SEGMENTING THE CUSTOMER BASE IN A CRM PROGRAM ACCORDING TO CUSTOMER TOLERANCE TO INFERIORITY – A MODERATOR OF THE SERVICE FAILURE-CUSTOMER DISSATISFACTION LINK

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ABSTRACT

Market segmentation has long been a successful marketing strategy. In the recent ten years or so, academics and practitioners in customer relationship management (CRM) have respectively proposed and carried out the further segmentation of the customer base into sub-segments to achieve further customized service and they call it customer segmentation. A review of the customer segmentation literature reveals that the customer tolerance to inferiority, an individual difference, has not been advocated as a base for customer segmentation. This study empirically validates that tolerance to inferiority is a moderator of the effect of service failure on customer dissatisfaction, which suggests its utility as a base for customer segmentation. The practicality and advantage of using such a base is discussed.

INTRODUCTION

Service failure can cause customer dissatisfaction (Hedrick et al. 2007), which in turn can lead to complaining behaviors, brand switching, and negative word-of-mouth (Hirschman 1970; Singh 1988). Although service failure is to be avoided, it is inevitable (Hart et al. 1990). The chance of occurrence of service failure can only be minimized; hence, the question is, to what extent? A close to 100% failure-free rate would, of course, be preferable, but the cost would be very high. Indeed, to try to achieve an even higher failure-free rate when it is already high would increase costs exponentially. Hence, an opportunity exists to segment a customer base into more tolerant and less tolerant segments. For customers in the former segment, a relatively less failure-proof service delivery process could be adopted and less experienced service employees be deployed. This does not mean more tolerant customers would be treated unfairly, since the cost saved could be passed on to them through a preferential pricing scheme or used for the enhancement of other attributes of the same service to the same customer. Moreover, it is assumed that, regardless of the tolerance level of the customers, service failure is to be backed up by service recovery. So the aim is to achieve more customized service, which is one of the most important objectives in customer relationship management (i.e., CRM, a management philosophy in marketing). Surprisingly, there is a dearth of research exploring such a segmentation possibility. Therefore, we attempt to empirically validate that tolerance to inferiority is a customer disposition, or individual difference, that moderates the effect of service failure on customer dissatisfaction. Then we recommend its use as a base for customer segmentation and discuss its practical use in a service context.

LITERATURE REVIEW

Market segmentation has been so important a topic in marketing that after Smith (1956) suggested it as an alternative

marketing strategy, more than 400 scholarly journal articles have been devoted to the study of it. Bases for market segmentation have been frequently discussed in these articles and divided by Kotler and Keller (2006) into four categories: geographic, demographic, psycho-graphic and behavioral. In the last two decades, with the fast growing popularity of CRM in both academic studies (e.g., Rootman, Tait and Bosch 2008; Valos, Bednall and Callaghan 2007; Zineldin 2006; Mitussis, O'Malley and Patterson 2006; Kamakura, Mela, Ansari and Bodapati 2005; Sin, Tse and Yim 2005; Rust and Verhoef 2005; Agrawal 2003-4; Taylor and Hunter 2003; Cho and Hiltz 2003; Feinberg and Kadam 2002; etc.) and practical discussion (e.g., Read 2009; McKay 2008; Lassar, Lassar, and Rauseo 2008; Kale and Klugsberger 2007; Britt 2006; Gillies, Rigby and Reichheld 2002; etc.), scholars have proposed and practitioners have undertaken further segmentation of a com-pany's customer base (i.e., the company's targeted segment[s] resulting from market segmentation). The objective is to achieve a higher degree of customization to enhance customer satisfaction, which in turn leads to customer retention (Lemon, White and Winer 2002) and higher purchase intention. For example, Taylor and Baker (1994, p.172) asserted that the highest level of purchase intentions are observed when both service quality and satisfaction are high. Recently, Carrillat, Jaramillo and Mulki (2009) found support for the indirect effect of customer satisfaction to purchase intention through the mediator attitudinal loyalty.

Whereas published research into market segmentation is abundant, that into customer segmentation is less so, and that specifically related to bases for customer segmentation even less so. This may be due to the short history of CRM (less than two decades); also, customer segmentation does not work as well if it is not part of a CRM program. A review of the customer segmentation literature reveals that customer profitability or value (or potential value) to the company is the most poplar segmentation base (e.g., Garland 2005; Marcus 1998; Emmelhainz and Kavan 1999; Reinartz and Kumar 2000, etc.). Examples of other bases include, but are not limited to, the strength of the customer relationship with the company (Hulten 2007); price-sensitivity (Raju, Narahari and Ravikumar 2006; Barone and Bella 2004); gaming behavior (Ip and Jacobs 2005); the time dimension (Badgett and Stone 2005); loyalty and potential growth of customers (Grisaffe 2004); switching cost, product importance and purchase uncertainty (Wangenheim 2003); service satisfaction (Athanassopoulos 2000); the goodness-of-fit criteria of various rating tools (Baestaens 1999); and customer shopping cost (Bell, Ho and Tang 1998). Moreover, individual differences can also be used for segmentation. For instance, customers can be segmented according to their strength of extraversion and degree of openness (Matzler, Bidmon and Grabner-Kräuter 2006) and extent of maximizing trait (Chowdhury, Ratneshwar and Mohanty 2009). They can also be divided into four personality orientation segments: "thinking", "material", "feeling" and "intuitive" segments (Gountas and Gountas 2007). After an exhaustive attempt to review the literature in segmentation, we have found that tolerance to inferiority – a personality trait that belongs to psychographic segmentation – appears never to have been advocated as either a customer or market segmentation base.

