INCORPORATING AN AFFECTIVE COMPONENT TO A COGNITIVE MODEL OF BRAND SWITCHING BARRIERS

by

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ABSTRACT

INCORPORATING AN AFFECTIVE COMPONENT

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BARRIERS

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Customer retention is an important goal of business. It has been shown in a general model of brand switching that consumers utilize internal assessments of satisfaction and brand switching barriers to reach brand selection decisions.

Satisfaction is a complex construct, and has been studied extensively for the past several decades. However, this construct only accounts for approximately a quarter of explained variance in the customer retention construct.

Brand switching barriers have not been studied extensively, though they have recently been shown to account for up to 30 percent of variance in the same dependent

construct. Thus, a better understanding of brand switching barriers can yield important insights into consumer decision processes and has significant strategic implications relative to customer retention.

This general model of brand switching conceptualizes the underlying decision-making activity as quantitative, precise, and machine-like. Recently, advances in the examination of decision-making have shown affect to play a role in the evaluation of alternatives. In marketing, affect can be seen at a higher level in the moderating constructs of consideration and involvement. The purpose of this dissertation is to incorporate an affect component in the general model of switching barriers and customer retention.

Utilizing a two wave, matched sample survey of approximately 1200 cellular telephone service consumers, data have been collected for the above constructs. Primary analysis consists of developing a structural equation model to evaluate the main effects of both the newly introduced affect construct and the replicated brand switching barrier and customer satisfaction constructs, as well as the relationship effects of each of these constructs.

The four major constructs in the model, Customer Retention, Brand Switching Barriers, Satisfaction, and Affect, are found to be reliable and discriminating constructs. The dependent construct, Retention, was asked of respondents in three different manners, and the results were internally consistent across question modes. With a longitudinal matched sample across four months, actual behavior was compared to stated intention and found to be consistent as well.

A confirmatory factor analysis done on each of the three independent constructs, Barriers, Satisfaction, and Affect, showed that the three constructs were reliable across the two waves. In addition, the data fit the constructs remarkably well.

A structural equation model utilizing the data as observed variables and the constructs as latent variables produced a model that showed the impact of affect on the previously developed brand switching model.

The six main hypotheses are supported, providing a better understanding of the relationship between an expanded model of brand switching, containing both brand switching barriers and affect in addition to the traditionally used measure of customer satisfaction. There was a positive relationship between satisfaction and retention, and also a positive relationship between barriers and retention, indicating that businesses can utilize both constructs to maintain customers. In addition, there was a positive relationship between affect and retention, indicating that this construct also merits consideration in the marketing mix. The correlations between affect and the other two independent constructs were positive, indicating that a high level of affect increases the effectiveness of barriers and the effectiveness of satisfaction on the retention construct.

Future research utilizing the general brand switching model could identify and refine additional moderator and mediator constructs to this relationship, improving the amount of variance explained in customer retention. Affect as a whole is not well understood in the marketing literature, and this is but one example of how a rational decision-making model can gain additional explanatory power by incorporating conceptual models of this powerful force.

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CHAPTER 1

INTRODUCTION

This chapter provides an overview of the dissertation. The second chapter contains a discussion of the relevant literature in customer retention, customer satisfaction, brand switching, and affect, with a focus on identifying the major trends and themes of each of these research streams, pointing out conflicting findings and disagreements as necessary. The third chapter focuses on building a general model of brand switching, in which the roles of cognitive decision-making and affective influences are identified. The fourth chapter identifies the specific methodology, hypotheses, and analysis techniques used in this research. The fifth chapter provides a succinct analysis of the research findings. The sixth chapter discusses the findings and points out both potential shortcomings of this research and possible future avenues to extend this research.

1.1 General Model of Brand Switching

The most basic role of decision-making is to select between alternatives. The earliest models of decision making were developed in the 18th century by Nicolas Bernoulli and his cousin, Daniel Bernoulli (Plous, 1993). These early quantitative models of utility were extended with the introduction of expected utility theory by Von Neumann and Oskar Morgenstern in 1947, exploring normative consumer behavior.

This model was widely utilized until the alternative of Satisficing theory was proposed by Herbert Simon's in 1956 (Kahneman, 1991). In this treatise, Simon set the boundaries of psychological examination of the field of decision-making, and established the concepts of a cognitively-based rational choice mechanism and evaluation of alternatives incorporating risk and biases. Even Kahneman recognized, however, that a strict focus on cognition did not incorporate the second major decision-making process, affect. Kahneman, Slovic, and Tversky (1982) examined heuristics and biases, finding that even careful and thorough decision-makers can be influenced by a wide range of influences on their decision, such as the manner in which a decision is framed.

Rational choice theory (Simon, 1955) emphasized the selection of optimal payoffs. He refined this theory to describe a satisficing mechanism by which decision-makers exert only enough cognitive effort to obtain a satisfactory result, not an exhaustive examination of all alternatives and outcomes. This was supported by the extensive works of Kahneman and Tversky (1992) in which an underlying reliance on heuristics to simplify the decision-making processes and cognitive workload on the brain is explored.

This area of investigation has been extended widely, looking at both the areas of antecedents to decision-making and the areas of influences on decision-making. Shapiro and Spence (2002) examined the encoding, retrieval, and alignment of specific sensory attributes, finding that consumers place more emphasis on physical evidence than verbal descriptions of information when making brand choice decisions. Shafir

and LeBoeuf (2002) present situations in which the decision changes depending on which rational decision-making process is modeled.

Kahneman incorporated the concept of risk in his theory. It was utilized by consumers as a means weighting their decisions. With this concept, Kahneman developed a radical departure from a utility-based theory with the description of prospect theory. In this latter theory, decision-making is oriented around gains and losses (Kahneman and Tversky, 1979).

Risk is explained through the concept of loss aversion. When goods are exchanged "as intended," there is no loss aversion, but when the exchange is not as expected, loss aversion intrudes. Because losses loom larger than gains in prospect theory, decisions are weighted more heavily to loss avoidance. Loss aversion is partly related to emotional attachment (Novemsky and Kahneman, 2005), and sets the stage for addition of a non-cognitive component to the decision-making models.

Decision-making models have been developed to attempt to explain the mechanisms by which consumers switch from one brand to another. Often, as in the case of Sambandam and Lord's (1995) examination of switching in the automobile market, these are applied to specific product categories or vertical markets.

Traditional models of brand switching examine the role of customer satisfaction as an independent variable and customer retention as the dependent variable. An expanded view (Burnham, et al., 2003) of brand switching incorporates an additional independent variable, brand switching barriers. However, this model is cognitively

based, and does not explicitly consider the second major process resulting in customer behavior, affect.

Mehrabian et al. (1995) presented a framework to describe and measure emotional states, laying the groundwork for a systematic review of several decades of research in this field and establishing much needed definitions. Mehrabian found three major dimensions of emotion, which were labeled pleasure, arousal, and dominance.

1.1.1 Dependent Construct Customer Retention

A fundamental goal of firms is to attract customers to purchase their products. Another fundamental goal is to retain those customers to purchase those products on a repetitive basis, forgoing the competitive alternatives in the market. This second goal, customer retention, has led to significant investigation in the marketing field.

1.1.2 Independent Construct Customer Satisfaction

For the past several decades, a prevailing paradigm has been that keeping a firm's customers satisfied with that firm's products is important to retaining that firm's customers (Fornell, 1992). Firms have invested large quantities of money in conducting segmentation studies to identify attributes of their customers, in developing mass customization programs to reach their customers with tailored messages, and in developing loyalty programs to induce customers to remain purchasers of the firm's products.

However, recent research (Szymanski and Henard, 2001) has revealed that customer satisfaction as a construct is only able to explain about a quarter of the

variance in customer retention behaviors. The relationship between satisfaction and customer retention is indeed quite complex (Oliver, 1999).

1.1.3 Independent Construct Switching Barriers

Burnham et al. (2003) examined this relationship from a different perspective. In addition to satisfaction, the concept of switching barriers was identified and quantified. This resulted in an additional amount of explained variance in customer retention, expanding the theoretical knowledge base of customer repeated choice behavior.

1.1.4 Independent Construct Affect

Most models of decision-making are conceptualized as cognitive in nature. The earliest theories of decision-making are based on utility theory, which assumes that choices have reasonably well known and mathematically definable outcomes, that consumers are actors seeking to maximize utility, and that more complex decisions require more extensive or multiple stage decision-making processes (Shocker, 1999). Through the development of decision-process theories, including Simon's (1955) satisficing theory and Kahneman and Tversky's (1979) prospect theory, the underlying premise of decision-making being a cognitive effort remains.

The profound psychological aspects of decision theory were summarized by Slovic, et al (1977). This summary focused on both normative theory, examining understandings of decision-maker beliefs and values, and descriptive theory, which examines how decision-makers incorporate these beliefs and values into their decisions.

Fischoff (1977) captures some of the potential biases resulting from the manner in which information is processed by consumers.

Zajonc (1980) argues for a dual-process of cognition and affect, in which both processes contribute to decision-making. The focus of this research is to expand Burnham's cognitively-oriented brand switching barriers model to incorporate an explicit affect component, providing further insights into the decision-making process. Additional quantitative models that incorporate affect to some degree include works by Mellers et al (1997, 1999), Fischoff (1977), and Leven and Levine (1996), among others.

Peterson and Sauber (1993) developed one of the many mood scales being used to quantify and categorize the level of positive or negative affect in a person at a point in time.

1.2 Analysis

Utilizing a large, nationally representative sample of adult consumers, a two-wave survey is conducted. The first wave of the survey examines switching attitudes, actual and future switching behaviors, and self-reported affect levels for a common consumer product, cellular telephone service. The second wave is conducted with the same 1000 respondents, less anticipated respondent attrition, after a period of four months, examining the same switching attitudes, behaviors, and affect levels. It is expected that this matched sample allows for approximately 50 to 75 consumers who have actually switched their cellular telephone service during that time period, and that

comparison of the pre-switching and post-switching data will provide a better understanding of the role of affect in this expanded brand switching model.

A portion of the analysis is a replication of Burnham et al. (2003) brand switching barriers research, though with a different sample, with a pre-switching and post-switching longitudinal aspect, and with the addition of the affect construct. The primary analysis tool is to develop a structural equation model using SPSS AMOS 4.01, which captures the relationships between the independent variables and the dependent variable, customer retention. In addition, relationship effects between the independent variables can also be examined.

1.3 Results and Conclusions

The first area of conclusion comes from the degree of representation of the sample. It was found that the sample is highly representative of United States adults, and as a result, the findings of this research can be extrapolated and generalized to the underlying population.

The second area of conclusion comes from the degree of stability in attitudes from the first wave to the second wave. In areas where the attitudes were expected to be stable, such as the agreement or disagreement with the brand switching barrier items, there was a high degree of consistency. In areas such as satisfaction and affect, there was a difference between those who were classified as non-switchers and those who were classified as switchers. Again, this is consistent with the underlying theory.

The greatest area of conclusion, however, comes from the examination of the structural equation models which incorporated affect into the mostly cognitive model of

brand switching barriers and satisfaction. Initial confirmatory factor analysis measurement models were constructed of the Barriers, Satisfaction, and Affect constructs, and the constructs were found to be reliable. Cronbach's alpha ranged from .885 to .892 for the three constructs.

For the Barriers construct, a CMIN/DF measure of 2.993 was calculated, with a RMSEA of .040. This indicated a very satisfactory model, and was consistent with Burnham et al. (2003) findings.

For the Satisfaction construct, a CMIN/DF measure of 6.071 was calculated, with a RMSEA of .064. Again, the measures indicated a very satisfactory model.

For the Affect construct, a CMIN/DF measure of 18.802 was calculated, with a RMSEA of .119. Though both measures were somewhat high, the measures indicated a useable model. The Affect construct utilized the previously validated PANAS scale of Watson and Clark, and again was shown to be somewhat challenging to interpret. A significant amount of work remains to be done on the Affect construct, though that is beyond the scope of this work.

Based on these measures, a structural equation model was constructed in which the six major hypotheses were tested. The strongest relationship was between Satisfaction and Retention, which supported Oliver's original work. Barriers also had a strong relationship with Retention, which supported Burnham's recent work. Affect contributed to the explanation of variance in Retention, though there was a high co-variance between Affect and Satisfaction, indicating more work is to be done in this area. However, the hypotheses were supported, and Affect does belong in this model.

CHAPTER 2

LITERATURE REVIEW

This chapter provides an examination of the relevant literature surrounding each of the four major constructs incorporated in this research and the subsequent analytical model. The four constructs, discussed in turn, are Customer Retention, Customer Satisfaction, Brand Switching Barriers, and Affect.

Within the customer satisfaction section, additional discussion is provided relative to involvement and consideration set, as these two sub-constructs are viewed in the literature as important in the formation of attitudes and utilization of the decision-making process.

Within the brand switching barriers section, extensive examination of decision-making models and strategies is covered, including Burnham et al. (2003) seminal typology and structural equation model of this construct.

Within the affect section, the early roots of examination in this area are traced to current research, with major affect models examined as appropriate. This includes Bagozzi's (1999) generally accepted definition of affect, a discussion of the four major affect camps of Russell, Watson and Tellegen, Thayer, and Larsen and Diener. Forgas's integrative model of affect infusion is discussed, followed by a discussion of a couple of the major affect scales.

Because of the great body of work in this area, as in all of the major constructs being examined and manipulated in this research, seminal or representative research works are presented and summarized, rather than attempting an exhaustive catalog of all works. However, great care was taken to build the research proposition by examining one construct, then adding additional constructs one at a time, so that a better understanding of the theoretical relationships between these constructs can be gained.

2.1 Customer Retention Construct

This chapter contains a review of pertinent literature in the areas of the customer retention construct, the customer satisfaction construct, the brand switching barriers construct, and the affect construct. The customer retention construct is the result of a switching decision, and is operationalized as the dependent variable in subsequent models. The other three constructs are operationalized as independent variables in subsequent models.

2.1.1 Customer Retention

For the purposes of this research, the customer retention construct is defined as a consumer not switching from one brand of a particular product to another competing brand of the same particular product over the course of a year's time. Per Porter (1980), customer retention (lack of switching to a competing brand) has a very high strategic significance to the firm and any strategic moves relative to switching should be considered.

Keaveney and Parthasarathy (2001) developed a brand switching model using online service providers as the product, and found in two studies that behavioral and

demographic factors are adequate for distinguishing between switchers and non-switchers, and then extended their model in the second study to incorporate additional attitudinal factors such as involvement and satisfaction.

In their book, Colombo and Morrison (1987) built a cognitively-oriented, mathematical brand switching model from a Marketing Science Institute working paper. Bell et al. (2005) examined customer retention in the context of customer expertise and switching costs, but stopped short of fully developing a switching costs model. Koehler and Macchi (2004) examined risk propensity, and particularly low-probability events, as a characteristic which might help in explaining switching behaviors for infrequent or highly significant purchases.

2.1.2 Actual Switching Behavior

Switching from one brand of a product to another competing brand involves a decision on the part of the consumer. There are many factors which can cloud the consumer's decision process, such as incomplete information, experience with prior similar decisions, and frequency of brand switching within that product category (Barron and Erev, 2003). In addition, it is sometimes challenging for consumers to identify switching behaviors if a significant time has elapsed since the behavior occurred, or if the switching decision is at a point in the future. These potential confounds need to be considered in any switching behavior research design.

Sambandam and Lord (1995) examined switching behavior in the automobile market, using a consideration set model. Trivedi and Morgan (1996) extended this by looking at brand-specific heterogeneity and market-level brand switching, finding

strong relationships. This was amplified by Srinivasan (1996) who provided additional linkages between switching behavior and customer retention.

2.2 Customer Satisfaction Construct

Customer satisfaction has been studied for the past several decades, and has been shown to explain roughly a quarter of the variance in observed consumer behavior (Szymanski and Henard, 2001). Churchill and Surprenant (1982) believe that the study of customer satisfaction is not only important, but pivotal in the practice of marketing and the development of marketing theory.

