres do not appeal to the Generation X market (between ages 27 and 39) and that to capitalize on the latter, a new sort of mall that goes beyond new signage and doors, and combines location, functionality, variety and experience is needed. This indicates that younger individuals may be more demanding of the quality of the physical environment compared to older individuals. That is, more mature customers will be less critical of physical environment quality and thus rate this dimension higher than their younger more critical counterparts.

Braus (1990) suggested that older consumers are more thoughtful shoppers and tend to take their time shopping. This finding can be extrapolated to make the inference that older individuals, through their emotional efforts and the sheer amount of time spent in the service experience, will be better able to evaluate systems quality than younger more time pressured consumers. It has also been found that different customer age cohorts value efficiency and systems in service delivery differently. Javalgi et al. (1990), for example, found that mature customers valued efficient service and evaluated service efficiency more than younger consumers. Thus, it is possible that there are age differences in perceptions of systems quality.

Taken collectively the findings of previous research give rise to the following hypothesis:

H3^{a-d} Perceptions of a) interaction quality, b) physical accessibility, c) outcome quality and d) system quality will be higher in older individuals than compared to their younger counterparts

Income

Consumers with different income levels have been found to have different perceptions of service quality (Scott and Sheiff, 1993). It is generally accepted that individuals with higher income levels also have higher education levels (Farley, 1964) and as a result these consumers tend to engage more in information processing prior to decision making (Schaninger and Sciglimpaglia, 1981). We therefore suggest that consumers with higher income levels may perceive service quality differently from their lower income counterparts.

The assertion that high income earning clients want to hire service providers who are experts, who are proactive and anticipate requests (Holton, 2004) highlights the fact that high income earners seek quality in service interactions. Similarly, high-income consumers are particularly conscious of personalized attention in service encounters. A study by Whittle (1984) suggests this as a primary reason for switching financial institutions. Moreover, high income earners are more likely to pay higher rates for better service and thus receive higher quality interaction from service firms. They are also like to expect better service outcomes because of these factors than their low income counterparts. This gives rise to the notion of income differences in perceptions of interaction quality.

Larson (1991) cited guarantees for delivery within 24 hours as one of the factors which contributed to Rent-A-Centre's success with the low income segment. Likewise, Scott and Shieff (1993) found that upper income respondents had lower expectations of interaction speed and accessibility. This compared to their younger counterparts. This compared to their younger counterparts were much more critical of service outcomes than lower income earners. Given that speed of delivery and accessibility are considered important aspects of technical or outcome

service quality (Scott and Shieff, 1993), we suggest that higher income earners will be more sensitive to outcome quality compared to their lower income counterparts. That is, lower income consumers will not expect as much in terms of service outcome as higher income earners. As a result they are likely to rate service outcomes higher than their more critical high income earning counterparts.

Mitchell (1994) found that higher income earners were more technologically savvy than lower income earners. Similarly, income was found to have a significant effect on the adoption of Internet banking, so that over 30 percent of the wealthy use e-banking as their primary mode of making payments (Mattila, Karjaluo and Pento, 2003). Hence, we suggest that higher income individuals, through their enthusiasm for technology, will be more technological savvy and hence be more likely to value systems quality. We therefore hypothesize that:

- H4^{a-b} Perceptions of a) interaction quality and b) systems quality will be higher for high income earners compared to their lower income counterparts
- H4^{c-d} Perceptions of c) physical environment quality and d) outcome quality will be higher for low income earners compared to their higher income counterparts

LEVEL OF CONTACT, DEMOGRAPHICS, AND PERCEIVED SERVICE QUALITY

As an extension of our study of service type and demographic effects on service quality perceptions, we also suggest that age, gender and income may have a significant effect on the service quality perceptions of customers of high contact and low contact services. Prior research provides some guidance for such effects. Webster (1989) for example, found that age had a significant positive relationship with importance placed on courtesy, security and understanding the customer for professional services. Older people placed more

importance on tangibles and credibility compared to middle aged consumers, while the latter valued reliability, responsiveness and access (Webster, 1989). Thus, we hypothesize that:

- H5 Service quality perceptions will vary across demographic contact services

METHOD

Research Design

The study design employed a self-administered questionnaire that collected data from travel train services. The sample consisted of customers of a railway travel service in Queensland, Australia. The survey process was conducted over a 24 hour period on board travel train services. In particular, we were interested in customers that were travelling on services considered high contact (first class) and low contact (economy). A pilot study was undertaken to pre-test the survey on a sample of customers considered representative of the study population and minor modifications were made. For the main study, 302 customers were approached at random during their travel and 224 usable surveys were returned. This represented a response rate of 74.17%. Of this sample 39.7% were passengers travelling on services that were considered high contact (first class) and 60.3% were passengers travelling on low contact services (economy class). Gender distribution in the combined sample was fairly even with 46.2% of the sample male and 53.8% female. In terms of age characteristics, 13.9% were 15-29 years old, 21.8% were 30-54 years, 31.1% were aged 55-64, 30.5% were 65-79 and 2.8% were older than 80 years of age. In terms of annual income, 41.6% earned between \$15,000 and 25,000, 14.3% earned between \$26,000 and 35,000, 7.1% earned between \$36,000 and 50,000, 24% earned between

\$50,000 and 100,000, 9.7% earned between \$100,000 and 250,000, and 3.2% earned more than \$250,000 per annum as shown in Table I.

[Insert Table I]

Measures

Perceived service quality was defined according to the literature and operationalized using the scales developed by Brady and Cronin (2001) and Sureshchandar et al (2002). As such, service quality was viewed as comprising four primary dimensions, namely, interaction quality, physical environment quality, outcome quality (Brady and Cronin 2001) and systems quality (Sureshchandar et al. 2002). All items followed a 7 point Likert scale.

Based on the procedures used in prior research (e.g. Brady and Cronin, 2001), confirmatory factor analysis was used to validate the scales. A first order confirmatory factor analysis (CFA) using AMOS 5 was conducted to assess the ability of the indicators to serve as measures of their respective constructs. A measurement model was constructed in which the indicators were constrained to their respective primary dimensions. The results of the CFA are presented in Table II.

With the exception of chi square, the fit indices indicate that the specified model fits the data well. The magnitude and statistical significance of the parameter estimates are also shown in Table I. The reported parameter estimates are the standardized regression weights. The critical ratio values are the critical ratios of the unstandardized regression weights as derived from parameter estimates of the specified model. N/A implies that the parameter is fixed or constrained for model identification. All parameter estimates were significant (± 1.96 , $p < .05$) and had values that exceeded the criterion value of 0.50 (Byrne, 2001; Hair et al., 1998). These

results reinforced the strength of the indicators as measures of their respective constructs.

[Insert Table II]

To assess convergent validity, item-to-total correlations were calculated. No items were removed because all item-to-total correlations substantially exceeded the minimum threshold of 0.30 (Nunnally and Bernstein, 1994). The internal consistency of each scale was calculated to determine reliability. As the cronbach alpha scores ranged from 0.87 for systems quality to 0.91 for the physical environment and outcome quality scales reliability was supported. These findings are shown in Table III. The correlations between the the dimension scales are also reported in Table IV.

[Insert Table III and IV]

Multivariate analysis of variance was used to examine the effect of level of contact, gender, age and income on service quality perceptions and in particular the four dimensions of interaction quality, physical environment quality, outcome quality and systems quality. To facilitate this analysis, age was segmented into two categories (≤ 55 years and > 55 years of age) based on prior literature (e.g., Callan and Bowman, 2000; Intel, 1991; Gustin and Weaver, 1993). Income was segmented into two categories based on the average annual income in Australia ($< \$34,999$ and $> \$35,000$ +) (ABS, 2004).

RESULTS

Level of Contact and Perceived Service Quality

Analysis of the impact level of contact has on service quality perceptions indicated significant main effects for level of contact on three of the four primary dimensions of service quality. Specifically, results indicated that compared to respondents in the low contact service category, respondents in the high contact

service category had significantly higher perceptions of interaction quality and outcome quality. While the effect of level of contact on systems quality was significant the effect was not as hypothesized. That is, customers in the high contact service category had significantly higher perceptions of systems quality, rather than the hypothesized low contact customers. The effect of level of contact on perceived physical environment quality was not significant. These findings offer partial support for hypotheses 1a-d and are shown in Table V.

[Insert Table V]

Demographics and Perceived Service Quality

Results failed to reveal a significant effect for gender on perceived interaction quality physical environment quality, outcome quality and systems quality. Thus, hypotheses 2^{a-d} could not be supported, as show in Table VI. The results did, however, indicate significant effects for age on all four primary dimensions of service quality. Specifically, results indicated that compared to their younger counterparts, mature respondents had significantly higher perceptions of interaction quality, physical environment quality, outcome quality and systems quality. These findings offer support for hypotheses 3^{a-d}. As was the case for gender, analysis indicated that there were no significant main effects for income on perceived interaction quality, physical environment quality, outcome quality and systems quality. Thus, hypotheses 4^{a-d} could not be supported. Table VI presents the results of these analyses.