While people are motivated to withdraw from threat, they are able to sustain it to some degree. Tolerance captures the individual response pattern in the face of perceived threat, which is physical or psychological distress (tolerance to distress) (e.g., Daughters, Lejuez and Kahler 2005). Different tolerance constructs have been developed for different threats, such as vague and uncertain situations (tolerance to ambiguity) (e.g., Budner 1962; Frenkel-Brunswik 1949; Frone 1990; Keenan and McBain 1979; Keinan 1994; Norton 1975)

and dissimilar others (tolerance to out-groups) (e.g., Greenberg, Simon, Pyszczynski, Solomon and Chatel 1992; Guindon, Green and Hanna 2003; Martin and Westie 1959).

Among these tolerance concepts is the tendency to endure or accept unfavorable situations. Although the general concept of tolerance has been developed in the psychology literature and embraced within the consumer behavior community, there has been no application related to inferiority in consumer marketing. Consumers are dispositional entities (Baumgartner 2002). Their dispositional characteristics greatly influence their behaviors. Tolerance to inferiority is introduced in this paper to capture individual response patterns under a different kind of threat – poor product performance. A consumer tends to accept poor product performance if he/she has a high capacity to withstand the psychological discomfort that arises from it. *Tolerance to inferiority is viewed as a personality trait and thus is defined as the tendency of a consumer to withstand the psychological discomfort that arises from poor product performance and thus accept that poor product performance*.

Personality traits refer to the enduring tendencies that one acts or reacts in certain ways (Lazarus 1971). They are presumably carried around from situation to situation and imply a certain likelihood of behaviors. Tolerance to inferiority is a dispositional concept because it describes individual characteristic responses to substandard performance. For example, when consumers with high tolerance to inferiority experience poor product performance, they are less likely to get irritated and more likely to continue and even repeat the consumption.

Tolerance to inferiority is distinct from involvement. First, the former captures one's capacity to sustain poor product performance, whereas the latter refers to one's perceived personal relevance of a product (Zaichkowsky 1985). A consumer is involved with a product to the degree that he/she perceives the product to be self-related or

instrumental in achieving his/her personal goals and values (Celsi and Olson 1988). Second, tolerance to inferiority is an individual dispositional characteristic, whereas consumer involvement is specific to product categories or purchase occasions (Laurent and Kapferer 1985).

One seemingly similar segmentation base is customer expectation of service quality (Diaz-Martin, Iglesias, Vazquez and Ruiz 2000; Thompson and Kaminski 1993; Webster 1989) but tolerance to inferiority is distinct from expectations. Zeithaml, Berry and Parasuraman (1993) suggested a hierarchy of consumer expectations. On the top is desired service, which captures customer ideals about service performance; predicted service, which reflects customer estimations of what will be delivered, follows; at the bottom is adequate service, which is the minimum level of service customers can accept. While tolerance to inferiority is a personality trait, consumer expectations reflect a set of goals pursued in a consumer context. Although one's tolerance to inferiority may influence the minimum level of a particular service he/she can accept, by nature, they are two distinct constructs.

Another seemingly similar segmentation base is tolerance to risk suggested by Nairn (2005). It is specific to the investment context and not conceptualized as a personality trait. Moreover, risk is essentially different from product inferiority in that perceived risk is typically a pre-purchase perceptual phenomenon while product inferiority is learned after the purchase has been made.

In this article, we advocate the use of tolerance to inferiority as a customer segmentation base in the service context not only because it is original [not surprisingly, a review of literature also reveals that the moderating effect of tolerance to inferiority on the effect of service failure on customer satisfaction and/or dissatisfaction has not been tested before], but because it may contribute to more effective CRM. To demonstrate why

tolerance to inferiority can serve as a customer segmentation base, we attempt to develop theory and formulate hypotheses based on the literature. We then empirically test the hypotheses to see whether (or how) tolerance to inferiority moderates the effect of service failure on customer dissatisfaction. In the concluding discussion section of this article, we will explain how tolerance to inferiority can contribute to more effective CRM.

CONCEPTUAL MODEL AND HYPOTHESES

Satisfaction is considered a "consumer's fulfillment response" (Oliver 1997, p. 13), which represents "a feeling developed from an evaluation of the use experience" (Cadotte, Woodruff and Jenkins 1987, p. 305). Giese and Cote (2000) further suggested that most customers used a variety of affective words to describe and define satisfaction and that more recent literature favored the notion of satisfaction as an overall affective response to an evaluative response.

Lazarus' (1991) appraisal theory suggests that people interpret events in terms of the relational meanings of the events with regard to their personal goals and consequently experience discrete emotions. Thus, it provides an ideal framework to understand the impact of service failure on customer dissatisfaction, an overall negative affective state that results from customer's need fulfillment judgment, and its underlying process.

It is against this backdrop that we offer Figure 1 to summarize our conceptual model. H1, H2 (a, b and c), H3 and H4 are hypotheses to be explained shortly. Based on appraisal theory (Lazarus 1991), it is hypothesized that customer tolerance to inferiority affects the way in which consumers interpret service failures and whether they will become dissatisfied afterwards.