2.2.1 Customer Satisfaction

Cardozo (1964) attempted to measure expectation and satisfaction in a laboratory setting, marking one of the first thorough examinations of the satisfaction construct and its drivers. In this setting, expectations were manipulated to determine the linkage to the satisfaction construct.

This seminal work was followed by a large number of studies focusing on the satisfaction construct, summarized by Oliver (1980). Oliver's field studies supported the linkages between expectation and satisfaction, though he expanded the overall model to include the antecedents of satisfaction, expectation and disconfirmation, and the consequences, intention and post-purchase attitudes. Oliver cast his model of consumer satisfaction as a cognitive model. This was supported by Park and Choi (1998) who found that consumers compare the expectation of their brand with that of some normative standard, possibly the perceived "best in category."

Much of recent satisfaction research revolves around exploration of the disconfirmation paradigm, which holds that satisfaction is derived from discrepancies in a person's initial expectations and resulting product performance. Churchill and Suprenant (1982) summarized research in this area, and conducted an experiment in which three levels of expectation and three levels of performance were manipulated for two new products, a video disc player and a hybrid chrysanthemum. The goal of their research was to capture the relationships between expectations, perceived performance, disconfirmation, and satisfaction. Of significance, the study captured satisfaction measures of both belief and affect, lending support to the assertion that affect is inherent in the satisfaction construct. However, this study stopped short of the next step, which is to examine the relationship of the satisfaction construct to the customer retention construct.

Some direction in this area is provided by Guenzi and Pelloni (2004). In a recent study, they found that interpersonal relationships between the customer and the employee do have a significant role in the development and growth of customer loyalty, extending beyond the mere product or service characteristics purchased by the consumer. Lam et al. (2004) demonstrated linkages between satisfaction, loyalty, and switching costs in a business-to-business service environment.

A recent study by Martinez-Tur et al. (2005) examined social and technical situational constraints surrounding customer satisfaction, and found that technical constraints had far more weight in the satisfaction levels than social constraints. The

study examined both managers and customers of a service organization, using a field survey.

Of particular concern is the conclusion drawn by Dholakia and Morwitz (2002) that the simple act of measuring customer satisfaction levels can have a subsequent effect on purchase behavior, loyalty, and switching behavior, for periods of time up to a year after the measurement. This is shown in Figure 2.1.

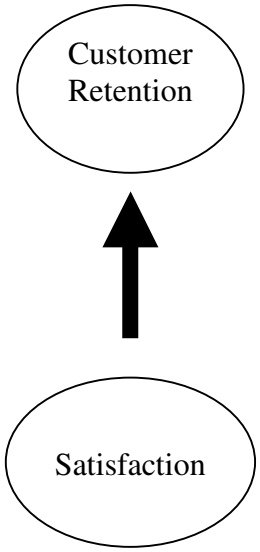

Figure 2.1 Satisfaction Model

2.2.1.1 Involvement

Oliva and Oliver (1995) have attempted to model consumer satisfaction, but continue to find that the linear assumptions of attribute performance and expectancy disconfirmation do not fully explain the data and allow for robust models. They begin in this article to bring into the picture more "affect-laden" construct, introducing the construct of involvement for the first time.

There are two mediators among many that impact the relationship between satisfaction and customer retention, involvement and consideration set. Each is discussed in turn. Though not explicitly captured in this research, it is important to note that these two constructs have both cognitive and affective components that impact the relationship between satisfaction and customer retention, further strengthening the argument that satisfaction has both a cognitive and an affective relationship to customer retention.

Lastovicka and Gardner (1978) postulated that involvement can be used as a basis for a product classification system, and developed a 22 item measure of purchase-decision involvement. In this formulation, the involvement construct consists of "importance" and "amount of commitment."

This was followed by Laczniak and Muehling (1993), who conducted an extensive review of the consideration construct, summarizing almost two dozen papers. Muehling concluded that involvement has three different conceptualizations, one of which is as a process that involves stages in the decision-making process, from a cognitive perspective, from an affective perspective, and from a behavioral perspective.

Mittal (1989) developed a bridge between involvement and cognition, leading to a four-item measure of purchase decision involvement.

Finally, a direct linkage between involvement and satisfaction is developed. Pan and Lehmann (1993) advanced Huber et al. (1982) by examining range, frequency, and categorization effects for three consumer-product categories (TV sets, cars, and campus apartments). In this research, expectation is comprised of the average

importance rating that the respondent gives to a multi-item set of purchase decision importance factors. Satisfaction is a single item, ten point scale question. Experience is a five category assessment of the length of time the service has been used by the respondent.

2.2.1.2 Consideration Set

Consideration set research over the past forty years has advanced the understanding of consumer decision-making behavior. Research streams for the first thirty years of this period are summarized by Shocker, et al. (1991).

Following Shocker, this research area has received considerable attention over the past decade, with a much better understanding of how consideration sets are formed, the size of consideration sets, and the impacts that considerations sets have on the resulting decision making processes. Brown and Wildt (1992) provide direction in the measurement of consideration set. A current literature review (Roberts and Lattin, 1997) summarizes important recent advances in the field. Since that review, further advances have been made in the area of consideration set formation by Punj and Brookes (2001) and the composition of consideration sets by Desai and Hoyer (2000).

Consideration set is thought to be of importance if the consideration set is small relative to the number of brands of which the consumer is aware (Roberts and Lattin, 1997). Bettman (1979) proposed a phased decision approach, where a filtering phase among possible brands leads to a choice phase. Andrews and Srinivasan (1995) break down the choice, or consideration, phase into a combination of brand loyalty and marketing variables like promotion. Shocker (1991) also evaluated the level of decision

complexity, with increasing levels of complexity leading to more stages in the decision process. From Shocker (1991) and Lehmann and Pan (1994) we can conclude that consideration set formation is associated with active information processing.

Hauser and Wernerfelt (1989) developed and tested an evaluation model of consideration set formation, in which incremental brand additions were associated with a cost of additional information decision costs, and the utility of adding incremental brands could be estimated. This model provided insights into the size of consideration sets relative to the decision costs of evaluating more brands. Generally, the higher the decision costs for an incremental brand, the smaller the consideration set for the category. This theory was tested using four publicly available data sets, covering different packaged goods categories.

Following this effort, Pan and Lehmann (1993) tested three specific effects for a new brand entry. These effects were range, frequency, and categorization. Range effects imply that the difference between two stimuli on a perceptual dimension decreases when the range increases. Frequency effect implies that the difference between two stimuli on a perceptual dimension increases when the frequency increases. Categorization effect is when similar objects are grouped, resulting in an enhancement of both information processing efficiency and cognitive stability. The results of their studies showed that positioning of a new brand relative to two or more existing brands had a significant effect on both the new brand and the perceptions of the existing brands.

Heide and Weiss (1995) utilized survey data from organizational buyers of computer workstations to examine the formation of consideration sets in highly uncertain environments. They evaluated antecedent conditions that influence when new vendors are included in the consideration stage and whether or not the buyers switch to new vendors at the choice stage. One aspect of their research that was clearly explicated was the identification of switching costs, which serve as a disincentive for seeking or choosing new brands of equipment.

Hauser and Wernerfelt (1989) evaluated consideration set composition at a market level. This is contrasted by Roberts and Lattin (1991), who evaluated consideration set from an individual decision-making perspective. They used the approach of adding an incremental brand to the consideration set, then evaluating the tradeoff of additional benefits and additional costs of that incremental addition. This was done with a logit model. Roberts and Lattin (1997) expanded this argument to differentiate between consumer durable goods, where the consideration set is more flexible to accommodate future information, and packaged goods, where the consideration set is maintained due to a consumer's desire for variety seeking and uncertainty about the shopping environment. Hauser and Wernerfelt (1989) compiled a list of average set sizes for different consumer durable goods and packaged goods from various studies. Two terms often used in the literature to describe rejected brands are inept (those brands which are unacceptable) and inert (those brands which have insufficient utility).

Kardes, et al. (1993) demonstrated that consumers often prefer pioneering brands to follower brands. This was done by evaluating 18 hypothetical chocolate bars. The study was a within-subjects longitudinal simulation conducted by presenting an initial brand, followed by a series of follower brands presented over the course of a two week period. This research indicated that there are many mediators that reinforce the pioneering advantage, including preference evolution, information integration, brand accessibility, and evaluation cost trade-off.

2.3 Brand Switching Barriers Construct

With a rich investigation of the customer satisfaction construct, and its relationship to the customer retention construct, some research has recently examined other areas that might help explain additional variance in the customer retention construct. One area of investigation is in the exact opposite of the customer satisfaction construct, brand switching barriers. Rather than satisfaction, which is oriented to keeping consumers happy with the existing product, research turned to barriers to switching. The barriers are impediments that the product contains which hinder the ease of switching from the current brand to a new brand.

2.3.1Burnham's Brand Switching Barriers Model

Weiss and Heide (1993) have shown that switching costs have a significant impact on repeat choice behavior. If the costs are too high, consumers will remain with the existing brand, regardless of satisfaction levels. Fornell (1992) found that, though this is an important area, not much research has been done in the area of switching costs.

Burnham, Frels, and Mahajan (2003) conducted an extensive study of brand switching barriers, developing a typology of switching costs and explicating the brand switching barriers construct and its relationship with both the customer retention construct and the customer satisfaction construct. Using a series of managerial interviews and focus groups, Burnham determined that credit cards and long distance services would be good candidates for the study.

Burnham's model revealed three major types of switching costs within the Brand Switching Barriers construct. These are Procedural Switching Costs, Financial Switching Costs, and Relational Switching Costs. In addition, Burnham included in the model the antecedents of switching costs, Market Characteristics, Consumer Investments, and Domain Expertise, along with the Satisfaction and Customer Retention constructs. The relationships are shown conceptually in Figure 2.2.

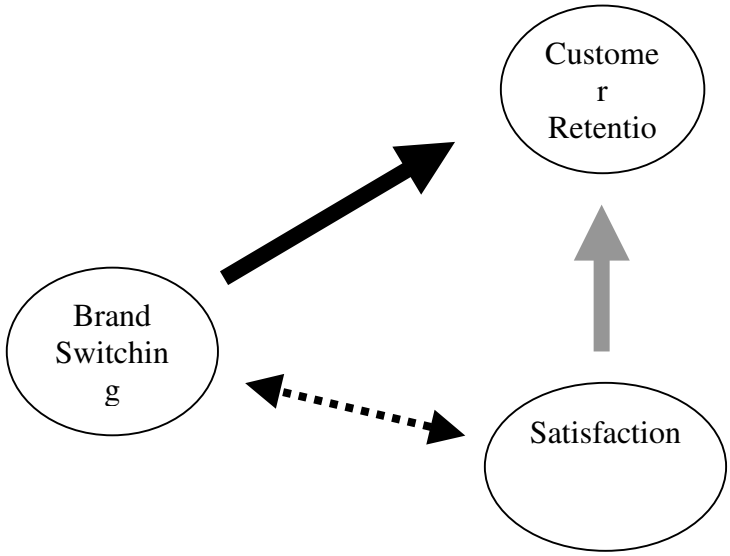

Figure 2.2 Conceptual Brand Switching Barriers Model

These relationships are show in more detail, breaking out the antecedent components, the brand switching barrier construct components, and the predicted direction and impact of the relationships, in Figure 2.3.

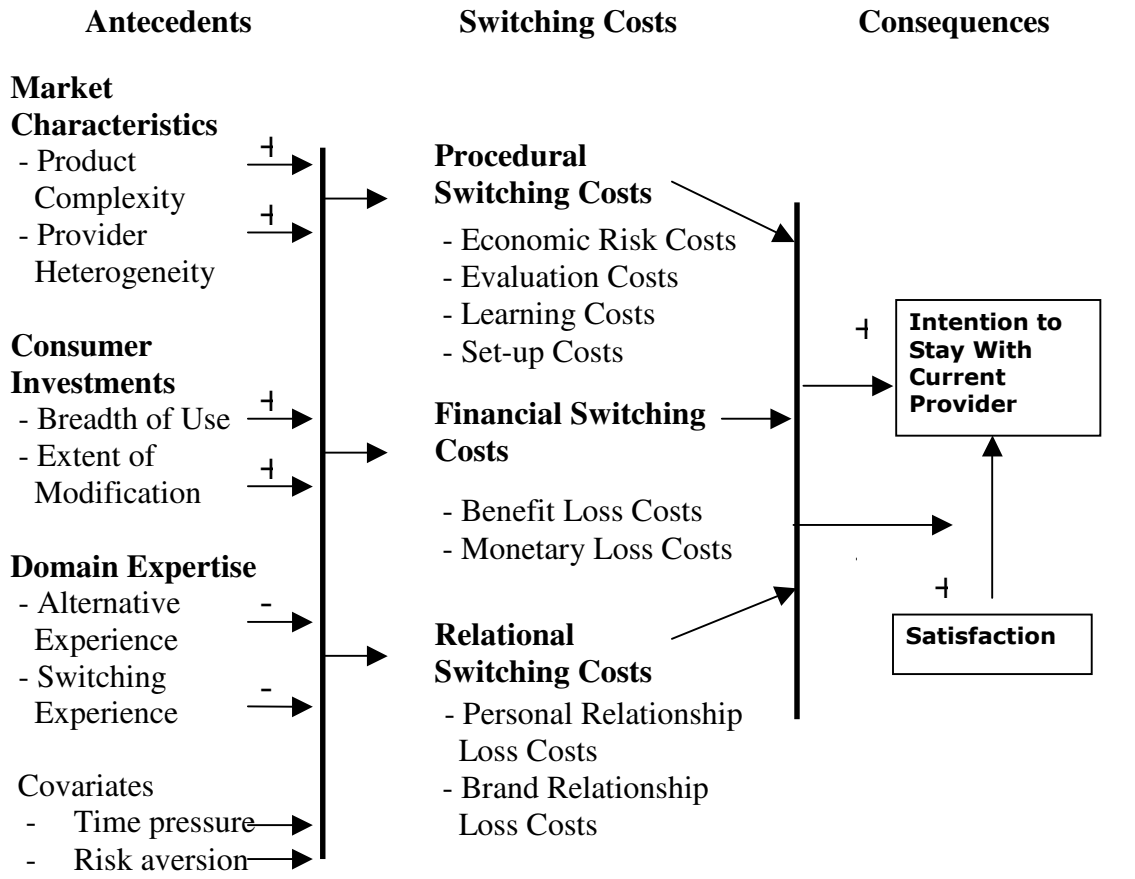

Figure 2.3 Burnham's Switching Barriers Model

Burnham's model examined the relationships between the three major switching costs and customer retention, as well as the impact of satisfaction. Burnham found that satisfaction alone explained about 16 percent of the variance in customer retention, in line with prior studies (Szymanski and Henard, 2001), and found an additional 30 percent of variance explained by the brand switching barriers construct. However, there

was a minimal relationship found between satisfaction and switching costs, indicating that the brand switching barriers construct does indeed reach a different area of switching behavior and is not merely a replication of the satisfaction construct.

2.3.2 Modifications to Burnham's Model

A portion of this research is a replication of the brand switching barriers research conducted by Burnham et al. (2003). The brand switching barriers construct is presented as a cognitive view of decision-making. The most significant additional research is the addition of an explicit affect component to the model, recognizing the importance of affect as a second, parallel process in decision-making (Zajonc, 1980).

However, there are several other modifications to the model and methodology in this research. The first modification is the addition of questions relating to the actual switching behavior of the respondents. Burnham asked two prospective questions about intention to change providers within the next year, requiring speculation on the part of the respondents. This research adds several questions regarding the past switching behavior and anticipated future switching behavior of respondents to gain more insight about the respondent's behavior and attitudes.