[Insert Table VI]

Interaction Effects between Level of Contact, Demographics and Perceived Service Quality

We also examined the interaction effect between each of the three

demographic variables and level of contact on the four primary dimensions of service quality. With the exception of a significant gender and level of contact interaction effect on perceived interaction quality, analysis did not reveal significant gender and level of contact interactions on perceived physical environment quality, outcome quality and systems quality. The significant gender and level of contact interaction effect on perceived interaction quality was analysed using follow up simple main effects analysis as shown in Table VII. Gender neither influenced perceptions of interaction quality in the high contact service nor in the low contact service.

[Insert Table VII]

Similarly, with the exception of a significant age and level of contact interaction effect on perceived interaction quality, no significant interaction effects were found for perceived physical environment quality, outcome quality or systems quality. The significant age and level of contact interaction effect on perceived interaction quality was analysed using follow up simple main effects analysis as shown in Table VIII. Age did not influence perceptions of interaction quality in the high contact service. However, significant age differences in perceptions of interaction quality were found in the low contact service.

[Insert Table VIII]

The MANOVA failed to reveal significant income and level of contact interaction effects on perceived interaction quality, physical environment quality, outcome quality, and systems quality, as can be seen in Table IX.

[Insert Table IX]

DISCUSSION

The purpose of this study was to develop a service-type and demographic framework of service quality. In essence, this study argued that perceptions of the dimensions of service quality differ by level of contact, gender, age and income. Moreover, it was argued that perceptions of the dimensions of service quality are dependent on the interaction between the level of contact and demographics.

Our first objective was to determine whether the level of service contact had an impact on perceptions of the four dimensions of service quality. The findings indicated that perceptions of interaction quality and outcome quality differed by level of contact. Specifically, perceptions of these dimensions were significantly higher for the high contact service compared to the low contact service. Although a significant difference in perceptions of systems quality was found between high and low contact services, the finding was not as was hypothesized. Instead of observing higher perceptions of systems quality in the low contact service, higher scores were observed for the high contact service. The findings also indicated that there were no significant differences in perceptions of physical environment quality between high and low contact services.

Our second objective was to determine whether demographics affect perceptions of the four dimensions of service quality. The study found strong evidence of the effect of age on service quality perceptions. That is, perceptions of interaction quality, physical environment quality, outcome quality and systems quality were significantly higher for mature individuals compared to their younger counterparts. Contrary to our expectations, we found no evidence that perceptions of service quality differed by gender or income.

The final objective of the study was to determine if the relationship between level of service contact and perceptions of each of the four dimensions of service quality was moderated by demographics. Although gender had no significant main effect, the findings revealed that gender influenced perceptions of interaction quality when it interacted with level of contact. However, follow up analysis of the interaction effect (i.e. gender differences within each level of contact), failed to reveal any significant gender differences in both high and low contact services. Post hoc analysis revealed that the interaction effect was due to the simple main effects of level of contact within gender. That is, male respondents in the high contact service had significantly higher perceptions of interaction quality compared to males in the low contact service. Likewise, females in the high contact service had significantly higher perceptions of interaction quality compared to their female counterparts in the low contact service.

Age also influenced perceptions of interaction quality when it interacted with level of contact. Follow up analyses on the significant age by level of contact interaction effect revealed that there were no significant age differences in perceptions of interaction quality in the high contact service. However, mature people had significantly higher perceptions of interaction quality compared to their younger counterparts in the low contact service.

Managerial Implications

The results of this study provide several implications for services marketers. Overall, the results suggest that managers in the travel train industry need to take the level of contact as well as the views of certain demographic segments into account if they want to maximize perceived service quality. Demographics provide managers

with a means of determining which segments of the market are feasible in terms of achieving greater market penetration (Hill, 2003). Moreover, to remain competitive, companies must be able to develop and refine their services to meet the needs and preferences of different consumer segments (Pennington-Gray, Fridgen, and Stynes, 2003). Overall, the findings suggest that service quality should be more closely tailored to some demographic characteristics but not others. The failure to establish gender differences in perceptions of service quality has implications for the treatment of customers in these service contexts. That is, results imply that stereotyping along gender lines may be inappropriate. Therefore, managers should ensure that all customers are treated as individuals and have their needs met accordingly.