FIGURE 1
The Conceptual Model
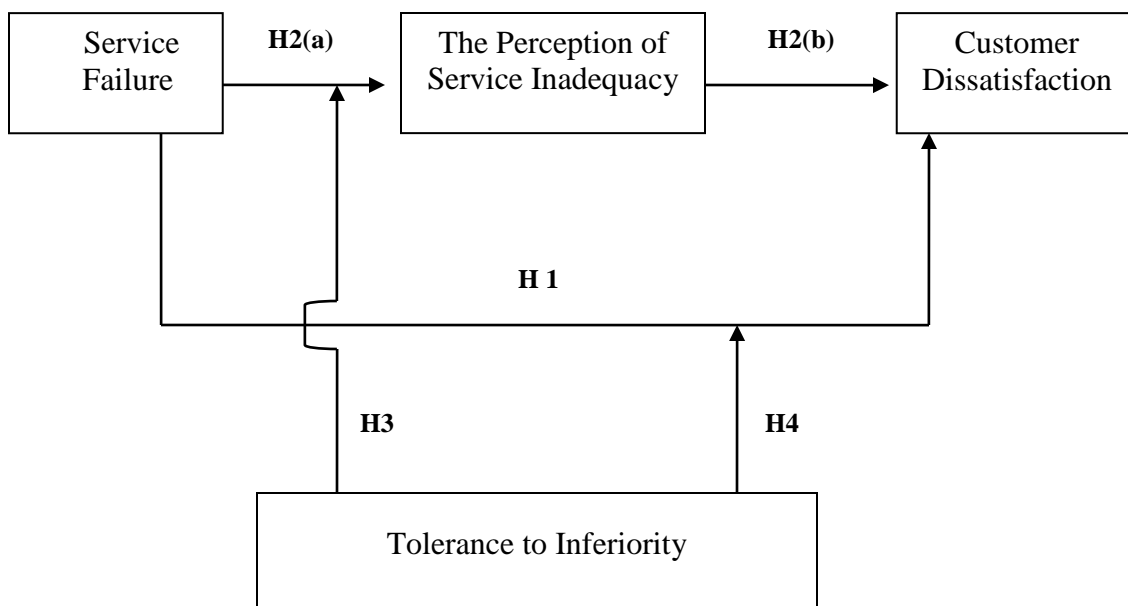
Service Failure and Customer Dissatisfaction

Lazarus (1991) argues that human emotions are the products of the cognitive evaluation of events. Specifically, an event-appraisal-emotion link exists in which the evaluations and interpretations of an event determine whether an emotion will be felt and, if so, which one it will be. Goal relevance and goal congruence are two components of the primary appraisal of an event. The former concerns whether an event is relevant to personal goals. No emotion is elicited if the event is irrelevant to any of the appraiser's goals. The latter concerns whether the event that is encountered matches the personal goals of the appraiser. Positive emotions will be elicited by events that are goal congruent and negative emotions by those that are not.

Service failure is an error or other problem that occurs in the delivery of service (Hedrick, Beverland and Minahan 2007), that is, when service performance falls below customer expectations (Hess, Ganesan and Klein 2007). Customers experience loss during service failure, and the magnitude of the experienced loss is called failure severity (Hart, Heskett and Sasser 1990; Hess, Ganesan and Klein 2007).

Service failure is an event that customers are likely to appraise. It is considered to be motivationally relevant because it is a source of pain and customers are personally concerned with service performance, and to be motivationally incongruent because the performance level is not congruent with customer expectations. Such evaluations lead to negative emotions and contribute to customer dissatisfaction – an overall negative affective state (Giese and Cote 2000). For example, Steven gets in a cafeteria for lunch. He is seated and then orders a dish. If later the dish comes with a dead worm in it, Steven must be very dissatisfied. Steven's consumption experience at the cafeteria goes against his personal goal of living a hygienic and healthy life. So he is obviously dissatisfied with the cafeteria service. Taking the above-detailed into account, then, the following research hypothesis is proposed:

H1: *Service failure leads to customer dissatisfaction.*

Mediating Effects of the Perception of Service Inadequacy

Because adequate service is at the bottom of Zeithaml, Berry, and Parasuraman's (1993) expectation hierarchy, it is most salient in the appraisal process of service failure.

Appraisal theory (Lazarus 1991) holds that negative emotions are elicited when goals are both relevant and incongruent. As adequate service is a relevant goal, service inadequacy reflects the degree of goal incongruence. When service failure is appraised to be so severe that it cannot even live up to the adequate level, service inadequacy is perceived. The more severe the service failure, the more likely it is that a customer will perceive the service to be inadequate and thus feel dissatisfied. Hence, it is logical to believe that the perception of service inadequacy mediates the relationship between service failure and customer dissatisfaction.

Johnston (1995) and Santos and Boote (2003) proposed that adequate performance and service inadequacy are related to dissatisfaction but did not empirically test for relationship, but we will. Indeed, we posit the following research hypotheses.

H2 (a): *Service failure leads to perception of service inadequacy.*
H2 (b): *Perception of service inadequacy leads to customer dissatisfaction.*
H2 (c): *The relationship between service failure and customer dissatisfaction is mediated by the perception of service inadequacy.*

Moderating Effects of
Tolerance to Inferiority

Appraisal theories (e.g., Ellsworth and Scherer 2003; Lazarus 1991) suggest that appraisal processes and emotional experiences vary with individuals. Several individual differences have been proposed to moderate how people respond to service failure. For instance, in the event of service failure, customer satisfaction and loyalty are lower among customers that have no or a weaker relationship with the service provider and the relationship between customer and service provider moderates the effects of failure on consumer satisfaction (Priluck, 2003). Marquis and Filiatrault (2003) found that public self-consciousness moderates customer's response to waiting. While waiting in line with strangers at a movie theater, high public self-consciousness customers have an attentional focus directed toward time, attribute more control to service managers, and evaluate the theater more negatively.