The second modification is the use of a matched sample, capturing switching behavior and attitudes both before and after the switching decision. A four month window is utilized for the administration of pre-switching and post-switching instruments, both removing the speculative context of the switching decision and allowing for examination of changes in attitudes at two different points in time.

2.4 Affect Construct

As indicated by Zajonc (1980), affect is one of the two major, parallel processes that drive customer behavior, with the second being the cognitive process. This has been empirically supported by Sloman (1996). As seen in the examination of the satisfaction construct, affect is recognized as playing a part in the decision-making process along with cognition, though it is rarely explicitly measured. With the brand switching barriers construct, the switching costs are primarily cognitive in nature, focusing on mathematical, quantifiable, and measurable items. Slovic et al. (2002) examined the affect construct at length relative to the heuristics and biases that tend to be induced and utilized by consumers in their daily lives.

Fishbein and Middlestadt (1995) rejected prior research that found non-cognitive effects in attitude formation and change, calling the prior findings artifacts of sloppy methodology or invalid predictors and measures. Following this research, five commentaries were written and Fishbein and Middlestadt (1997) responded with even more argument and evidence for their position. Westaby and Fishbein also developed a new model of behavioral choice, built around a reasons theory. This theory explicates the "reasons" why consumers perform specific behaviors, and continues the argument that attitude formation and change is highly cognitive in nature.

2.4.1 Affect

Bagozzi (1999) provides an excellent definition of affect, encompassing emotions, moods, and "possibly attitudes." Affect is construed as a general category for mental feeling processes, rather than a particular psychological process. The

relationship between affect and cognition is described by Bagozzi as "emotion and cognition are best thought of as separate but interacting mental functions mediated by separate but interacting brain systems." This definition is an advance from earlier conceptualizations, such as that of Fishbein and Ajzen (1972, 1975) who regarded affect as isomorphic with evaluation itself and have used the terms interchangeably.

Mehrabian (1995) presented a three-dimension model of affect, built around the pleasure, arousal, and dominance dimensions. He labeled this model the PAD Emotional States model. This was extended by Mehrabian et al. (1997) who found that the pleasure and dominance dimensions were correlated with preference, whereas arousal was not.

Yik, Russell, and Barrett (1999) attempted to integrate what they perceived to be the four major affect camps (Russell's circumplex, Watson and Tellegen's positive and negative affect, Thayer's tense and energetic arousal, and Larsen and Diener's combinations of pleasantness and activation). In two studies of self-reported affect, they found both conceptual and empirical evidence that suggests the models are capturing the same dimensions. In fact, support was generated for the two-dimension model of affect that encompasses valence and arousal. Shapiro et al. (2002) began research aimed at separating the effects of the valence and arousal dimensions. This was examined in more depth by Nguyen et al. (2005) who found that four popular and widely utilized mood scales (Mehrabian and Russell, 1974, Howard et al. 1995, Swinyard, 1993, and Broach et al. 1995) were good at capturing an explicit valence dimension but not as good at capturing an explicit arousal dimension.

Per Bagozzi (1999), most authors use respondent self-report instruments to measure a respondent's affective condition. Isen (2004) has recognized this inherent difficulty, and has conducted experiments to operationalize the construct. In her experiments, Isen used word-fragment completion tasks, with different pre-task and post-task rewards provided. However, this methodology does not lend itself to large-scale studies with results that can be extrapolated to the general population.

Philippot (1993) utilized films as a means to alter the affective state of respondents. This well established technique (Gayle, 1997) is mostly effective at inducing negative mood in a controlled environment. This technique was successfully utilized by Nguyen, Richarme, and Youssef (2005) to manipulate mood in a test of four different mood scales. This methodology is also well suited to small scale experiments, but not survey methodologies.

This leads to the underlying question of how affect influences the judgmental process. Bower (1981) and later Isen (1984) provided an indirect route in which affect could influence judgments by facilitating access to related cognitive categories. This theory was labeled the Affect-priming theory. In this theory, affect might indirectly influence the judgment process during substantive processing through the selective influence on attention, encoding, retrieval, and associative processes. Batra and Stayman (1990) found that a positive mood evoked by ads facilitates brand-attitude change. Gorn et al. (2001) found that there are situations where arousal influences evaluation of ads and different situations where valence is the primary influencer of ad evaluation.

Another theory, called Affect-as-Information, was advanced by Clore (1994). In contrast to Affect-priming, this theory viewed affect as providing a direct route in which feelings could influence judgments during the fast heuristic processes. In this manner, judges would use their affective state as a shortcut to infer their evaluative reactions to a target.

Both of these theories had empirical support, but neither was able to fully explain the complex interplay of affect and cognitive processes in the area of judgments. There was general agreement (Zajonc, 1988) that the two parallel processes did interact, but the data were not conclusive with the two prior theories as to how affect and cognition did interact over a wide range of situations. Isen et al. (1988) add the element of risk to the relationship, in that situations in which a gain or loss are evaluated are perceived differently when viewed with positive affect or negative affect. Finucane et al. (2000) found the same impact of risk when examining the affect construct.

2.4.2 Forgas' Affect Infusion Model (AIM)

Forgas (1995, 2001) continued the definition advanced by Zajonc (1988) and Bagozzi (1999) of affect being comprised of both emotion and mood. Emotion is seen as a general mental state of readiness, tied to specific events or objects. Mood is viewed as longer lasting, of lower intensity, more pervasive, and not generally tied to specific events or objects. Forgas follows the dual-process mental function model of Zajonc, supported by additional work by Petty and Cacioppo (1981), and describes the means by which affect interacts with the judgmental process. This process is called affect

infusion by Forgas. In a series of commentaries, twenty prominent researchers in the field of affect examined Forgas' Affect Infusion Model (AIM) and generally supported this integrative work. Of note is a dissenting opinion by Alice Isen, who found some conceptual and methodological flaws with the model.

Forgas describes the degree of affect infusion as belonging on a processing continuum, with those judgments which utilize more processing effort becoming more likely to be infused with affect. He then develops a framework that incorporates the earlier theories of Affect-Priming and Affect-as-Information, reconciling the gaps found in each of these earlier theories. This is shown in Figure 2.4.

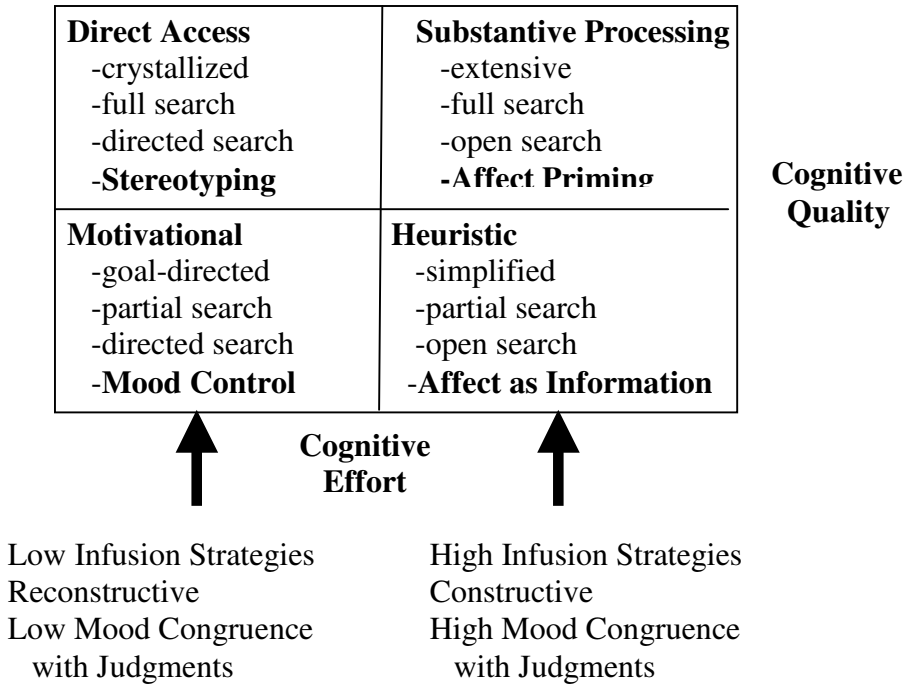

Figure 2.4 Forgas' Affect Infusion Model (AIM)

In this figure, cognitive quality is shown as the vertical axis, with higher quality found at the top and lesser quality found at the bottom. The horizontal axis represents

cognitive effort, with greater amounts of cognitive effort found to the right, and lesser amounts found to the left. Per earlier discussion, the low infusion strategies are those with lesser cognitive effort, and are captured in the Direct Access and Motivational theories. However, as these are low infusion, and therefore provide less impact on judgments, these are not of particular interest in this research.

The Affect-Priming theory is found in the high quality and high effort quadrant, reflecting an extensive and open cognitive judgment process, though per Isen (1984) it still provides an indirect route to the influence of judgments.

The Affect-as-Information theory is found in the high quality and low effort quadrant, indicating a reliance on heuristics and a simplified cognitive process. This ties back to the earlier works of Clore (1994) and provides a more direct route for the impact of affect on judgments.

However, affect is not a single dimension construct. Schachter and Singer (1962) found that arousal plays an essential part in emotion. As discussed previously, the valence dimension is also important in the understanding of affect.

Oliver (1993) found two dimensions of emotion, a positive valence and a negative valence. Isen (1987) has separated affect into two valence components, positive affect and negative affect. She has argued that positive affect has an influence on creative and extended problem solving utilizing more cognitive effort. She has extended this (1988) to the examination of the influence of positive affect on the assessment and acceptance of risk, showing that positive affect tends to lead to less risky behaviors and loss-avoidance.

This is further demonstrated by Isen (2004) with the empirical measure of the impact of positive affect on brand selection. However, in a multiple-author comprehensive review of Forgas' AIM framework, Isen (2001) also notes that she believes that positive affect results in more analytical evaluation of alternatives, and does not support the claims of Forgas in this area.

2.4.3 Russell's Affect Grid

Measuring affect's two dimensions, valence and arousal, has been the subject of numerous quantitative research studies in the past several decades. Bush (1973) began with an extensive inventory of 264 emotion items, and found three major factors in the emotion construct, Pleasantness, Level of Activation, and Level of Aggression. Mackay also developed an extensive adjective inventory, and this was refined by Cruickshank (1984) to a more parsimonious scale.

Russell (1980) developed a circumplex model of affect, in which affect was viewed as a complex relationship between multiple factors, including pleasure, excitement, arousal, distress, displeasure, depression, sleepiness, and relaxation. It was further refined (Russell, 1989) into a two-dimension grid that captures the arousal and valence dimensions of affect. The grid is shown in Figure 2.5.

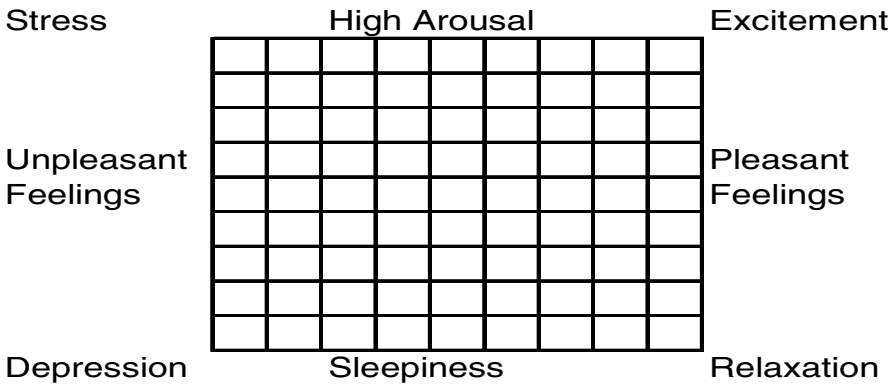

Figure 2.5 Russell's Affect Grid

With training of respondents, this grid provides a concise manner for self-reporting of affect. Simultaneously, Watson and Tellegen (1985) developed a two-factor circumplex structure of affect.

Peterson and Sauber (1993) developed a self-report measure of affect utilizing a college-student population as respondents. At the same time, Swinyard (1993) developed a scale for examining mood, involvement, and quality of store experience. These, and others, pointed to at least two distinct dimensions of the affect construct.

The discussion of affect measurement was not completed at this point, however, and continued in the literature. Holbrook and Batra (1987) used factor analysis to uncover three dimensions – pleasure, arousal, and domination. This was followed by Mehrabian (1995) with the development of the Pleasure-Arousal-Dominance (PAD) model, measuring emotional states in these three dimensions. This was followed by Mehrabian et al. (1997) with a refinement of the PAD model. Even this refinement, however, left an unsatisfying measurement of this complex construct.

2.4.4 Watson and Clark's Positive Affect and Negative Affect Schedule (PANAS)

The Russell affect grid, though excellent at differentiating between the arousal and valence dimensions of affect, was difficult for respondents to readily grasp without substantial instruction. Therefore, Watson and Clark (1985) developed the Positive Affect and Negative Affect Schedule (PANAS), consisting of 20 adjectives and a five-point Likert-type scale for the evaluation of each adjective. This schedule was considerably simpler for administration in field surveys with simple completion instructions. The schedule was extended and validated by Watson, Clark, and Tellegen (1988) and has been shown to be a reliable and valid measure of the affect construct and its underlying arousal and valence dimensions.

2.4.5 Incorporating Affect into the Brand Switching Barriers Model

Having shown the relationship between affect and judgment, it is now possible to theorize that affect has a separate and parallel impact on the switching behavior of consumers. While the Burnham Brand Switching Model provided the cognitive impact on customer retention, and incorporated the existing customer satisfaction construct as well, this research is aimed at an explicit incorporation of the affect construct alongside the cognitive barriers construct. This is shown in Figure 2.6.

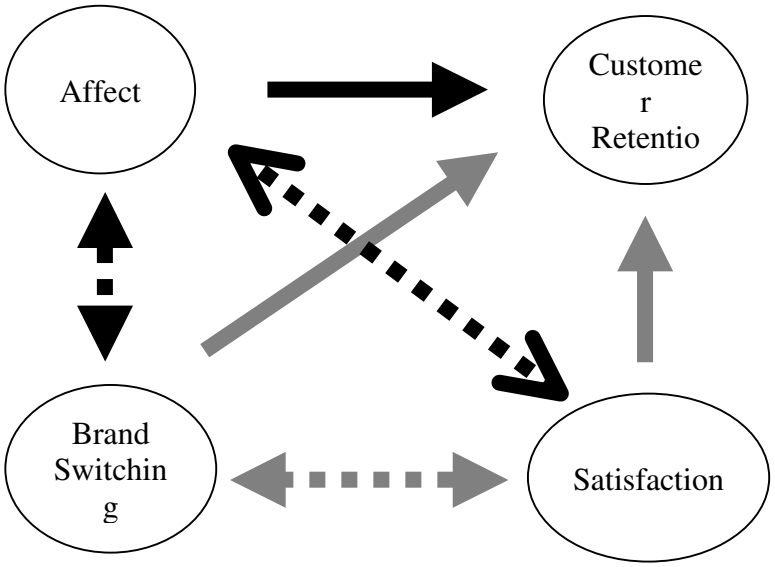

Figure 2.6 Incorporating Affect into the
Brand Switching Barriers Model

CHAPTER 3

GENERAL MODEL OF BRAND SWITCHING

The objective of this research is to establish an empirical role for the Affect construct in the relationship between the Brand Switching Barriers construct and the Customer Retention construct. This utilizes the dual-process theory presented by Bagozzi (1999) that affect and cognition are separate but interacting mental processes that allow the formulation of judgments and decisions. An early premise of the consumer behavior field is that affect and cognition combine and interact to produce consumer behaviors, serving as the most simplistic model of brand switching.

Customer Retention is a vital construct in Marketing, as the retention of customers is one of the primary goals of business. Switching from one brand to another competing brand has been studied extensively, and two major constructs have been advanced to explain the mechanism by which consumers decide to switch from one brand to another – the Customer Satisfaction construct and the Brand Switching Barriers construct.