The finding that mature people had higher perceptions on all aspects of service quality has several important implications. Specifically, managers should not only ensure that this lucrative segment receives highly interactive, customized and efficient service, but also ensure that the quality of their service experience and the physical service environment is of the highest standard. Moreover, the finding of age differences in perceptions of interaction quality in the low contact service but not the high contact service implies that mature and young customers should be treated equally when the service is highly interactive and customized. However, extra attention should be paid to mature individuals in relatively mundane service encounters. Similar to the results for gender, the failure to establish differences in perceptions of service quality among high and low income earners implies that stereotyping along income distribution lines may be misleading. Therefore, managers should take steps to ensure that all customers have their individual needs catered.

Limitations and Future Research

As is the case with any research, this study has several limitations. Neither psychographics nor the full range of demographic characteristics (e.g. education, marital status, occupation and ethnicity) was included in the present study. Thus, the inclusion of the full range of demographic and psychographic variables could also yield greater insights into segmentation possibilities. Further, the interaction effects within the demographic variables were not investigated. Yet this could be a worthy area of future research.

Although the scales we used to measure interaction, outcome and physical environment quality were overall measures of these domains and were adopted from the literature (e.g., Brady and Cronin 2001), we recognise that more specific scales could have been used and that this may have yielded interesting results. We suggest that future researchers investigate the effect of contact level and demographic variables using the service quality sub-dimension scales (e.g., attitude, behavior, expertise, ambience, design, social factors, waiting time, tangibles, valance) developed by Brady and Cronin (2001).

The focus on a single industry (i.e. travel train services) raises concerns about limited external validity. Furthermore, the choice of using two services of the same provider (first class versus economy class train travel) could have impacted on the findings. The sampling technique employed in this study may have caused the sample to be prone to self-selection bias. Therefore, caution must be exercised in generalizing the results. Similarly, we acknowledge there are assumptions that underpin the high contact/low contact framework (e.g., price and convenience) and that future research

should include the range of covariates that operate in these contexts.

Replication of this study with a larger random sample would increase the generalizability of the results. In addition, replication with a wider range of services can not only increase the generalizability of the results but will also overcome the

problems caused by having two services occurring in the same setting. That is, perceptions of one service would not be influenced by the other. This could possibly lead to better discrimination between the services and a clearer understanding of the constructs and relationships studied in this research.

Table I Demographic Characteristics

	Demographics	Total Sample (%)	High contact (%)	Low Contact (%)
Gender	Male	46.2	51.1	42.7
	Female	53.8	48.9	57.3
Age	15-29	13.9	3.4	21.3
	30-54	21.8	21.3	22.0
	<55	34.4	24.7	40.7
	>55	62.1	75.3	53.3
	55-64	29.2	34.8	25.2
	65-79	31.5	31.5	31.5
	>80	3.7	9.0	0.0
	Annual Income (\$)	15,000-25,000	41.6	24.6
26,000-35,000		14.3	10.8	16.9
<35,000		38.4	25.8	46.7
>35,000		30.4	47.2	19.3
36,000-50,000		7.1	9.2	5.6
50,00-100,000		24.0	38.5	13.5
100,000-250,000		9.7	13.8	6.7
>250,000		3.2	3.1	3.4

Table II. Parameter Estimates and Critical Ratio Values for the Dimension Scales

Constructs and Items	Parameter Estimate	Critical Ratio Value
Interaction Quality→Iq1	0.97	14.78
Interaction Quality→Iq2	0.81	N/A
Physical environment Quality→Eq12	0.88	18.00
Physical environment Quality→Eq13	0.95	N/A
Outcome Quality→Oq23	0.92	20.40
Outcome Quality→Oq24	0.90	N/A
Systems Quality→Sq34	0.78	11.93
Systems Quality→Sq35	0.78	11.84
Systems Quality→Sq36	0.80	12.25
Systems Quality→Sq37	0.70	10.50
Systems Quality→Sq38	0.75	N/A
Model Fit:		
Chi square	122.74	
<i>P</i>	0.00	
Df	38.00	
RMR	0.06	
GRI	0.91	
NFI	0.94	
IFI	0.96	
CFI	0.96	