Personality traits have been considered as important individual differences that intervene in the appraisal processes. Appraisal theories (e.g., Ellsworth and Scherer 2003; Lazarus 1991) maintain that personality affects the appraisal process, which means that the emotions that are generated vary with the individual (Lazarus 1991). It is thus argued that tolerance to inferiority, which is an individual dispositional characteristic, affects the customer appraisal process of service failure.

According to Weber's Law, the just noticeable difference between a stimulus and a standard increases as the standard increases (Coren and Ward 1979). Therefore, if customers have a high tolerance to inferiority, then the service failure needs to reach a severe level before they notice that it is greater than they can tolerate. In contrast, if customers have a low tolerance to inferiority, then even a small failure is enough for them to conclude that the service is inadequate.

Thus, the perception of service inadequacy is more likely to occur in customers with a low tolerance to inferiority.

This implies that intolerant customers are more sensitive to service failure and tolerant customers are less sensitive to service failure in the formation of perception of service inadequacy. This can be captured by the following research hypothesis:

H3: The effect of service failure on customer perception of service inadequacy is stronger (weaker) in customers with lower (higher) tolerance to inferiority.

The perception of service inadequacy is a reflection of goal incongruence. Hence, if customers have a high tolerance to inferiority, then a large increase in service failure is necessary before they perceive service inadequacy and goal incongruence. Because customer dissatisfaction is an outcome of goal incongruence, a severe service failure is necessary for tolerant customers to feel dissatisfied, whereas only a small failure is enough to make intolerant customers feel dissatisfied.

This implies that intolerant customers are more sensitive to service failure and tolerant customers are less sensitive to service failure in the eventual forming of customer dissatisfaction, which in turn can be captured by the following research hypothesis.

H4: The effect of service failure on customer dissatisfaction is stronger (weaker) in customers with lower (higher) tolerance to inferiority.

RESEARCH METHOD

The hypotheses were addressed in a laboratory experiment with a 2 (high versus low tolerance to inferiority) x 2 (presence versus absence of failure) between-subjects full factorial experimental design. Two

hundred and forty-two undergraduate students (56% of whom were males) participated in the experiment and were paid for their participation.

Stimulus

Accommodation service (apartment renting) was chosen as the stimulus in the study. There are several reasons for this choice. First, focus group discussions with the students indicated that they were familiar with apartment renting service. Second, these discussions indicated that accommodation was one of the greatest concerns of students and therefore motivationally relevant to them. Motivationally relevant issues are necessary to elicit emotions and dissatisfaction outcomes. Third, the discussions also revealed that the level of tolerance to inferior accommodation varied among the subjects. Fourth, accommodation features could be clearly presented with pictorial and audio descriptions so that the manipulation of service failure would be effective. Eight aspects that were identified in the focus group discussions were used to characterize the features of the accommodation: building age, building safety, decor/furniture, home appliances, electricity/water supply, drainage, neighbors and air quality.

Procedures

Each subject's tolerance to inferiority was measured before the experiment. In the experiment, the subjects were given a contrived market research report that contained a tolerance to inferiority manipulation. They were then exposed to an apartment that was presented in a flash file, in which the service failure was manipulated, and asked to imagine that they had rented it. Finally, they were asked to complete dependent and demographic measures and manipulation checks were taken.

The Moderator: Tolerance to Inferiority

Tolerance to inferiority represents the capacity to accept poor performance. In this study, it was operationalized as the extent to which an individual could accept various inferior situations in accommodation services (refer to **Appendix 1** for the measures). Before the subjects were exposed to the experimental setting, their tolerance to inferiority was measured. They were asked to express to what degree they could tolerate various inferior situations in an apartment renting context: the renting of a bad apartment in an old building, dangerous building conditions, poor decor/furniture, outdated home appliances, an irregular electricity/water supply, ineffective drainage, bad neighbors and low air quality. Items were rated on a 7-point Likert-type scale ranging from 1 ("not acceptable at all") to 7 ("totally acceptable") with 4 ("neutral") as the midpoint (Cronbach's alpha = 0.78, n = 238). A confirmatory factor analysis showed that the 8 items were indicators of one common factor and the model fit was acceptable $\chi2$ = 162.70 (df = 20, p < .05; SRMR = .09; IFI=.88; CFI = .88). It is difficult in a laboratory setting to change a tolerant person into an intolerant one or vice versa. Therefore, based on their pre-test scores, the subjects were divided equally into high-tolerance and low-tolerance treatment groups. A manipulation was used to strengthen the pre-existing disposition of the subjects. They were exposed to one of two different contrived housing bureau market research reports about young people's tolerance to inferiority of accommodation services. The high-tolerance version reported that most young people were very tolerant of various inferior situations in apartment renting. The low-tolerance version reported that most young people were not at all tolerant of such situations. After the manipulation, the subjects were asked again to express to what degree they could tolerate the various inferior situations of the apartment renting service (Cronbach's alpha = 0.84, n =

215). There was a significant difference between the two treatment conditions. The subjects under the high-tolerance treatment condition were more tolerant (M = 3.25) to inferiority than those under the low-tolerance treatment condition (M = 2.00, t(201.87) = 17.19, p < 0.01).

The Independent Variable:
Service Failure

Since different subjects have different latitudes of acceptance/rejection towards a particular stimulus (Sherif 1963), they were randomly assigned to presence or absence of failure treatment conditions. They were exposed to one of two video and audio descriptions of an apartment renting service. Eight features of apartment were manipulated. The failure version presented a poor apartment with few appliances, old age, unsafe structure, furniture hazardous to health, unsteady electricity and water supply, drainage sometime clogged, unfriendly neighbors and bad air quality; while the absence of failure version presented an apartment with normal conditions.