To understand this area, a general model of brand switching is reviewed, covering the antecedent affect and cognitive processes, and covering the switching mechanism and customer retention construct. Whereas the literature review in the prior section focused on the theoretical underpinnings of the affect, brand switching barriers, and customer satisfaction constructs, this section focuses on developing the

relationships between these constructs and their operationalizations such that a general model of brand switching behaviors can be developed and the role of affect in this model identified.

3.1 Decision-Making and Affect

Peters (in press) advocates the position that understanding the complex relationship between affect and decision-making is becoming more important in the understanding of consumer preference research. Preferences are subject to a wide range of heuristics and biases, as described by Kahneman and Tversky (1979) in their development of prospect theory. This is extended to incorporate the manner in which biases can be understood and mitigated (Kahneman et al. 1982). A comprehensive review of heuristics and biases is contained in Gilovich, Griffin, and Kahneman (2002), and further amplifies the role of affect in modifying preferences and behaviors. This indicates that even though the cognitive decision processes can be mathematically modeled, the incorporation of affect can influence or even alter the preference or behavior.

Kahneman (1991) traces the field of decision-making research from Simon's 1955 treatise on rational choice to the then-current state of the art. Novemsky and Kahneman (2005a, 2005b) explore the boundaries of loss aversion, one of the primary mechanisms behind their formulation of decision-selection. Loss aversion is a concept in which a maximization function is operational, such that trading an item of value for an equal item of value is not a loss (though research also indicates that a possession is viewed with more value than that same possession in another's hands). However, if the

value of the received item is not equal to the expectation of that value, loss aversion is utilized as a factor driving the decision-making process.

Shafir and LeBoeuf (2002) extended the examination of rationality, providing a comprehensive review of the subject area. The many ways in which rational actors violate the tenets of rationality are pointed out, and the dual process theory of cognition and affect is examined.

Mowen and Spears (2002) took this research stream further, with an investigation of compulsive buying behaviors among college students, finding that personality traits (from Allport's Five-Factor Model of personality) can predict this behavior. In essence, the needs for arousal and materialism are stimulated, driving the buying behaviors (and incorporating the decision-making processes in the stream as well.) This provides a necessary link between cognition and an affective state, arousal, in the decision-making process. Some research (Shapiro and Spence, 2002) examines physical factors that might influence the decision-making process, from the perspective of encoding, retrieval, and alignment of sensory inputs. The conclusions drawn are that physical elements are more significant in affecting decision-making than a verbal description of the decision in question.

Mehrabian (1995) developed a three-dimension model of emotion, describing it as consisting of pleasure, arousal, and dominance. Though other researchers (Petty and Cacioppo, 1981, Russell, 1980, Slovic et al. 2002) have redefined affect as having only two dimensions, arousal and valence, it is clear that arousal is contained in all affect formulations.

3.2 Choice Models

A quick review of choice models reveals that typically these models are conceptualized as cognitive models, with the objective of maximizing some gain or utility function. This utility can be affectively interpreted (Mellers, 1997). Manrai and Andrews (1995) conducted a thorough review of two stage choice models, and found that multiple stages were utilized when the cognitive effort was extensive. Roberts and Lattin (1997) describe a two stage choice model that they developed, based on utility maximization. These efforts are indicative of utility-maximization approaches, in which decisions are mathematically modeled based on expected gains and evaluations of probability and risk.

The first stage generally consists of awareness of brands that fall within the selection parameters. This is sometimes divided into an awareness stage and a consideration set stage. Kardes, et al. (1993) described this as the retrieval set.

The second stage (or later, if more than two stages are involved) generally consists of a decision or selection among those brands retained in the first stage. When purchase decisions are more complex, there tend to be more stages to the decision process (Shocker, 1991).

Heyman, Mellers, et al. (2004) have studied decision-models and the impact of gains and losses, particularly the anticipated affect as a guide to decisions. This is an extension of prior research, and is incorporated under the general title of Decision-Affect Theory. In this stream, affect is incorporated as a parallel decision-making process (per Zajonc, 1980) alongside cognition, and reflects the current evaluation of

this field by most researchers. Per Grossberg and Gutowski (1987), an affective balance is reached between the roles of affect and cognition in decision-making. This results from the neural networks of the brain forming affective responses to cognitive events, thus incorporating both cognition and affect in risk evaluations and decisions.

This work was extended by Levine et al (2005), who developed a simulation-based neural network model incorporating decision-making and risky choices. This model was based on specific areas of the brain responsible for decision-making by utilizing Damasio's work with the Iowa Gambling Task on patients with damaged orbital prefrontal cortex portions of the brain. The neural net model clearly identifies a parallel decision-making process, and further separates positive and negative affect components.

3.3 Switching Behavior and Customer Retention

One measure of switching behavior is to ask respondents to speculate as to future behaviors, givens certain considerations or circumstances. Another measure is to ask respondents to identify their past switching behavior, though the motivations for that behavior may not be recalled or understood. Switching behavior involves an assessment of risk and expected outcomes (Oliver, 1993; Novemsky and Kahneman, 2005b) with rational actors attempting to maximize some gain function.

These two approaches to measurement of switching behavior lead to a conundrum. One can't accurately project one's behavior into the future, as future considerations and circumstances are often difficult to conceptualize. One may not accurately remember past behaviors, or the reconstructed memory may be influenced by

current considerations or circumstances. Therefore, a model of switching behavior needs to capture both the attitudes prior to and after the switching decision for the same respondent, developing an understanding of the structure of the decision-making process and the resultant behavior.

One approach to this matched-sample methodology is to conduct a laboratory simulation of a decision. External elements can be controlled, but the actual decision may not exhibit the full range of the affective components. This leads to experiments in which the cognitive processes are modeled, and the affective component is partially incorporated. In addition, extrapolation to the overall population is limited by the nature of the sample.

Another approach to the matched-sample methodology is to utilize a field survey and a representative sample that captures pre-switching behavior attitudes and post-switching behavior attitudes. This allows for extrapolation to the general population, but external factors such as environment and survey administration may result in noisy data. In addition, the research needs to capture the pre-switching and post-switching attitudes in a time frame that is relatively close to the actual switching decision, such that the attitudes are relatively close to the switching decision itself.

Customer retention is the antithesis of a switching decision. It is the decision taken by a consumer not to switch to a competing brand.

CHAPTER 4

ANALYSIS

This chapter contains a description of the selected methodology for the research, including the product selected for the research, the sample selected for the research, and the instrument developed for data collection. In addition, the six major hypotheses are presented, along with the analytic tools selected to test the significance of relationships among the data that either support or do not lend support for the hypotheses.

4.1 Methodology

Per Fornell (1992), a direct measure of switching behaviors is difficult to obtain. This is partly due to the inability of consumers to examine their own attitudes, emotions, and decision-making strategies, and partly due to the methodologies that researchers utilize to capture these behaviors. This research is structured to mitigate these difficulties, though it is recognized that a perfect measure will never be possible to obtain.

To mitigate consumer introspection difficulties, this research will utilize three previously validated scales, examining affect, brand switching barriers, and customer satisfaction, in addition to gathering actual switching behavior and demographics. The affect scale is the Positive Affect and Negative Affect Schedule (PANAS) Watson and Clark (1988), and is widely utilized. The brand switching barriers scale is from Burnham et al. (2003) and represents one of the first scales to measure this behavior.

The customer satisfaction scale is also one utilized by Burnham et al. (2003) for the purposes of replication of the majority of their brand switching barrier research.

To measure brand switching behavior, a two-wave methodology utilizing a matched sample is used. The first wave captures pre-switching attitudes and beliefs, as described by the scales in the previous section. In the switching model, this is labeled as Time zero (T_0). The second wave is administered after the respondents have had an opportunity to make a conscious switching decision, so that post-decision attitudes and beliefs can be captured as well.

4.1.1 Product

The product for this type of research should be one that has a relatively high involvement score, as measured by Mittal (1989). Involvement has been shown (Pan and Lehmann, 1993) to have significance in explaining an expanded range of consideration set among a wide variety of consumer product. The Burnham et al. (2003) research utilized long distance telephone service and credit cards in their research. From a pilot test by this researcher in 2002, cellular telephone service was shown to have a higher involvement score (5.44 on a 7.00 point scale) than banking service and Internet service. Per the Cellular Telephone Industry Association (CTIA) Annual Statistics, approximately 20 percent of the cellular telephone users in the United States switch service providers on an annual basis, providing a basis for relatively high frequency of switching. Therefore, cellular telephone service was selected as the candidate product for this research.

4.1.2 Respondent Sample

Per Peterson (2001), college student samples should only be utilized in research that is not intended for extrapolation to the overall population, or in research in which the product or behavior being examined is one that can readily be extrapolated because there are no differences between college students and the overall population for that particular product or service. Cellular telephone service has become widespread over the past decade, with the CTIA showing approximately 80 percent of the adult population in the United States using cellular telephones. However, it was felt that utilization and switching behaviors might have a generational difference, so utilization of a college student sample is not indicated for this research. Rather, a nationally representative sample of adults across the United States was utilized.

In order to perform certain analyses, cell sizes of 30 to 50 completed surveys were determined to be necessary. If 20 percent of the population of cellular telephone users switches service providers in a given year, and a four month interval is utilized between the initial survey and the subsequent survey, this indicates that an initial sample between 560 and 937 respondents would be required. Given that there would be some loss of respondents between the initial and subsequent survey, a minimum starting sample of 1000 respondents was selected to provide enough respondents for the analysis of switching behaviors.

The sample was drawn from a five-million-member Internet panel owned and administered by Decision Analyst, a leading primary research firm located in Arlington, Texas. The sample was representative of the overall adult (18 and over) population of

the United States. Peterson and Sauber (1993) provided support for the use of the Internet for consumer marketing, and research related to those consumers.

4.1.3 Survey Instrument

The survey instrument was divided into five sections, and can be found in Appendix A. The first section of the instrument consisted of identification of the respondent's specific cellular telephone ownership and switching behavior in the past year. This section contained 10 questions focused on determining that the respondent was the actual decision maker for cellular telephone service, and provided probabilistic estimates of switching behavior in the past and in the future.

The second section of the instrument consisted of the current level of customer satisfaction with the cellular telephone service provider. This section contained four questions from the Burnham et al. (2003) research, plus a question relative to recommending the service to others.

The third section of the instrument consisted of the brand switching barriers scale items, and contained 30 items in five-point Likert format. The scale was derived in its entirety from Burnham et al. (2003) and has high reliability and validity.

The fourth section of the instrument consisted of the affect scale, and contained a list of 20 adjectives which the respondents evaluate. The scale was derived in its entirety from Watson and Clark's (1988) Positive Affect and Negative Affect Schedule (PANAS), and has shown high reliability and high validity.

The fifth section consisted of demographic questions, and contained six fairly standardized questions regarding major demographics that could be compared to the national Census to determine the degree of representation of the sample.

A pre-test of the ability to gather affect was completed (Nguyen, et al. 2005) with Gross and Levenson's (1995) use of films to generate an emotional valence. This technique, however, required a controlled environment, small groups of less than ten respondents, and was only effective for mood manipulation for short periods of time, lasting less than a day or two. In addition, though mood is an important component of affect, the structure of the pre-decision and post-decision affect measurement did not lend itself to this methodology. This limitation of the methodology is discussed in Chapter 6 and possible modifications to the methodology are proposed for future research.

Wittink and Bayer (2003) evaluated the use of different scale points in a customer satisfaction environment, and came to the conclusion that a 10-point scale for overall satisfaction measurement was marginally beneficial, a two-point scale for individual items was marginally beneficial, and a five-point scale for all other items was recommended.

In the interests of consistency with Burnham et al. (2003) and Watson et al. (1988), and not confusing respondents with multiple scale lengths, a five-point Likert-type scale was utilized for the satisfaction, brand switching, and affect scales. The scale generally utilized agree-disagree item anchors with a neutral middle point.

4.2 Hypotheses

The structure of this research provided a model in which three major legs were new and three major legs were confirmatory in nature. The six legs can be seen in the following figure, and the hypotheses are enumerated in Figure 4.1.

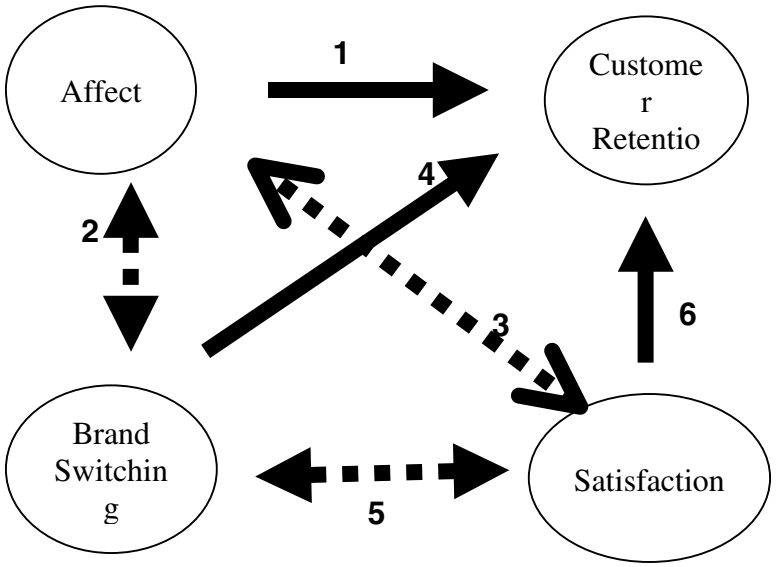

Figure 4.1 Hypothesis Roadmap

The six main hypotheses as illustrated above described the relationships between the specific constructs in the model. Hypotheses 1, 2, and 3 reflected the addition of the Affect construct to this theoretical model and hypotheses 4, 5, and 6 were replications of research done previously by other academicians. Three of the hypotheses had subsidiary hypotheses attached to them, with the main hypothesis reflecting the relationship between the main constructs and the subsidiary hypotheses reflecting the relationships between the components of the constructs. Though the hypotheses are shown in the alternate hypothesis form for clarity of understanding and

for ease of prediction analysis, they were all evaluated in both the null hypothesis form (there are no relationships) and the alternate hypothesis form (there are relationships). The structural equation model parameters were also evaluated.