Table III. Scale Items, Item-to-Total Correlations, Reliability and Descriptives

Dimension and Items	Item-to-Total Correlations	α	Mean	SD
Interaction Quality		0.88	6.01	1.05
Overall I'd say the quality of my interaction with the employees in Queenslander/Sunlander class is excellent	0.78			
I would say that the quality of my interaction with the employees in Queenslander/Sunlander class is high	0.78			
Physical Environment Quality		0.91	5.47	1.3
I would say the physical environment in Queenslander/Sunlander class is one of the best in its industry	0.83			
I would rate the physical environment of Queenslander/Sunlander class highly	0.83			
Outcome Quality		0.91	5.88	1.19
I am having an excellent experience travelling in Queenslander/Sunlander class	0.83			
I feel good about what Queenslander/Sunlander class provides to its customers	0.83			
Systems Quality		0.87	5.85	1.17
The Queenslander/Sunlander understands that a highly standardized service delivery process is important to me	0.70			
I would say the Queenslander/Sunlander has a highly structured delivery process so that service delivery times are kept to a minimum	0.69			
You can count on the Queenslander/Sunlander having adequate personnel for good customer service	0.71			
The technological capability (e.g. computerization) of the Queenslander/Sunlander demonstrates that they can serve customers effectively	0.66			
Overall I would say the Queenslander/Sunlander has procedures and processes that are perfectly fool proof	0.73			

Table IV. Scale Correlations

	Interaction Quality	Physical Environment Quality	Outcome Quality	Systems Quality
Interaction Quality	1	.529(**)	.672(**)	.736(**)
Physical Environment Quality	.529(**)	1	.697(**)	.697(**)
Outcome Quality	.672(**)	.697(**)	1	.824(**)
Systems Quality	.736(**)	.697(**)	.824(**)	1

** Correlation is significant at the 0.01 level (2-tailed).

Table V. Service Quality and Level of Contact

Dependent Variables	Univariate F test	Sample Means	
		High Contact	Low Contact
Interaction Quality	34.39***	6.55	5.63
Physical Environment quality	3.63	5.76	5.26
Outcome Quality	15.50***	6.34	5.55
Systems Quality	9.20**	6.06	5.54

*p<.05, **p<.01, ***p<.001

Table VI. Age, Gender and Income Effects on Service Quality

Dependent Variables	Gender			Age			Income		
	f test	Male	Female	f test	<55yrs	>55yrs	f test	<\$35,000	>\$35,000
Interaction quality	0.01	6.10	5.93	23.16***	5.44	6.34	0.97	5.90	6.32
Physical quality	0.78	5.42	5.51	9.29**	5.07	5.69	0.63	5.58	5.40
Outcome quality	0.16	5.89	5.87	6.45*	5.52	6.09	0.42	5.84	5.93
System quality	0.19	5.84	5.69	19.22***	5.32	6.00	0.25	5.77	5.82

*p<.05, **p<.01, ***p<.001

Table VII. Simple Effects Gender and Level of Contact

Dependent Variables	Gender x Level of Contact Interaction	Simple Main Effects of Gender by High Contact	High Contact Sample Means		Simple Main Effects of Gender by Low Contact	Low Contact Sample Means	
			Male	Female		Male	Female
Interaction quality	4.80*	1.96	6.30	6.58	3.03	5.74	5.46
Physical quality	0.22	N/a	5.43	5.68	N/a	5.12	5.20
Outcome quality	0.49	N/a	6.13	6.31	N/a	5.52	5.47
System quality	2.04	N/a	5.84	5.97	N/a	5.59	5.35

*p<.05, **p<.01, ***p<.001

Table VIII. Simple Effects Age and Level of Contact

Dependent Variables	Age x Level of Contact Interaction	Simple Main Effects of Age by High Contact	High Contact Sample Means		Simple Main Effects of Age by Low Contact	Low Contact Sample Means	
			Young	Mature		Young	Mature
Interaction quality	6.65*	1.86	6.29	6.60	41.29***	5.08	6.12
Physical quality	1.17	N/a	5.13	5.97	N/a	4.96	5.36
Outcome quality	0.03	N/a	5.97	6.46	N/a	5.28	5.71
System Quality	0.15	N/a	5.63	6.18	N/a	5.14	5.80

*p<.05, **p<.01, ***p<.001

Table IX. Simple Effects Income and Level of Contact

Dependent Variables	Income x Level of Contact Interaction	Simple Main Effects of Income by High Contact	High Contact Sample Means		Simple Main Effects of Income by Low Contact	Low Contact Sample Means	
			High	Low		High	Low
Interaction quality	0.52	N/a	6.61	6.48	N/a	5.65	5.58
Physical quality	0.77	N/a	5.55	5.53	N/a	4.91	5.44
Outcome quality	0.64	N/a	6.24	6.25	N/a	5.25	5.60
System Quality	1.14	N/a	6.00	5.88	N/a	5.30	5.62

*p<.05, **p<.01, ***p<.001

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