The manipulation was created based on two independent sessions of focus group with 16 undergraduate students. The participants discussed their experiences of renting apartments and were directed to talk more about the experiences they considered to be service failures. The frequently mentioned failures were incorporated into the manipulation. We pretested the failure-present and failure-absent scenarios with 90 different undergraduate students and found that the former [M=2.28] was evaluated worse than the latter [M=5.79, t(25) = 7.92, p < 0.01]. Then, the manipulation was used in the experiment with confidence.

In this experiment, the manipulation was checked by asking the subjects to indicate the degree to which they thought that failure was absent in the apartment renting service on a 7-point Likert-type scale ranging from 1 ("not at all") to 7 ("totally") with 4 ("neutral")

as the midpoint. The manipulation was effective: the subjects under the absence of failure condition perceived nearly no failure at all in the apartment renting service [M = 6.20], whereas those under the presence of failure condition perceived failure [M = 1.94, t (215) = 53.00, p < 0.01].

The Dependent Variable:
Customer Dissatisfaction

Customer dissatisfaction is a negative affective state (Giese and Cote 2000). In this study, it was measured with 12 items (dissatisfied, displeased, frustrated, terrible, angry, cold, bad, down, unpleasant, tense, disappointed and unimpressed) that were adapted from Cadotte, Woodruff and Jenkins (1987), Spreng, MacKenzie and Olshavsky (1996) and Spreng and Page (2001). Subjects were asked to indicate the degree to which they agreed that they had these feelings about the apartment renting service on a 7-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree") with 4 ("neutral") as the midpoint (Cronbach's alpha = 0.98, n = 214).

The Mediator: Perception of
Service Inadequacy

Perception of service inadequacy refers to the perception of a discrepancy between actual and adequate performance. Its measure was adapted from Oliver (1997). Subjects were asked to compare the presented performance with the worst performance that they would accept and then to rate the difference between the two on a 7-point Likert-type scale ranging from 1 ("much worse") to 7 ("much better") with 4 ("exactly the same") as the midpoint.

RESULTS

The subjects in the four treatment cells exhibit remarkable similarity in age [F(3, 230) = 0.69, p = 0.56], family income [F(3, 238) =

0.88, p = 0.45] and sex distribution [chi square = 2.96, p = 0.40]. Thus, there is no need to account for demographic effects when addressing the research hypotheses. The results of hypothesis testing are presented in Table 1.

Results of H1 and H4

The ANOVA results of customer dissatisfaction reveal that the main effect of service failure on customer dissatisfaction is significant [F (1, 210) = 1337.51, p < 0.01] and the "service failure x tolerance to inferiority" interaction effect is also significant [F (1, 210) = 21.82, p < 0.01]. It can also be realized by eyeballing Figure 2 where the two tolerance lines are obviously not parallel, to the extent that they cross each other at a particular point.

FIGURE 2

ANOVA Results of Customer Dissatisfaction
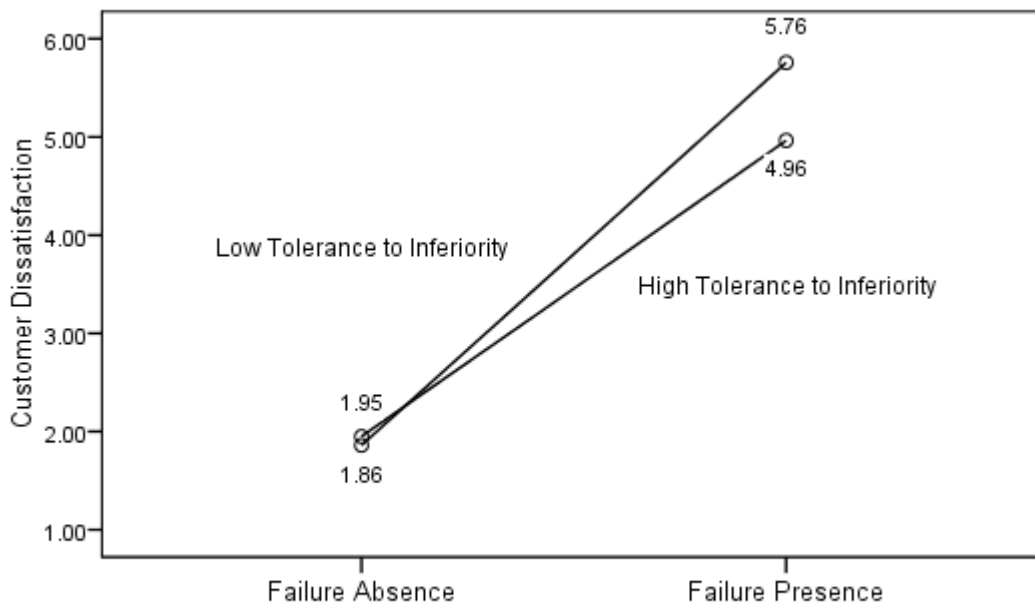
Simple effect analyses (Keppel and Zedeck 1989) were performed. At high tolerance to inferiority, dissatisfaction is lower in the absence-of-failure than the presence-of-failure treatment group [M (absence) = 1.95, M (presence) = 4.96, F (1, 210) = 493.25, p < 0.01]. At low tolerance to inferiority, dissatisfaction is also lower in the absence-of- failure than the presence-of-failure treatment group [M (absence) = 1.86, M (presence) = 5.76, F (1, 210) = 878.23, p < 0.01]. These results demonstrate that when service failure is present, customers are more dissatisfied than when it is absent, thus H1 is supported.