4.2.1 Hypothesis 1 - Affect and Customer Retention

The first hypothesis examined the relationship between the Affect construct and the dependent variable, Customer Retention. From Bagozzi (1999), there is a role of emotion in the retention of customers. This was supported by Forgas (1995, 2001) who found links between affect and cognition in the decision-making process. This led to a hypothesized positive relationship between the Affect construct and the Customer Retention construct, with positive levels of affect related to positive levels of retention, and negative levels of affect related to negative levels of retention. This first hypothesis is shown as follows:

Hypothesis 1: There is a positive relationship between the Affect construct and the Customer Retention construct

4.2.2 Hypothesis 2 - Affect and Brand Switching Barriers

The second hypothesis examined the relationship between the Affect construct and the Brand Switching Barriers construct. Because of the manner in which this latter construct was defined and operationalized by Burnham et al. (2003), it was possible to test the relationship between Affect and the overall Brand Switching Barriers construct, and also to test the relationship between Affect and each of the three main modules (sub-constructs) of Brand Switching Barriers. From Kahneman and Tversky (1979), Shocker (1991), and Manrai (1995), decision-making models such as brand switching

tend to be based on several assumptions, among which are the assumptions of rational actors, actors tend to maximize utility, and decisions can be modeled mathematically. All of these assumptions point to mechanistic, highly cognitive decision-making, not accounting for the impact of Affect. Therefore, it was hypothesized that there would not be significant relationship between the Affect construct and the overall Brand Switching Barriers construct, supporting the claims that Affect was not explicitly incorporated in the Brand Switching Barriers model. However, when the three sub-constructs of Brand Switching Barriers were examined separately, it was believed that there would be a significant relationship between Affect and the Relational Cost sub-construct, showing incorporation of Affect in this sub-construct. It was also believed that the other two sub-constructs of Brand Switching Barriers, Procedural Switching Cost and Financial Switching Cost, would show no significant relationship as these were cognitive decision elements. The main hypothesis and the three subsidiary hypotheses related to Brand Switching Barriers are shown as follows:

Hypothesis 2: There is a positive relationship between the Affect construct and the overall Brand Switching Barriers construct

Hypothesis 2a: There is a significant amount of relationship between Affect and Relational Switching Cost component of Brand Switching Barriers

Hypothesis 2b: There is a positive relationship between Affect and the Procedural Switching Cost component of Brand Switching Barriers

Hypothesis 2c: There is a positive relationship between Affect and the Financial Switching Cost component of Brand Switching Barriers

4.2.3 Hypothesis 3 - Affect and Customer Satisfaction

The third hypothesis examined the relationship between the Affect construct and the Customer Satisfaction construct. Per Cardozo (1964), the Customer Satisfaction construct has been studied extensively and has shown a linkage between increases in product performance and customer satisfaction. This has been amplified by Oliver (1980), who found satisfaction was a mediator between pre-exposure and post-exposure attitudes. Both of these linkages indicate that there is a relationship between Affect and Customer Satisfaction, though Customer Satisfaction models do not tend to explicitly incorporate measures of Affect. Collinearity between the Affect and Customer Satisfaction constructs would indicate that there was some element of Affect found in the Customer Satisfaction construct, which further supports the need for an explicit affect measure in this model. In addition to the relationship described in this hypothesis, there was also a hypothesized correlation between the valence of Affect and the valence of Customer Satisfaction, with high affect valence levels correlating to high degrees of customer satisfaction, and vice versa. The hypothesized relationships are shown as follows:

Hypothesis 3: There is a positive relationship between Affect and Customer Satisfaction

Hypothesis 3a: There is a positive correlation between Affect valence and Customer Satisfaction levels

4.2.4 Hypothesis 4 - Brand Switching Barriers and Customer Retention

The fourth hypothesis examined the relationship between the Brand Switching Barriers construct and the Customer Retention construct. As describe earlier, the Brand Switching Barriers construct also had three sub-constructs incorporated in it, resulting in a main hypothesis with the main construct and three subsidiary hypotheses with each of the three sub-constructs of Brand Switching Barriers. This hypothesis was a replication of Burnham et al. (2003) though here it was conducted with a different product and a different sample, and also conducted in a pre-switching and post-switching two-wave matched sample design. Burnham et al. (2003) found a positive relationship between Brand Switching Barriers and Customer Retention, empirically demonstrating that the Brand Switching Barriers construct was more valuable in explaining variance in Customer Retention than just the Customer Satisfaction construct which had been studied for decades. The main hypothesis and subsidiary hypotheses of this relationship are shown as follows:

Hypothesis 4: There is a positive relationship between Brand Switching Barriers and Customer Retention

Hypothesis 4a: There is a positive relationship between Relational Switching Costs and Customer Retention

Hypothesis 4b: There is a positive relationship between Procedural Switching Costs and Customer Retention

Hypothesis 4c: There is a positive relationship between Financial Switching Costs and Customer Retention

4.2.5 Hypothesis 5 - Brand Switching Barriers and Customer Satisfaction

This hypothesis, Hypothesis 5, examined the relationship between the Brand Switching Barriers construct and the Customer Satisfaction construct. As with the previous examinations of the Brand Switching Barriers construct, the three sub-constructs were examined individually as subsidiary hypotheses.

Hypothesis 5: There is a positive relationship between the Brand Switching Barriers model and the Customer Satisfaction construct

Hypothesis 5a: There is positive relationship between Relational Switching Costs and Customer Satisfaction

Hypothesis 5b: There is a positive relationship between Procedural Switching Costs and Customer Satisfaction

Hypothesis 5c: There is a positive relationship between Financial Switching Costs and Customer Satisfaction

4.2.6 Hypothesis 6 - Customer Satisfaction and Customer Retention

This hypothesis, also a replication of the Burnham et al. (2003) study, examined the relationship between the Customer Satisfaction construct and the Customer Retention construct. The hypothesized relationship was positive, with Customer Satisfaction shown to explain up to a quarter of the variance in Customer Retention in prior satisfaction studies. The hypothesis is shown as follows:

Hypothesis 6: There is a positive relationship between Customer Satisfaction and Customer Retention

4.3 Analysis Procedure

The analysis procedure consisted of operationalizing the constructs, examining each of the four constructs (and the sub-constructs of Brand Switching Behavior) for reliability, convergent validity, and discriminant validity, and developing a structural equation model to test the relationships between each of the constructs in the model. One significant concern was the potential for multi-collinearity, or correlations between the independent variables, because of the addition of the affect construct and the potential for measuring the same behavioral item with multiple constructs. Bagozzi and Yi (1988) have provided some excellent instruction on the evaluation of structural equation models. In addition, James and Brett (1984) have provided definitional guidance relative to mediators and moderators and the testing of moderators.

4.3.1 Operationalizing the Constructs

The first step in the analysis process was operationalizing the theoretical constructs. There were four major constructs in the model, three of which had existing, validated, and reliable scales for their measurement.

The first construct, Affect, was operationalized with Watson and Clark's (1988) Positive Affect and Negative Affect Schedule (PANAS). This scale of 20 items had been shown to have excellent convergent and discriminant validity.

The second construct, Brand Switching Barriers, was operationalized with Burnham et al. (2003) Brand Switching Barriers scale. This scale, when subjected to a varimax-rotated exploratory factor analysis by Burnham, showed three higher order switching cost types, along with the eight first-order constructs that comprise the model.

The third construct, Satisfaction, was operationalized with Anderson's (1993) scale, which was also utilized by Burnham.

The fourth theoretical construct, Customer Retention, was measured as the choice of a consumer to switch to another brand of the same product, or to remain with the existing supplier. In addition to retention of two switching preference questions incorporated in the Burnham et al. (2003) instrument, a series of additional questions related to the specific timing of the switching decision were utilized in this research to further probe the switching decision and establish the longitudinal parameters involved. Weerahandi and Moitra (1995) developed a switching model for a telecommunications product in a business-to-business environment, examining both adoption and switching behaviors. This model served as a valuable guide in the evaluation of switching preference for this research.

The operationalization of these four theoretical constructs is shown in Figure 4.2.

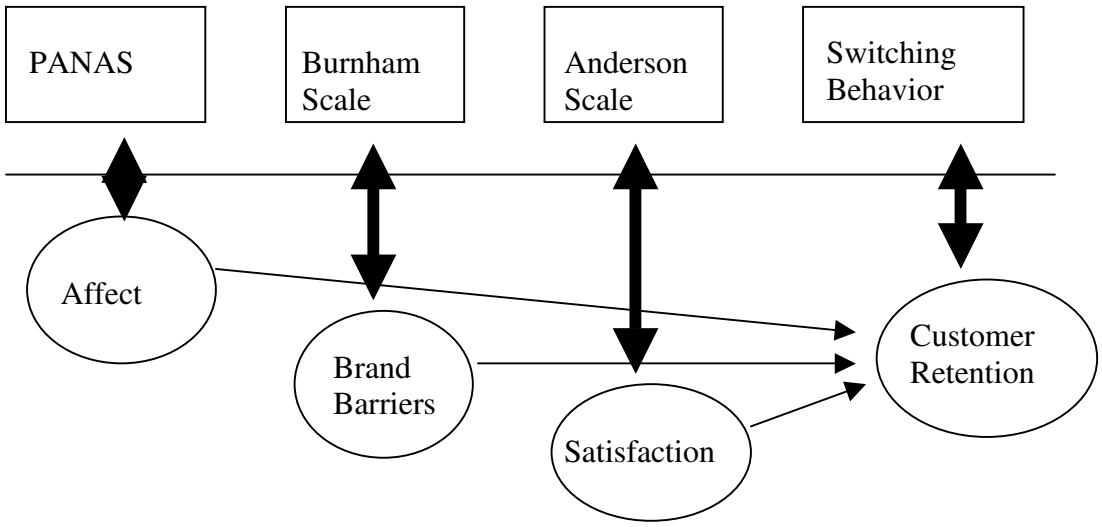

Figure 4.2 Operationalizing the Model

4.3.2 Assessing Construct Validity and Reliability

Following the operationalization of the theoretical constructs, the following covariance structure analysis procedure was utilized. Because part of this model utilizes a replication of prior research, the same analysis procedures were utilized for those portions of the analysis as in the original research. Per Churchill (1979), each of the constructs was examined individually for reliability, discriminant validity, and convergent validity. Following this, a structural equation model was developed to test each of the relationships between the constructs, as described in the hypothesis section. The main effects between the dependent variable and the independent variables were examined as well as the relationship effects between each of the independent variables.

For the Affect construct, each respondent was scored to determine their affect valence. An exploratory factor analysis of this construct also provided a better understanding of the major dimensions of this construct.

For the Brand Switching Barriers construct, a confirmatory factor analysis model utilizing SPSS AMOS 4.01 was used to determine the goodness of fit for the model. Per Fornell and Larcker (1981), discriminant validity was acceptable if the average variance extracted for each of the sub-constructs was greater than the squared correlations for all pairs of factors in the exploratory factor analysis.

For the Customer Satisfaction construct, a confirmatory factor analysis model was also developed.

Desarbo, et al. (2002) provided a multi-dimensional scaling approach for exploring consumer preference and attitudes, and this tool wasutilized in the analysis .

4.3.3 Examining Relationships between Constructs

Structural equation modeling was utilized to examine the relationships between the constructs. This was divided into examination of the main effects and the relationship effects. The relationships between the dependent variable, Switching Behavior, and the three major independent variables, Affect, Switching Barriers, and Satisfaction, were examined first. In addition, there was examination of the covariance relationship between the three independent variables.

CHAPTER 5

FINDINGS AND CONCLUSIONS

The following chapter contains the results of the analysis of the data set and the conclusions drawn relative to each of the hypotheses. Much of the raw data are presented in the Appendices, with only the most pertinent data and results contained in the body of this chapter.

The first part of the findings contains an examination of the degree of representation of the sample to the United States adult population. Only if the sample is found to be generally representative of the underlying adult population can statements about generalizing the findings be made.

This section also compares the results of the first wave to the results of the second wave, checking for individual and group respondent consistency between waves. If responses to items are significantly different between waves, when they should be consistent, or vice versa, then additional examination needs to identify if the consistencies or differences are in line with theoretical expectations.

The second part of the findings contains a univariate analysis of the main constructs, examining them for distribution and insuring that analytical procedures undertaken in subsequent sections do not have assumptions violated.

The third part of the findings section contains the development and analysis of the covariance structure modeling. These models, typically referred to as analysis of

covariance moment structures, facilitate hypothesis testing and solve many difficulties of earlier, less robust techniques. For example, missing data are accommodated with the use of maximum likelihood estimation rather than older techniques such as list-wise or pair-wise deletion of data. Though complex to construct, the fully executed structural equation models provide significant insights into both observed and latent variables and relationships. Quantitative outputs from the models are found in the Appendices, and key findings are presented in this section.

The fourth section contains additional analysis that, while not initially contemplated in the research objectives or original hypotheses, provides insights into switching behavior and brand switching barriers. This also establishes a research pathway for future extensions of the research subject area.

The fifth section contains an evaluation of each of the major and minor hypotheses developed and presented in Chapter 4.

5.1 Examining the Sample Distribution

The sample consisted of 1225 respondents who completed the survey instrument in the first wave, drawn from an initial invitation frame of 6000 potential respondents, and the 747 respondents from this group who completed the survey in the second wave four months later. It was anticipated that approximately 30-35 percent of the initial respondents would not complete the second wave, and the actual percentage of dropouts was 39 percent. Because the initial sample was drawn from a national panel, and care was taken to insure a representative sample as measured by the six major demographic factors (gender, age, marital status, education, household annual income, and ethnicity),

a comparison to the national population parameters is required before any statements about the degree of representation of the sample can be made. National population parameters are taken from the United States Census Bureau's most recent comprehensive census taken in 2000. In addition, the United States Census American Community Survey for 2004, an annual update using the Census long form, is utilized when available for comparison purposes.

5.1.1 Analysis of Demographic Variables

This section examines the six major demographic variables contained in the survey against the United States population. The ability to draw conclusions about the degree of representation of the sample to the overall United States population depends on the sample being relatively close to the population parameters. As the sample was selected using a multivariate stratified quota program developed by a commercial panel management company, it is believed that the resulting respondents will be representative. However, because non-responders may be different than responders in any survey across any demographic variable, the final group of respondents must be examined before claims of representation can be made, and before any extrapolation of results to the United States population can be made.

The benchmark of the United States population parameters is the exhaustive United States census, completed for the year 2000. However, the Census Department also makes available annual updates to this benchmark. The latest available update is the 2004 Census update. Because the sample was drawn at the end of 1995, it is felt that comparing the sample to both the 2000 Census benchmark and the 2004 Census

update is important to understand exactly how similar or how different this sample is from the overall population. To gain an accurate measure, all 1224 respondents, whether they have cellular telephone service or not, are compared to these measures. If that sample can be shown to be representative of the United States population, then there is a higher degree of confidence that the resulting examination of cellular telephone users, switchers, and non-switchers is also representative of those populations, for which no population parameters exist.

5.1.1.1 Gender Parameter

The first demographic factor is gender. As shown in the following table, the United States population proportion of males in 2000 is 49.1%, and the sample shows a population proportion of 49.3%. The 2004 Census update shows a population proportion of 48.9% males, with a margin of error of ± 0.1 percent. There is no statistical difference (the χ^2 statistic has a more than .05 probability) between either the 2000 Census or the 2004 Census update and the sample proportions of males and females. The proportions are shown in Table 5.1.

Table 5.1 Gender Parameter of United States Population and Sample

Gender Category	Census 2000	Census 2004	Sample
Male	49.1%	48.9%	49.3%
Female	50.9%	51.1%	50.7%

5.1.1.2 Age Parameter

The second demographic parameter is age. Survey respondents were asked to select their age from one of six categories, with the two extreme categories being "under 18" and "60 or older." To get an accurate comparison, the Census numbers are recalculated from the gross totals to remove the "under 18" population. For the sample, only one respondent indicated age of "under 18" and the percentages are not affected. The proportion of adults in each age category approximates that of the 2000 Census and the 2004 Census update. There were differences observed, but not enough for concern. This is shown in Table 5.2.

Table 5.2 Age Parameter of United States Population and Sample

Age Category	Census 2000	Census 2004	Sample
Under 18	n/a	n/a	0.1%
18 to 29	22.5%	24.3%	14.4%
30 to 39	20.3%	18.3%	22.4%
40 to 49	19.8%	20.3%	26.2%
50 to 59	15.5%	16.1%	19.1%
60 or older	21.8%	21.0%	17.8%

5.1.1.3 Marital Status Parameter

The third demographic factor is marital status. The categories collected in the survey were "single," "married," "living with partner," and "divorced/separated/widowed." The population proportion of each of these categories

as found in the 2000 and 2004 Census, and compared to the survey sample, is shown in the following table. Because the Census takes into account the marital status of individuals of age 15 and older, the individuals below the age of 18 need to be excluded from their percentages in order for appropriate comparison to the sample. These percentages have been recalculated using the Census raw data for 2000 and 2004. The Census data do not include a breakout of single persons living together, so are included in the category of "Never Married." There were no major differences between the Census data and the sample, disregarding the single persons living together category. This is shown in Table 5.3.

Table 5.3 Marital Status Parameter of United States Population and Sample

Marital Category	Census 2000	Census 2004	Sample
Single	28.1%	29.0%	21.7%
Married	54.2%	53.4%	54.0%
Living With Partner	n/a	n/a	8.0%
Divorced, Separated, Widowed	17.8%	17.7%	16.3%

5.1.1.4 Education Parameter

The Census Bureau has struggled over the decades with this single question almost as much as any other. The primary reason for their difficulty is that people tend to over-state their educational attainment at the lower levels. Therefore the data tend to be skewed. However, this serves as a baseline for comparison with the sample

collected. The interpretation of "high school or less" by the sample is believed to be split between those who did not graduate from high school and those who did, with the majority of those who graduated from high school also claiming either trade/technical school education or some college education beyond high school attainment. If these percentages are added, they are very similar to those found in the Census 2000 and the Census 2004 education percentages.

Additionally, another confound in this area is that the Census only reports on educational attainment of adults age 25 or older, whereas the sample reports on adults age 18 or older. This would tend to under-report the education of younger respondents, as they may still be in their educational process and not yet attained a higher level of education.

The percentages for college graduate and advanced degrees are very comparable to the Census parameters. However, the Census data do not reflect sub-categories such as trade/technical school or attended graduate school, so these sub-categories are not applicable to the Census data. The percentages for different levels of educational attainment are shown in Table 5.4.

Table 5.4 Education Parameter of United States Population and Sample

Education Category	Census 2000	Census 2004	Sample
High School or less	48.2% %	45.5%	17.3%
Trade/technical school	n/a	n/a	5.6%
Some college or Associate degree	27.4%	27.4%	41.6%
Graduated college/Bachelor's degree	15.5%	17.2%	21.5%
Attended Graduate school	n/a	n/a	4.5%
Advanced degree (Master's, Ph.D.)	8.9%	9.8%	9.6%

5.1.1.5 Household Income Parameter

The household income measures from the United States Census 2000 and the 2004 Update are shown in the following table, compared to the self-reported household income from respondents to the survey. The percentage of households under $25,000 in both Census numbers is higher than that of the sample, indicating some under-representation of the sample in the lower economic category. There is a somewhat higher percentage of the highest income category in the Census data versus the sample,

indicating that persons in both ends of the income distribution were not as represented in the sample as those in the middle income categories. This is shown in Table 5.5.

Table 5.5 Household Income Parameter of United States Population and Sample

Household Income Category	Census 2000	Census 2004	Sample
Under $25,000	28.6%	29.0%	21.8%
$25,000 to $34,999	12.8%	11.9%	15.0%
$35,000 to $49,999	16.5%	15.0%	15.0%
$50,000 to $74,999	19.5%	18.0%	20.0%
$75,000 to $99,999	10.2%	11.0%	13.3%
$100,000 to $149,000	7.7%	9.6%	11.8%
$150,000 or above	4.5%	5.5%	3.2%

5.1.1.6 Ethnicity Parameter

The most vexing question for the Census Bureau over the past several decades has been the reporting of ethnicity. Even the Census data for the 2000 report and the 2004 estimate discuss this difficulty at length. This is partially created by cultural identity versus heritage identity, with many persons identifying with one or more groups, depending on the specific situation they are in. For example, a Hispanic male may identify with his Hispanic cultural heritage when in a cultural setting, yet may identify with another ethnic classification when asked to categorize his ethnicity. In addition, there is a growing percentage of persons of multi-ethnic backgrounds in the

country, leading to additional confusion. The percentages shown in the following table are taken directly from the Census 2000 and Census 2004 data sets, and it is acknowledged by the Census Bureau that the numbers are not internally consistent because of these considerations.

These percentages are compared to those of the sample, and are found to be relatively comparable. In the sample, respondents have less difficulty finding an ethnic category with which to classify them, therefore there is a much lower percentage of "other ethnic background" than that of the Census. The three major ethnic categories, representing about 90 percent of the United States population, have consistent representation in the sample as compared to the Census reports for 2000 and 2004. This is shown in Table 5.6.

Table 5.6 Ethnicity Parameter of United States Population and Sample

Ethnicity Category	Census 2000	Census 2004	Sample
African American or Black	12.3%	12.2%	13.8%
American Indian, Eskimo, or Aleut	0.9%	0.8%	0.4%
Asian or Pacific Islander	3.6%	4.3%	2.8%
Caucasian or White	69.1%	67.3%	68.5%
Hispanic or Latin American	12.5%	14.2%	11.4%
Multi-ethnic	2.4%	1.9%	2.0%
Other ethnic background	5.5%	5.2%	1.1%

5.1.2 Checking for Inappropriate Respondents

One key to gathering longitudinal tracking data is insuring that the respondents who answered the survey in the first waveare the same people who answered the survey in the second wave. The waves were described in section 4.1.2. Having another family member answer the survey in the second wave, though probably providing accurate information as to switching behavior, will not provide similar consistency regarding attitudes about brand switching barriers or affective state of mind. Therefore,

a case-by-case comparison of Wave 1 respondents and Wave 2 respondents was undertaken. This was facilitated by the manner in which the data were collected, with respondents asked to provide their first name and demographic information for each survey.

The data from Wave 1 were imported from the ASCII file to an SPSS file, where the variables were labeled and data checked for out-of-range responses. The respondents were identified by a Decision Analyst panel member ID number, their first name, and their email address, in addition to the demographic variables collected in the survey. These respondents were sorted by their Decision Analyst panel member ID number. There were 1225 valid respondents in this data file. Invalid respondents were those respondents who discontinued the survey before completion.

The data from Wave 2 were also imported from the ASCII file to a second SPSS file, where the same data checking procedures were performed. The respondents were sorted by their Decision Analyst panel member ID number. There were 747 valid respondents in this data file. Again, invalid respondents were those who discontinued the survey before completion. This data file was then imported to the first data file, with the same variable mapping due to identical surveys. Variables in the first Wave were identified as S1 through S23, and variables in the second Wave were identified as T1 through T23. Each of the second Wave cases was matched to the corresponding first Wave case, forming a first wave-second wavestring.

A second check was performed to identify whether or not the respondent was the same person who completed the first survey. This was done by matching first names

and demographic information between waves. Of the 747 respondents in the second wave, approximately 45 had age category shifts, which individual case examination revealed were birthdays that caused the age category to move upward by one category. There was one case of age category shift downward by two categories, though the gender remained the same. Upon inspection of the name, household income, and marital status responses for this case, it was determined that the daughter of the initial respondent answered the second survey, so this case was eliminated from the second wave data file. This means that there are 746 remaining valid cases of respondents who completed both wave 1 and wave 2, regardless of whether or not they have cellular telephone service.

5.2 Univariate Analysis of Variables

The four major constructs utilized in the model, Customer Retention, Satisfaction, Brand Switching Barriers, and Affect, are each examined for violations of the standard regression assumptions. Each construct consists of multiple items; therefore each is examined in turn. Confirmatory factor analysis on the items, also known as a measurement model, is conducted in a subsequent section. Convergent validity and discriminant validity of the various scales are also examined. The factor loadings are compared to Burnham et al. (2003) results in a subsequent section, as a portion of this research is replication of that model using a more robust, longitudinal sample. This is then followed by development of a structural equation model.

5.2.1 Customer Retention

The customer retention construct is the most challenging construct in this model, in that it can be defined and operationalized in a multitude of ways. For this research, with both attitudinal and behavioral data relative to switching behavior, it is possible to compare and contrast the different means of operationalizing the construct to determine which is most useful.

However, before looking at switching attitudes or behaviors, it is necessary to eliminate from the sample those respondents who are not decision-makers for that service, and who would therefore not be in a position to switch brands if they wanted to do so. One question asks if the respondent is the primary or co-primary decision-maker for the service and another asks if the respondent pays the bill for the specific service. If a respondent does not answer affirmatively to both of those questions, it is questionable as to whether the respondent has the ability to make a switching decision even if one is desired. In the survey, these are questions S2 and S4, respectively. Summary responses are shown in the following table for both waves, designated by S for the initial wave and T for the corresponding question in the second wave. For all nominal and categorical variables, the actual frequencies are shown, and for interval variables the mean and distribution parameters are shown.

The following table shows that almost all of those persons who had cellular telephone service are either the primary decision-maker or share the responsibility for the selection of their cellular telephone service provider with another. This indicates

that these respondents are capable of making a brand-switching decision. This is shown in Table 5.7.

Table 5.7 Question 2: Decision-Makerfor Service

Response	S2 Frequency	S2 Percent	T2 Frequency	T2 Percent
Yes, primary	649	65.4	414	66.3
Yes, share equally	275	27.7	166	26.6
No	68	6.9	44	7.1
Total Valid	992		624	

One consideration that serves as a validity check of the respondents is whether or not the respondents have responsibility for paying the bill for the cellular telephone service. If the service is paid for by an employer or some other similar party, then the ability of the respondent to make a brand-switching decision is compromised. About 10 percent of the initial wave of respondents reported payment by another family member, with that percentage rising to 15 percent in the second wave. As these were the same respondents from wave to wave, it may be that the respondents in the second wave were more willing to complete the survey as they were not otherwise occupied with paying their cellular telephone bill.

However, the majority of respondents, over 80 percent in both waves, reported that they paid the cellular telephone service bill themselves. Less than five percent of

the sample responded that the bill is paid for by an employer or other similar party. This is shown in Table 5.8.

Table 5.8 Question 4: Bill Payer

Response	S4 Frequency	S4 Percent	T4 Frequency	T4 Percent
I do	783	84.7	469	80.9
Another Family	98	10.6	87	15.0
Employer	32	3.5	22	3.8
Other	11	1.2	2	0.3
Total Valid	924		580	

There are several additional qualifying and calibrating questions in the first part of the survey. The first question, S1, asks whether or not a respondent even has the service, and if not, the respondent is skipped to the demographic section so that a comparison of those with and those without the service can be made. The sample consists of 992 respondents in the first wave, and a subset of 664 respondents in the second wave, who have cellular telephone service.

The overall percentage of respondents with cellular telephone service is consistent with the market estimates provided by the Cellular Telephone Industry Association, which receives subscriber data from all cellular service providers and is considered the leading source of industry sizing data for this particular industry. Numbers are provided on an annual basis, and the percentages utilized from the Cellular

Telephone Industry Association reflect data from the most recent report, produced in 2004, reflecting data from the 2003 calendar year.

Table 5.9 Question 1: Currently Have Service

Response	S1 Frequency	S1 Percent	T1 Frequency	T1 Percent
Yes	992	81.0	624	83.8
No	232	19.0	121	16.2
Total Valid	1224		745	

The fifth and sixth questions ask about the length of time that service has been utilized, both overall and from that specific service provider. Over half of the sample has had cellular telephone service for over 4 years, with less than 10 percent having started cellular telephone service within the past year. This is shown in Table 5.10.

Table 5.10 Question 5: Length of Service

Response	S5 Frequency	S5 Percent	T5 Frequency	T5 Percent
Less Than One Year	87	9.4	53	9.1
Between One and Four Years	311	33.7	175	30.2
Over Four Years	526	56.9	352	60.7
Total Valid	924		580	

Another element of the switching history of each respondent was the amount of time spent with their current provider. With 60 percent of the respondents reported having cellular service of over four years, less than half of that amount reported being with their current provider for that long. This indicated at least one service switch in their history. This is shown in Table 5.11.

Table 5.11 Question 6: Length with Current Provider

Response	S6 Frequency	S6 Percent	T6 Frequency	T6 Percent
Less Than One Year	213	23.1	126	21.7
Between One and Four Years	458	49.6	287	49.5
Over Four Years	253	27.4	167	28.8
Total Valid	924		580	

In the survey, the main attitudinal variables for defining brand switching are a Likert-type scale variable asking the likelihood of switching, a categorical variable asking the probability of staying with the current brand, and a Likert scale variable that removes any possible contractual penalties and then asks the likelihood of switching. In the survey, these are questions S9, S10, and S10c, respectively. The likelihood to switch question is asked with a scale using responses of "very likely" through "very unlikely." This response is tested by immediately asking respondents to indicate their likelihood to remain with their current provider over the same time frame, or their likelihood of not switching. This provides a valuable check of consistency. The responses to these questions are shown in Tables 5.12 and 5.13, respectively.

Table 5.12 Question 9: Likely to Switch

Response	S6	T6
Total Valid	924	580
Mean (1=Very Likely)	3.47	3.73
Std. Dev.	1.387	1.326
Skewness	-.358	-.621
Kurtosis	-1.127	-.820

Because this question was an interval scale, a t-test of paired samples can be completed. However, comparing the means of those who say they are likely to switch in groups one and two does not give weight to the fact that some of these respondents just switched in the past four months. Therefore, grouping by their responses to question 8, asking if they had switched in the past four months, provides a t-value of -1.597 with 244 degrees of freedom and a p-value of .111 for those who had never switched before, a t-value of -.502 with 34 degrees of freedom and a p-value of .619 for those who had switched in the past year, and a t-value of -2.051 with 263 degrees of freedom and a p-value of .041 for those respondents who had switched previously, but not in the past four months. This indicates that the wave one respondents who had never switched before gave the same answers in wave two regarding their likelihood of switching in the next year, as did those respondents who had switched in the past four

months. However, those respondents who had switched before but not within the past four months gave a statistically significant different answer between waves one and two, indicating that as a group they were moving away from switching. The mean for wave one was 3.45 and for wave two was 3.61 for this group of respondents.

Table 5.13 Question 10: Probability of Staying

Response	S10 Frequency	S10 Percent	T10 Frequency	T10 Percent
100% Stay	353	38.2	254	43.8
75% Stay	275	29.8	182	31.4
50% Stay	206	22.3	100	17.2
25% Stay	56	6.1	25	4.3
0% Stay	34	3.7	19	3.3
Total Valid	924		580	

The next question asked the same switching likelihood, but was phrased as a probability of staying with the service provider in the next year. One would expect a rational respondent would answer correspondingly as they did in the prior question For the group who had never switched, the t-value was 1.808 with 244 degrees of freedom and a p-value of .072. For the group who had switched in the past four months, the t-value was .393 with 34 degrees of freedom, and a p-value of .697. For the group who had switched, but not in the past four months, the t-value was 1.934 with 263 degrees of freedom and a p-value of .054. This supports the assumption of rational respondents relative to similar responses in these two questions. This is shown in Table 5.14.

Table 5.14 Question 10c: Likely to Switch No Penalty

Response	S10c	T10c
Total Valid	924	580
Mean (1=Very Likely)	3.13	3.35
Std. Dev.	1.386	1.377
Skewness	-.025	-.212
Kurtosis	-1.206	-1.172

Similar to the two prior segments of analysis, three groups were examined. The first group, those who had never switched before, had a t-value of -1.518 with 244 degrees of freedom and a p-value of .130. The second group, those who had switched in the past four months, had a t-value of -1.774 with 34 degrees of freedom and a p-value of .085. The third group, consisting of those respondents who had switched but not within the past four months, had a t-value of -1.319 with 263 degrees of freedom and a p-value of .188. There were no differences between first wave and second wave respondents on this question.

Next, the analysis moves to an examination of switching behavior. The major behavioral variables focus on the actual switching behavior of the respondent for this specific service. The first question addressing this issue asks for the specific brand of service currently utilized. This is followed by a question as to whether the respondent

has ever switched service providers, and a subsequent question as to whether the respondent has switched in the past four months. This allows the researcher to capture those persons who have switched in the past four months from wave one to wave two, and validate that actual switching behavior took place by examining the brand answers. In addition to capturing a small number of respondents who have actually switched service over the four month period between waves, and thus focusing more directly on pre-switch and post-switch attitudes, this can potentially give more insights into switching tendencies and possibly insights into the concept of variety seeking.

There has been a lot of consolidation taking place in this market over the past two years, with Cingular acquiring AT&T Wireless and Sprint acquiring Nextel. These were captured separately in case consumers had not yet made the brand switch in their minds. In addition, an "other response" category was available for respondents to answer if they did not find their brand listed. This was checked to make sure that respondents did not list the handset manufacturer (Motorola, Sanyo, Samsung, etc.) instead of their carrier brand. In several cases, this did occur, but in most cases the respondents listed smaller regional or local wireless carriers not shown on the brand list.