The impact of service failure on customer dissatisfaction is stronger in the low

TABLE 1

Results of Hypothesis Testing

	Sum of Squares	df	Mean Square	F	Sig
ANOVA of Customer Dissatisfaction:					
Failure	629.90	1	629.90	1337.51	.00
Tolerance	6.54	1	6.54	13.89	.00
Failure * Tolerance	10.28	1	10.28	21.82	.00
Error	98.90	210	.47		
Presence vs. Absence of Failure at High Tolerance:					
Contrast	232.30	1	232.30	493.25	.00
Error	98.90	210	.47		
Presence vs. Absence of Failure at Low Tolerance:					
Contrast	413.60	1	413.60	878.23	.00
Error	98.90	210	.47		
ANOVA of Service Inadequacy:					
Failure	337.33	1	337.33	501.09	.00
Tolerance	4.05	1	4.05	6.02	.02
Failure * Tolerance	9.18	1	9.18	13.63	.00
Error	143.39	213	.67		
Presence vs. Absence of Failure at High Tolerance:					
Contrast	116.14	1	116.14	172.52	.00
Error	143.39	213	.67		
Presence vs. Absence of Failure at Low Tolerance:					
Contrast	231.84	1	231.84	344.38	.00
Error	143.39	213	.67		
ANCOVA of Customer Dissatisfaction:					
Service Inadequacy	2.56	1	2.56	5.55	.02
Failure	153.11	1	153.11	332.15	.00
Tolerance	5.16	1	5.16	11.19	.00
Failure * Tolerance	7.48	1	7.48	16.22	.00
Error	96.34	209	.46		
Presence vs. Absence of Failure at High Tolerance:					
Contrast	105.64	1	105.64	229.16	.00
Error	96.34	209	.46		
Presence vs. Absence of Failure at Low Tolerance:					
Contrast	127.22	1	127.22	275.98	.00
Error	96.34	209	.46		

tolerance to inferiority than high tolerance to inferiority treatment group [MS (low) = 413.60, MS (high) = 232.30, where MS = Mean Squares]. Combining these results with the significant interaction effect [F (1, 210) = 21.82, p < 0.01], H4 is supported.

Results of H2 (a) and H3

The ANOVA results of perception of service inadequacy reveal that the main effect of service failure on perception of service inadequacy is significant [F (1, 213) = 501.09, p < 0.01] and the "service failure x tolerance to inferiority" interaction effect is also significant [F (1, 213) = 13.63, p < 0.01]. It can also be realized by eyeballing figure 3 where the two tolerance lines are obviously not parallel, to the extent that they cross each other at a particular point.

FIGURE 3

ANOVA Results of the Perception of Service Inadequacy
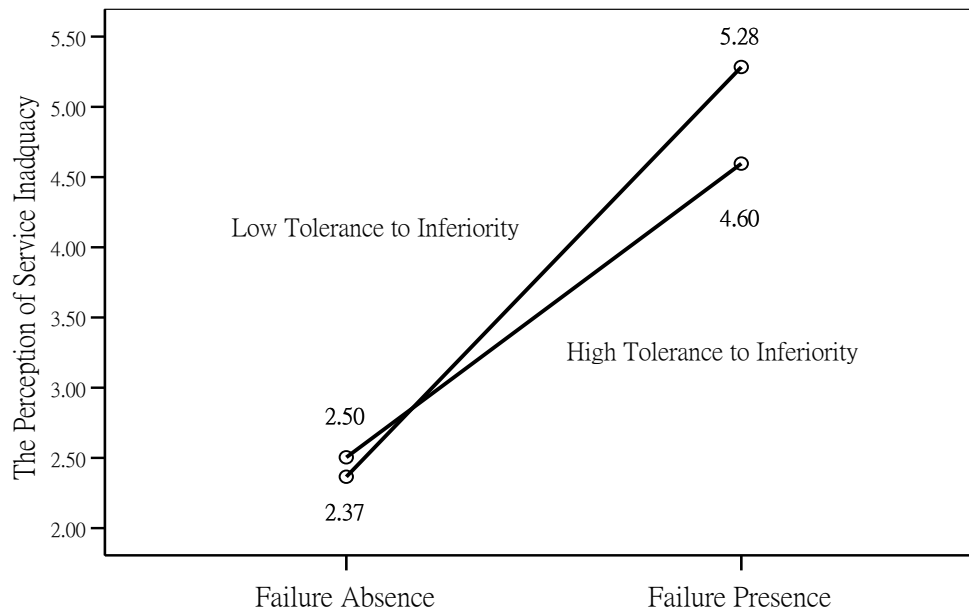
Simple effect analyses (Keppel and Zedeck 1989) were performed. At high tolerance to inferiority, perception of service inadequacy is lower in the absence-of-failure than presence-of-failure treatment group [M (absence) = 2.50, M (presence) = 4.60, F (1, 213) = 172.52, p < 0.01]. At low tolerance to inferiority, the perception of service inadequacy is also lower in the absence-of-failure than presence-of-failure treatment group [M (absence) = 2.37, M (presence) = 5.28, F (1,213) = 344.38, p < 0.01]. Thus, H2 (a) is supported.

The impact of service failure on the perception of service inadequacy is stronger in low tolerance to inferiority than high tolerance to inferiority treatment group [MS (low) = 231.84, MS (high) = 116.14]. Combining these results with the significant interaction effect [F (1, 213) = 13.63, p < 0.01], we assert that H3 is also supported.