Cingular Wireless/AT&T Wireless, Sprint/Nextel, and Verizon Wireless comprise almost 70 percent of the market, fairly consistent with industry estimates. This is shown in Table 5.15, contrasting the brands utilized in the first wave and second wave.

Table 5.15 Question 3: Current Brand

Response	S3 Frequency	S3 Percent	T3 Frequency	T3 Percent
AT&T Wireless	24	2.6	8	1.4
Cellular One	36	3.9	15	2.6
Cingular Wireless	205	22.2	150	25.9
Nextel	53	5.7	24	4.1
Sprint PCS	132	14.3	74	12.8
T-Mobile	106	11.5	55	9.5
Verizon Wireless	228	24.7	159	27.4
Other	140	15.2	95	16.4
Total Valid	924		580	

When asked if they had ever switched brands, over half of the respondents replied that they had done so. There was no specific time frame on this question, so respondents could theoretically go back to the commercial start of cellular telephone service in the early 1980's by an AT&T subsidiary, Ameritech.

These results are very consistent with the information found in the responses to Question S5 about length of time with service and Question S6 about length of time with their current service provider. This is shown in Table 5.16.

Table 5.16 Question 7: Ever Switched Brands

Response	S7 Frequency	S7 Percent	T7 Frequency	T7 Percent
Yes	523	56.6	311	53.6
No	401	43.4	269	46.4
Total Valid	924		580	

This question was followed by one which had a very specific time frame associated with it. The interval for switching was four months, and was selected because the second wave was planned for four months from the first wave, allowing switching behavior during that interval to be captured.

One part of the research was to examine a small percentage of the population who had switched cellular telephone service brands in the past four months, between the first wave and the second wave. In the first wave, approximately 13 percent of respondents reported switching in the prior four months, serving as a calibration for those second wave respondents who also reported switching in the prior four months. A quick examination of the 43 brand switchers in the second wave revealed that none of them had reported switching in the first wave, indicating that these were true switchers between the first and second wave of surveys. The total of switchers in the second wave is 43 respondents. This is shown in Table 5.17.

Table 5.17 Question 8: Switched Brands Last Four Months

Response	S8 Frequency	S8 Percent	T8 Frequency	T8 Percent
Yes	69	13.2	43	13.8
No	454	86.8	268	86.2
Total Valid	523		311	

5.2.2 Satisfaction

The satisfaction construct consists of four items, plus an additional item added by the researcher. The first four items are survey questions 11, 12, 13, and 14, and address comparison to an ideal service provider, how well the current provider meets the respondents needs, the overall satisfaction with the service provider, and whether or not the current provider meets expectations. The fifth item, survey question 15, is whether or not the respondent would recommend the service to others. However, because this last item is a behavioral outcome, it is not incorporated into the Satisfaction construct during model development and analysis.

The first satisfaction question asked respondents to compare their current service provider with their self-imaged ideal provider. Less than half of all respondents in each wave reported that their current provider was equal to this ideal provider, but the percentage increased in the second wave, indicating that either the service quality improved, the respondents expectations decreased, or the switch to another service provider improved their beliefs about their current service provider. With a ceiling response being the current brand equal to the ideal provider, it was not meaningful to

present this question as a Likert-type scale item. The three responses were far below their ideal service provider, somewhat below their ideal service provider, and equal to their ideal service provider. The last response would indicate that the current service provider is also their ideal service provider, and is an indication of complete satisfaction. This is shown in Table 5.18.

Table 5.18 Question 11: Compare to Ideal Provider

Response	S11 Frequency	S11 Percent	T11 Frequency	T11 Percent
Far Below Ideal	101	10.9	48	8.3
Somewhat Below	445	48.2	259	44.7
Equal to Ideal	378	40.9	273	47.1
Total Valid	924		580	

The second satisfaction scale item examined how well the current service provider met the needs of the user at that time. The t-test for a paired sample of wave 1 respondents and wave 2 respondents showed that there was not a significant difference for those who had never switched, with a t-value of -.741 and a significance of .460 at 244 degrees of freedom. For those who had switched in the past four months, there was also no significant difference, with a t-value of .961 and a significance of .343 at 34 degrees of freedom. However, for those who had not switched in the past four months,

there was a significant difference between waves, with a t-value of 3.301 and a significance of .001 at 263 degrees of freedom. For this third group, the mean value of the response improved from 2.29 to 2.10, indicating that the current service provider was either doing a better job of meeting needs or cognitive dissonance had created the perception that needs were being met better at the time of the second wave. This is shown in Table 5.19.

Table 5.19 Question 12: Meet Current Needs

Response	S12	T12
Total Valid	924	580
Mean (1=Extremely Well)	2.21	2.06
Std. Dev.	1.022	.957
Skewness	.635	.583
Kurtosis	.023	-.250

The next question asked for the respondents overall satisfaction level. This is viewed as a classic satisfaction question, and should have a high correlation to retention, according to satisfaction theory proposed by Oliver (1980) and others.

When those who had not ever switched were compared between groups, the paired sample t-test showed no significant difference, with a t-value of -1.656 and a significance of .099. The same conclusion was found for those who had switched in the

past four months, with a t-value of -.961 and a significance of .343. However, the group that indicated that they had not switched within the past year was significantly different between waves, with a t-value of -2.000 and a significance of .047. The mean for wave 1 respondents was 3.30 and for wave 2 respondents was 3.45, indicating a hardening of the position that they would not switch in the upcoming year. This is shown in Table 5.20

Table 5.20 Question 13: Overall Satisfaction

Response	S13	T13
Total Valid	924	580
Mean (1=Completely Agree)	3.39	3.63
Std. Dev.	1.347	1.326
Skewness	-.201	-.467
Kurtosis	-1.199	-1.028

The third satisfaction question asked respondents if their current service provider falls short of expectations. For those who had never switched, there was no difference between the first and second wave. The t-value was -.494 with a significance of .622. For the group that had switched in the past four months, there was again no statistical difference between waves, with a t-value of -1.022 and a probability of .314. However, for the third group, those who had not switched in the past four months, there

was a significant difference between waves. The t-value was -3.226 and the significance was .001. The means for the first wave and the second wave were 3.03 and 3.27, respectively, indicating that expectations are being met better for the second wave than they were for the same respondents in the first wave. Again, responses to this question are internally consistent with those of the other satisfaction questions. This is shown in Table 5.21.

Table 5.21 Question 14: Falls Short of Expectations

Response	S14	T14
Total Valid	924	580
Mean (1=Completely Agree)	3.14	3.37
Std. Dev.	1.359	1.326
Skewness	.060	-.141
Kurtosis	-1.317	-1.273

The last satisfaction question was not originally part of the satisfaction construct presented in the Burnham et al. (2003) study. This question was added to determine if it had additional predictive capability that would improve the utility of the satisfaction construct.

In the question, respondents were asked to agree or disagree with whether or not they were willing to recommend their cellular service provider to their family and

friends. As word of mouth can be one of the most persuasive means of brand promotion and growth, an unwillingness to recommend indicates a degree of dissatisfaction with the service.

For the group who had never switched cellular service before, there was no significant difference between waves, with a t-value of 1.024 and a significance of .307. For the second group, those who had switched in the past four months, there was also no significant difference between groups, with a t-value of .947 and a significance of .350.

However, the third group, those who had previously switched but not within the past year, did show a significant difference between waves. The t-value was 3.388 and the significance was .001. The means for the two waves were 2.37 and 2.14, respectively, indicating that this group, having had the service for at least a year, was more willing to recommend the service than they had been four months previously. This is shown in Table 5.22.

Table 5.22 Question 15: Likely to Recommend

Response	S15	T15
Total Valid	924	580
Mean (1=Completely Agree)	2.29	2.08
Std. Dev.	1.168	1.103
Skewness	.685	.901
Kurtosis	-.296	.134

The paired sample t-test revealed that the two waves were remarkably consistent when satisfaction questions were asked. However, one of the sub-groups, those who had switched in the past but not within the past year, showed increasing satisfaction with their current provider over the course of the four month period.

Reliability for the satisfaction scale was examined and found to be very high, with a Cronbach's alpha of .885. The chi-square within people and between items was 649.919 with a significance of .000 and the chi-square within people residual was 218.709 with a significance of .000. The ANOVA table and the Hotelling t-squared test results table are shown in Tables 5.23 and 5.24, respectively.

Table 5.23 Satisfaction Scale ANOVA with Friedman's Test and Tukey's Test for Nonadditivity

			Sum of Squares	df	Mean Square
Between People			4107.133	923	4.450
Within People	Between Items		1332.465	4	333.116
	Residual	Nonadditivity	105.857(a)	1	105.857
		Balance	1786.478	3691	.484
		Total	1892.335	3692	.513
	Total		3224.800	3696	.873
Total			7331.933	4619	1.587

Grand Mean = 3.27

a Tukey's estimate of power to which observations must be raised to achieve additivity = .023.

b The covariance matrix is calculated and used in the analysis.

Table 5.24 Satisfaction Scale Hotelling's T-Squared Test

Hotelling's T-Squared	F	df1	df2	Sig
3725.244	928.284	4	920	.000

The covariance matrix is calculated and used in the analysis.

5.2.3 Brand Switching Barriers

The brand switching barriers construct consists of 30 Likert-type scale items, asking respondents to agree or disagree with each statement on a five point scale. Because all the brand switching barrier items have a similar Likert scale format, with code 1 equal to Strongly Disagree, a summary table of means and distribution parameters is shown in Appendix C. For the analysis, it was necessary to reverse-code items 16a, 16b, and 16c for response consistency, in addition to the reverse-coded items specified by Burnham in his instrument.

The statements can be divided into the three sub-constructs of procedural switching costs, financial switching costs, and relational switching costs. These items were taken verbatim from Burnham et al. (2003) paper, though they were randomized for presentation to each respondent to mitigate any potential order bias. In the survey, the brand switching barriers construct items are found in question 16.

The first sub-construct, procedural switching costs, contains items relating to economic cost, evaluation cost, learning cost, and set-up cost. In the survey, these 18 items are questions 16-01 through 16-17, plus item 16a, which is not a Likert attitude

item. In these items, 16-11 and 16-13 are reverse-coded to identify any possible respondents who are providing spurious answers.

The first six items in this sub-construct relate to economic costs of switching, followed by three items plus item 16a that focus on evaluation costs, followed by four items that focus on learning costs, and followed by four items that focus on set-up costs.

The second sub-construct, financial switching costs, contains five items relative to benefit loss and monetary loss. The items in the survey are 16-18 through 16-20, plus item 16b and item 16c, which are not Likert attitude items.

The non-attitude items were removed from the switching barriers attitude battery, which was randomized for each respondent, and presented following this attitude battery to reduce cognitive effort on the part of the respondents.

The third sub-construct, relational costs, contains seven items relative to personal relationship loss and brand relationship loss. In the survey, these are items 16-21 through 16-27, with the last item reverse-coded.

Reverse coding was done in the SPSS database, with the creation of new variables that computed the new score as 6-X, where X is the respondent's initial score for these four reverse coded items. Care was taken to select only respondents who answered the specific item, as the result of not doing so would be to calculate a response for a previously blank answer.

A quick examination of the differences between the first wave and the second wave revealed that the respondents were remarkably consistent in their responses for each item. A paired sample t-test showed that all of the items but three had no

statistically significant difference between waves. The three items that did have a difference were items 16-13, 16-16, and 16a.

All three of the significantly different items were in the Procedural cost sub-group. The three items are spread throughout the construct, with one falling in the evaluation cost area, one falling in the learning cost area, and one falling in the set-up cost area. In fact, following Burnham's model, two of these three items were among the few reverse-scored items, and that may have caused respondent confusion between waves, accounting for some of the differences between waves.

Item 16-13 had a mean of 2.74 in the first wave and 2.83 in the second wave, with a paired sample of 544 respondents. Because it was reverse scored, with the above means reflecting that reversal, the interpretation is that there is less agreement in the second wave to this item, which is that it would be easy to get used to another provider. This item had a paired sample t-value of -1.999, with a significance of .046. Item 16-16 had means of 2.85 and 3.05, respectively, and a t-value of -3.083 with a significance of .002. Again, as a reverse scored item, this indicated that there was less agreement in the second wave. The item was that starting up with a new service would be quick and easy.

Item 16a had a mean of 3.36 for the first wave and 3.48 for the second wave. Item 16a had a t-value of -2.456 and a significance of .014. This was not a reverse scored item. The direction of the means indicated an increasing agreement in the second wave. The item asked about the amount of time and effort it takes to feel comfortable evaluating a new service provider. The difference in means indicates that

the second wave respondents felt that there would be more effort required to evaluate new providers.

Reliability for the brand switching barriers scale, as measured by Cronbach's alpha, was very high at .892. The chi-square within people and between items was 139.349 with a significance of .000 and the chi-square within people residual was 10.613 with a significance of .001. The ANOVA table and the Hotelling t-squared test results table are shown in Tables 5.25 and 5.26, respectively.

Table 5.25 Barriers Scale ANOVA with Friedman's Test
and Tukey's Test for Nonadditivity

			Sum of Squares	df	Mean Square
Between People			6861.033	923	7.433
Within People	Between Items		3233.434	29	111.498
	Residual	Nonadditivity	8.489(a)	1	8.489
		Balance	21408.644	26766	.800
		Total	21417.132	26767	.800
	Total		24650.567	26796	.920
Total			31511.600	27719	1.137

Grand Mean = 3.12

a Tukey's estimate of power to which observations must be raised to achieve additivity = .679.

b The covariance matrix is calculated and used in the analysis.

Table 5.26 Barriers Scale Hotelling's T-Squared Test

Hotelling's T-Squared	F	df1	df2	Sig
2044.058	68.347	29	895	.000

The covariance matrix is calculated and used in the analysis.

5.2.4 Affect

The PANAS scale of affect (Watson et al, 1988) consisted of 20 one-dimensional adjectives that comprised the affect construct and also described the two main affect dimensions of valence and arousal. Each item asked for the respondent to identify the degree to which that adjective reflected their current feelings about their current service provider. In the survey, these items were found in question S17. For the items, a five point Likert-type scale was utilized, in which a response of 1 indicated that the specified adjective was not reflected, and a response of 5 indicated the item reflected extremely well. Ten of the twenty items were positive adjectives, and the remaining ten were negative adjectives. The means and standard deviations for these items are found in Appendix D.

When the first wave of respondents was compared to the second wave of respondents in a paired-sample t-test, five adjective pairs showed significant differences between waves. These adjectives were items 17-3, 17-4, 17-8, 17-9, and 17-14.

Item 17-3 was labeled “Excited.” This item pair had a t-value of -2.307 and a significance of .021 with 543 degrees of freedom.

Item 17-4 was labeled "Upset." This item pair had a t-value of 1.990 and a significance of .047.

Item 17-8 was labeled "Hostile." This item pair had a t-value of 2.421 and a significance of .016.

Item 17-9 was labeled "Enthusiastic." This item pair had a t-value of -2.660 and a significance of .008.

Item 17-14 was labeled "Inspired." This item pair had a t-value of -2.031 and a significance of .043.

When these 20 items were subjected to a principal components factor analysis, using varimax rotation, two expected factors emerged. These two factors accounted for over 70% of the total variance. The first factor was labeled "Arousal," and consisted of ten positive and action oriented adjectives, each with a factor loading on the rotated component matrix of at least .768. The second factor was labeled "Valence," and consisted of ten negative and valence oriented adjectives, each with a factor loading on the rotated component matrix of at least .672. Three of the adjectives that were significantly different between waves were found in the Arousal dimension of affect, and the other two adjective were found in the Valence dimension.