Results of H2 (b) and H2(c)

Baron and Kenny's (1986) approach was used to test the mediating effect of the

perception of service inadequacy on the relationship between service failure and customer dissatisfaction.

The ANCOVA results of customer dissatisfaction show that the perception of service inadequacy is a significant covariate [$F (1, 209) = 5.55$, $p = 0.02$; perception of service inadequacy and customer dissatisfaction are positively correlated: $r = 0.82$, $p < 0.01$].

The perception of service inadequacy reduce the main effect of service failure [from $F (1, 210) = 1337.51$, $p < 0.01$ to $F (1, 209) = 332.15$, $p < 0.01$, and a 76% reduction in the mean squares from 629.90 to 153.11]. Specifically, it reduces the effect of service failure treatment at both high tolerance to inferiority [from $F(1, 210) = 493.25$, $p < 0.01$ to $F(1, 209) = 229.16$, $p < 0.01$, and a 55% reduction in the mean squares from 232.30 to 105.64] and low tolerance to inferiority [from $F(1, 210) = 878.23$, $p < 0.01$ to $F(1, 209) = 275.98$, $p < 0.01$, and a 69% reduction in the mean squares from 413.60 to 127.22].

These results demonstrate that perception of service inadequacy leads to customer dissatisfaction and that the relationship between service failure and customer dissatisfaction is partially mediated by the perception of service inadequacy. Therefore, H2 (b) and H2(c) are supported.

DISCUSSION

We use students as customers and accommodation as service in an experiment to examine the moderating effect of tolerance to inferiority on the relationship between service failure and customer dissatisfaction. We believe that we have achieved realism in the experimental setup because students are customers of accommodation services in real life. Therefore, we assert that the results can be generalized to real-life situations and thus have valuable implications for managers. The empirical results confirm that 1) there exist customers who are tolerant and those who are intolerant to inferiority, and 2) tolerance to

inferiority moderates the effect of service failure on customer dissatisfaction in such a way that the higher is the tolerance of customers, the less is the dissatisfaction resulting from service failure, and vice versa. Hence, we have addressed the five criteria for effective segmentation of Kotler and Keller (2006), who state that resulting segments should be 1) measurable, 2) substantial, 3) accessible, 4) differentiable and 5) actionable. We advocate the use of tolerance to inferiority to segment one's existing customer base in a CRM program (i.e., customer segmentation), so the resulting segments are, of course, 1) "measurable" because key customer information is available in an adequate CRM program, 2) "substantial" because no segment is ignored after the segmentation and 3) "accessible" because a customer database is available in any CRM program. The empirical results of our experiment confirm that the resulting segments are 4) "differentiable" because tolerant and intolerant customers respond differently to service failure. To demonstrate how the last criterion, 5) "actionable," is achieved, we explain what actions service managers can take to get the most out of the advocated segmentation base in their CRM program.

Managerial Implications

The cost of retaining existing customers is much lower than that of attracting new ones (Marcus 1998). Service failure is a major source of customer loss (Hirschman 1970; Singh 1988); thus, avoiding service failure is a major task of service managers. Unfortunately, service failure is inevitable, and the lower the failure rate the higher the cost of the service. In the past, we can only operate an acceptable failure rate in service delivery for all customers. Now, using customer tolerance to inferiority to segment one's customer base into tolerant and intolerant segments, at least two service failure rates can be managed: a higher failure rate (and thus lower cost) for

tolerant customers, and a lower failure rate (and thus higher cost) for intolerant customers.

For instance, in deciding whether to deliver a service through process A (pA) with a lower cost but higher failure rate or through process B (pB) with a lower failure rate but higher cost, managers could consider the tolerance level of their customers. Delivering a service through pA to tolerant customers and through pB to intolerant customers would help to minimize costs, customer dissatisfaction and switching. Likewise, in deciding whether to provide training program A (tA), which is less rigorous and thus less costly, or training program B (tB), which is more rigorous and thus more costly, for frontline service employees, managers could consider the tolerance level of customers. Providing tA for frontline employees serving tolerant customers and tB for those serving intolerant customers would also help to minimize costs and customer dissatisfaction. By the same token, deploying more experienced staff members to serve intolerant customers and less experienced staff members to serve tolerant customers would have the same effect on costs and dissatisfaction.

This could appear to be an unfair treatment to customers. Does it represent a kind of discrimination against tolerant customers? No! The purpose of such segmentation is not to take advantage of but to deliver an even higher level of customized service to customers. The cost so saved from serving a tolerant customer could be used to enhance other attributes of the same service for the same customer or passed on to him or her through a preferential pricing scheme. The cost saving would be especially significant if the service is a kind of professional service. Consider an advertising agency that deploys less experienced and less rigorously trained service employees to deliver the service through a relatively less failure-proof service delivery process and then offers a lower price to tolerant customers. In such a case, the price difference could be substantial enough to turn around the affordability of the service (i.e., a service currently unaffordable to some customers could be made affordable). Of course, in our proposition, service failure is to be backed up by service recovery, regardless of whether the customer is tolerant or not.

It is a subject of debate if the cost saved from serving a tolerant customer is not transferred back to the customer but transformed into higher company profitability. Although such practice may not be seen as unethical today as even offering different prices for customers with different price sensitivities has become normal in many industries (e.g., Kurata and Bonifield 2007; Raju, Narahari and Ravikumar 2006), we strongly advocate that tolerance to inferiority be used as a customer segmentation base to achieve a higher degree of customization rather than higher profitability.

Until tolerant and intolerant customers can be identified through demographic variables such as age, income, education level and so forth, tolerance to inferiority as a segmentation base is useful in only customer segmentation but not market segmentation. In a CRM program, a customer database exists that can also be used to store information about the tolerance level of customers. The tolerance of a particular customer can be measured through a questionnaire embedding in other routine measurements such as service quality and/or customer satisfaction level survey. Frontline service employees can also be trained to assess the tolerance level of a particular customer after each service encounter (especially when the service is not perfectly delivered) and record it in the database. Content analysis of customer complaints could also be used to assess the tolerance level of customers. Putting together all of this information, a customer base could be divided into two groups according to tolerance level, which means the segmentation process is then complete. It should be emphasized that in any particular CRM program, tolerance to inferiority is not to be the only segmentation base. Rather, it should be treated as an additional

segmentation base in the existing *multilevel* segmentation of a company's customer base to achieve even greater customized service. Other segmentation bases more important to a company, such as "profitability of customer", should still serve as the primary level segmentation base.

CONCLUSION

In the last decade or so, CRM has become the major battlefront for many service industries including hotels, banking and insurance, among others. Service companies compete with each other in terms of their ability to maximize customer satisfaction and minimize customer dissatisfaction, for which customization of service is an antecedent. To obtain high customization, multilevel customer segmentation should be conducted to divide a company's customer base into many small groups, or segments, within which the demand should be as homogenous as possible. High within-group homogeneity can only be achieved when different and appropriate segmentation bases are used for multilevel segmentation. The empirical findings of this study support the use of an additional segmentation base – tolerance to inferiority. This new way of segmenting the customer base has the benefit of lowering the level of customer dissatisfaction in service failure and delivering an even higher degree of customized service to customers.

LIMITATIONS AND FUTURE RESEARCH

Until research is carried out to identify tolerant and intolerant customers demographically, tolerance of inferiority can be used only in customer, not market, segmentation, because it is able to satisfy the five criteria of effective segmentation (Kotler and Keller 2006) only in the former, as explained previously. Therefore, one research direction is to relate tolerant and intolerant customers with demographic variables such as age, income and occupation, so that tolerance levels can be observed and predicted when they cannot be measured. When such relationships are established, the possibility and benefit of using tolerance to inferiority in market segmentation can be explored.

In this study, we focused our discussion on the primary appraisal components (i.e., goal relevance and goal congruence), which are sufficient for producing overall positive or negative feelings. We did not explicitly measure and test the discrete emotions that may be immediate to service inadequacy and antecedent to customer dissatisfaction. Future research should further look at other appraisal components in Lazarus's (1991) and other researchers' [see Ellsworth and Scherer (2003) and Scherer and Johnstone (2001) for a review] appraisal frameworks that are necessary for producing discrete positive or negative emotions, such as joy, anger, surprise, etc.

Another direction for future research is to explore how customer emotions and dissatisfaction generated through the appraisal process suggested in this study influence customer judgment and decision making. Dissatisfied consumers may take no action, complain to sellers, create negative word of mouth to family or friends, switch patronage to another firm, or take legal third party action (e.g., Bougie, Pieters and Zeelenberg 2003; Hirschman 1970; Maute and Forrester 1993; Singh 1988; Singh and Pandya 1991). The innate action tendency of each discrete emotion (Lazarus, 1991) may provide implications on customer behaviors. Also, Loewenstein and Lerner's (2003) immediate-expected emotion model and Taylor's (2008) model of emotion, attitude, and goal directed behavior may serve as good frameworks for understanding the roles of emotions in consumer decisions on post-purchase behaviors.

Tolerance to inferiority was treated as an undifferentiated construct in this paper. Nevertheless, cognitive and affective

tolerance may be its two separable dimensions. Cognitive tolerance is the tendency to endure poor performance as the result of rational thinking. It can be traced back to the cardinal trait – conscientiousness (socially prescribed impulse control that facilitates task- and goal-directed behavior). Affective tolerance is the tendency to endure poor performance as the result of emotional feeling. It can be traced back to a different cardinal trait – neuroticism (as contrasted to emotional stability and even-temperedness with negative emotionality). Future research should continue to develop the construct and study its dimensionality.

      The operationalization of tolerance to inferiority is also a limitation of the study. It is operationalized here within a housing context. Although this context does allow for a variety of situations, such operationalization cannot fully depict the dispositional property of tolerance to inferiority. This is reflected in the marginal fit of its CFA model. Our study takes the first step in developing the construct. Future research should continue to work on it.

      In addition, although the use of students as customers and accommodation as service in this study can capture real-life situations, further external validity can be achieved through the replication of this study by using different respondent types, services and/or research methods.

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APPENDIX 1

Tolerance to Inferiority Measures

To what degree can you tolerate the following apartment features? For each question, please circle a corresponding number to reflect your feeling.

	Not Acceptable At All			Neutral			Totally Acceptable
The building is old.	1	2	3	4	5	6	7
The decoration/furniture materials are harmful to health.	1	2	3	4	5	6	7
The home appliances are outdated.	1	2	3	4	5	6	7
The electricity/water supply is unstable.	1	2	3	4	5	6	7
Water pipe of the apartment is always clogged or broken.	1	2	3	4	5	6	7
The building structure/condition is dangerous.	1	2	3	4	5	6	7
The neighborhood is terrible.	1	2	3	4	5	6	7
The air quality is low.	1	2	3	4	5	6	7