The next examination was comparing the three switcher groups across the three waves by the affect adjectives. There were no significant differences between waves for the group that had never switched service providers. For the second group, respondents who had switched service providers in the past four months, two affect items showed a significant difference between groups. These items were 17-3, Excited,

with a t-value of -3.200 and a significance of .003, and 17-15, Nervous, with a t-value of -2.797 and a significance of .008. This group had 35 respondents, thus 34 degrees of freedom.

For the third group, those respondents who had switched but not in the past four months, four items were statistically significantly different between waves. These items were item 17-8, Hostile, with a t-value of 2.496 and a significance of .013; item 17-9, Enthusiastic, with a t-value of -2.306 and a significance of .022; item 11, Irritable, with a t-value of 2.061 and a significance of .040; and, item 15, Nervous, with a t-value of 2.928 and a significance of .004.

Reliability of the affect construct was found to be high. Cronbach's alpha was calculated as .906. The chi-square within people and between items was 294.692 with a significance of .000 and the chi-square within people residual was 1230.288 with a significance of .000. These results indicated that the affect construct, utilizing the PANAS scale, is reliable in capturing the affect state of respondents at the time of survey administration for each wave. The ANOVA table and the Hotelling t-squared test results table are shown in Tables 5.27 and 5.28, respectively.

Table 5.27 Affect Scale ANOVA with Friedman's Test
and Tukey's Test for Nonadditivity

			Sum of Squares	df	Mean Square
Between People			7906.342	923	8.566
Within People	Between Items		4491.151	19	236.376
	Residual	Nonadditivity	922.187(a)	1	922.187
		Balance	13144.462	17536	.750
		Total	14066.649	17537	.802
	Total		18557.800	17556	1.057
Total			26464.142	18479	1.432

Grand Mean = 1.94

a Tukey's estimate of power to which observations must be raised to achieve additivity = -.341.

b The covariance matrix is calculated and used in the analysis.

Table 5.28 Affect Scale Hotelling's T-Squared Test

Hotelling's T-Squared	F	df1	df2	Sig
1279.243	66.016	19	905	.000

The covariance matrix is calculated and used in the analysis.

5.3 Additional Analyses

In addition to the structural equation models, there were several additional analyses which were helpful in explaining the data. The first analysis was an evaluation of the presence and length of the contract each respondent had with their cellular service provider and the impact on their decision to switch service providers. The second analysis was examining the anticipated behavior, or attitude, of respondents in the first wave with their actual behavior relative to switching in the second wave four months later. The third analysis was examining the use of different forms of the dependent variable, ranging from a simple binary to two scales asking the switching question from different perspectives.

5.3.1 Evaluation of Contractual Barrier

Because of the nature in which the cellular telephone service market had evolved in the past 20 years, service providers evolved to a contractual relationship with many of their subscribers. These contracts often required a year or two year commitment, helping service providers to subsidize the cost of the cellular telephone handset. Though this switching barrier was incorporated explicitly into the brand switching barriers model, it was deemed significant enough to examine separately in the data gathering process, with several early questions posed to respondents to determine their remaining time left on their service contracts and the impact this might have on their attitudes about switching.

The most common contractual agreement among respondents was a two-year contract. The frequencies of different contractual agreements for the first wave of respondents are shown in Table 5.29.

Table 5.29 Contractual Agreement Length

	Frequencies	Valid Percent
One-year contract	244	26.4
Two-year contract	450	48.7
No contract, only month to month	138	14.9
Prepaid service	79	8.5
Other arrangement	13	1.4
Total	924	

For the 707 respondents who indicated that they had a contract or other arrangement, the remaining length of time on the contract was also asked. The mean remaining time was 11.09 months. However, this was disaggregated even further by the contractual length shown in the prior table, with the results shown as follows in Table 5.30.

Table 5.30 Remaining Time by Contract Type

	Sample	Remaining time mean	Standard deviation
One-year contract	244	7.13	3.308
Two-year contract	450	13.35	6.462
Other arrangement	13	7.00	9.496
Total	707	11.09	6.392

When compared to the responses in the second wave, those who had not switched should have had responses four months less than in the first wave. However, one would also expect that non-switchers would renew their contracts, so approximately the same means should be observed. This consistency check revealed that the 438 respondents in the second wave who answered this question had means as shown in Table 5.31.

Table 5.31 Remaining Contract Time for Second Wave

	Sample	Remaining time mean	Standard deviation
One-year contract	114	7.81	3.256
Two-year contract	318	14.05	6.955
Other arrangement	6	7.67	7.448
Total	438	12.34	6.800

A paired-sample t-test between the two waves for the remaining months left on the contract showed a t-value of -.785 with 543 degrees of freedom and a two-tailed significance of .433. This indicates that there was a high degree of consistency between the two waves of responses.

5.3.2 Comparison of Switching Behavior and Attitude

In the first wave, respondents were asked the likelihood of switching cellular service providers in the upcoming year. They were also asked if they had ever switched service providers in the past, and whether they had switched service providers in the past four months. The same questions were asked in the second wave, so it was possible to identify the actual behavior of respondents relative to switching between the two waves, comparing that to switching attitudes provided in the initial wave responses. There were 41 respondents in the second wave who had switched in the prior four months, and 257 respondents who had not switched, when all unusable respondents were removed.

However, this analysis can only be done from a directional perspective, because respondents were asked their likelihood of switching in the coming year, and the interval was only four months, not allowing adequate time for implementation of their desire to switch. But it is possible to see whether those who indicated they were more likely to switch had a higher switching behavior than those who indicated they were less likely to switch.

The mean values of the 41 respondents who switched (on the likelihood to switch question), compared to the mean values of the 257 respondents who had not

switched, showed an F value of 6.716 and a significance of .000. The likelihood of switching question in the first wave compared to the behavior of those respondents in the second wave who indicated switching in the prior four months is shown in the following ANOVA table, Table 5.32.

Table 5.32 Likelihood to Switch by Actual Switchers ANOVA

			Sum of Squares	df	Mean Square
Last 4 months * Likely to switch	Between Groups	(Combined)	2.970	4	.742
	Within Groups		32.389	293	.111
	Total		35.359	297	

When the same analysis was done with the probability of switching question, again the F value was significant at 6.214 and a level of .000. This is shown in Table 5.33.

Table 5.33 Probability of Switching by Actual Switchers ANOVA

			Sum of Squares	df	Mean Square
Last 4 months * Probability flip	Between Groups	(Combined)	2.765	4	.691
	Within Groups		32.594	293	.111
	Total		35.359	297	

The result of this analysis does indicate that the actual switching behaviors of the respondents as demonstrated in the second wave are directionally very similar to the attitudes about switching expressed by these same respondents in the first wave.

5.3.3 Different Methods of Determining Switching

Respondents were asked in the first wave what their likelihood of switching within the coming year and what their probability of not switching would be over the next year. Both questions were identical, though one was phrased as a five point scale question and the other was posed as a probability of staying (not switching) with their current provider. The only difference is the latter question provided distinct anchors of probability at each scale point. In addition, a later question removed the possible financial penalty of switching without completing the contract length, and the likelihood question was asked again.

The correlation of the first two questions, when the scale for the second one was flipped to align the end points similarly, was .749 with a two-tailed significance of .000. The correlation of the third question, which removed the contractual barrier, to the first two questions was .728 and a significance of .000 and .632 with a significance of .000. This indicates an anticipated consistency on the part of the respondents in the first wave regarding this series of questions.

Each of the three attitude questions was examined against the actual behavior of respondents in the four months between waves. The first examination was a cross-tabulation of the likelihood to switch as answered by first wave respondents versus their actual switching behavior as captured in the second wave survey. The chi-square was 25.028 with a significance of .000. This is shown in Table 5.34.

Table 5.34 Cross-Tabulation of Likely to Switch
by Actual Switch Behavior

		Switched Last Four Months		
		Yes	No	Total
Likely to switch	Very Likely	14	24	38
	2	8	29	37
	3	6	80	86
	4	5	33	38
	Very Unlikely	8	91	99
Total		41	257	298

The second question examined in this section was the probability of switching cross-tabulated by the actual switching behavior. This was basically the same question as the likelihood of switching, but was asked as a probability of staying with the current provider for another year. The item values were also reversed from the likelihood question, so that a value of 1 was a 100% chance of staying for a year. The chi-square is 23.303 with a significance of .000. This is shown in Table 5.35.

Table 5.35 Cross-Tabulation of Probability to Stay
by Actual Switch Behavior

		Switched Last Four Months		
		Yes	No	Total
Probability of staying	0% Stay	7	8	15
	2	4	15	19
	3	15	57	72
	4	7	81	88
	100% Stay	8	96	104
Total		41	257	298

The third question examined in this section was the likelihood of switching when the contract restriction was removed, cross-tabulated by the actual switching behavior. This created a hypothetical situation, in which the respondent was asked to engage in more cognitive effort, speculating as to future behavior with a previously unforeseen circumstance, the removal of the contractual barrier. To a degree, though interesting, this was felt to be the weakest of the three questions because of the lack of a direct linkage between the professed attitude of the respondent toward switching in the future and the observed behavior of that same respondent. The chi-square is 11.481 with a significance of .022. This is shown in Table 5.36.

Table 5.36 Cross-Tabulation of Un-contracted Likely to Switch
by Actual Switch Behavior

		Last 4 months		Total
		1	2	
No	1	14	34	48
penalty	2	6	52	58
switch	3	10	80	90
	4	4	35	39
	5	7	56	63
Total		41	257	298

Again, the three questions regarding likelihood to switch were remarkably consistent from the respondent's perspective, though the third question was, though significant, less significant than the other two questions. This is attributed to the hypothetical nature of the third question relative to the actual observed switching behavior.

Given the correlations and chi-square statistics above, the question was then posed as to which form of posing the question did a better job of predicting the actual switching behavior. Testing the three questions was done with a discriminant function, using the actual switching behavior of the second wave (question T8) as the dependent variable. The discriminant analysis is shown in Tables 5.37 through 5.42, respectively.

Table 5.37 Behavior Discrimination Group Statistics

Last 4 months		Mean	Std. Deviation	Valid N (listwise)	
				Unweighted	Weighted
1	Likely to switch	2.63	1.545	41	41.000
	Probability flip	3.12	1.327	41	41.000
	No penalty switch	2.61	1.481	41	41.000
2	Likely to switch	3.54	1.323	257	257.000
	Probability flip	3.94	1.053	257	257.000
	No penalty switch	3.11	1.317	257	257.000
Total	Likely to switch	3.41	1.388	298	298.000
	Probability flip	3.83	1.129	298	298.000
	No penalty switch	3.04	1.349	298	298.000

Table 5.38 Behavior Discrimination Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
Likely to switch	.950	15.699	1	296	.000
Probability flip	.937	19.836	1	296	.000
No penalty switch	.984	4.827	1	296	.029

Table 5.39 Behavior Discrimination Covariance Matrices

Last 4 months		Likely to switch	Probability flip	No penalty switch
1	Likely to switch	2.388	1.271	2.129
	Probability flip	1.271	1.760	1.124
	No penalty switch	2.129	1.124	2.194
2	Likely to switch	1.750	1.067	1.240
	Probability flip	1.067	1.110	.916
	No penalty switch	1.240	.916	1.735
Total	Likely to switch	1.927	1.179	1.409
	Probability flip	1.179	1.274	.990
	No penalty switch	1.409	.990	1.820

a. The total covariance matrix has 297 degrees of freedom.

Table 5.40 Behavior Discrimination Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.080(a)	100.0	100.0	.272

a. First 1 canonical discriminant functions were used in the analysis.

Table 5.41 Behavior Discrimination Standardized Canonical Discriminant Function Coefficients

	Function 1
Likely to switch	.622
Probability flip	.797
No penalty switch	-.526

Table 5.42 Behavior Discrimination Structure Matrix

	Function 1
Probability flip	.917
Likely to switch	.816
No penalty switch	.452

Note: Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions. Variables ordered by absolute size of correlation within function.

The result of this analysis shows that all three questions were effective at providing discrimination of those who switched in the prior four months and those who did not, though the likelihood to switch question (9) was slightly less effective than the probability of switching question (10), and both were slightly more effective than the question that removed the contractual barrier (10c). It is felt that the latter question created an artificial environment which did not allow for actual behavior to be reflected, thus was slightly less effective as a predictor of actual switching behavior.

5.4 Structural Equation Models

Pedhazur and Schmelkin (1991) provided direction in the construction and evaluation of structural equation models. With the use of AMOS 4.01, the guidance of Arbuckle and Wothke (1999) was also helpful in the establishment of the graphic model input, utilizing the SPSS database developed from the respondent surveys. Finally, Bacon (1997) provided direction in the construction and evaluation of structural equation models utilizing AMOS. As structural equation models could also be viewed

as analysis of covariance structures, particular attention is paid to examination of the moment structures.

For a confirmatory factor analysis (CFA), the most meaningful measure of fit is the CMIN/DF ratio, which captures the minimum value of the discrepancy function divided by the degrees of freedom. For correct models, this ratio should be close to one. Additional measures which are often examined are the RMSEA (root means square error of approximation) which compensates for highly complex models by dividing the population discrepancy function F_o by the degrees of freedom, and then taking the square root of that ratio. A low value of RMSEA indicates a model with better fit.

The normed fit index (NFI) compares the model to an independence or baseline model, and allows an understanding of just how poorly the model could be. A value of approaching one is indicative of a good fit, and a value close to zero indicates a truly poor fit. The comparative fit index (CFI) is another ratio used for similar purposes, and can be considered analogous to a noncentrality index. Again, values of close to one are considered indicative of a good fit, and values close to zero are not.

Finally, the Hoelter critical N is the largest sample size (using either a .05 significance level or a .01 significance level) at which a model can be accepted.

The χ^2 statistic can be utilized to test the null hypothesis that the implied and sample covariances are equal. If the chi-square is high, depending on the degrees of freedom, then this gives stronger evidence against the null hypothesis.

5.4.1 Structural Equation Model Graphic Notations

AMOS utilized several means of developing and analyzing structural equation models. The means selected for this research was the graphic input means, in which the researcher constructed a graphic picture of the model and relationships between variables, both observed and unobserved, and then proceeded to interpret the resulting analysis.

The basic graphic notational structure of a variable was an oval for an unobserved variable, a rectangle for the observed variable, and a small circle for an error term. When longitudinal data were utilized, the data were identified as wave 1 and wave 2 observed variables, feeding into the unobserved variable that they represented. The error terms, noted in the example as e1, e2, and e3, are constrained to an upper bound as shown. This is also true of one of the observed variables. The relationship arrows are shown for the variables and error terms. This notation is shown in the following figure. It is consistently utilized throughout the structural equation modeling development and analysis process. This is shown in Figure 5.1.

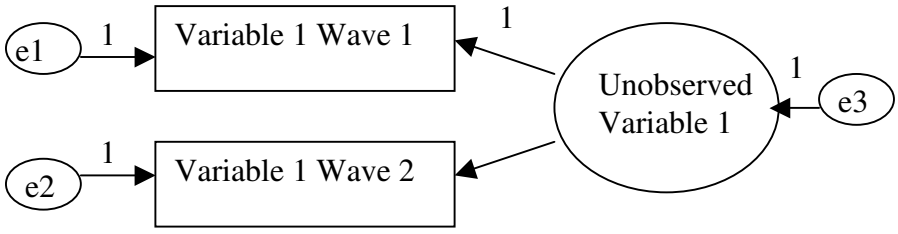

Figure 5.1 Structural Equation Model Graphic Notation

5.4.2 Confirmatory Factor Analysis Measurement Models

The first step was to develop a measurement model for each of the three independent constructs, insuring that the analysis methodology was consistent with that of Burnham et al. (2003). In the prior analysis, Burnham found that it was possible to pool the respondents who reacted to a long distance service stimulus and the respondents who reacted to a credit card stimulus. Burnham's model fit had a χ^2 of 710, CFI=.99, NFI=.97, and RMSEA=.054. This was across 378 unduplicated respondents. They then utilized a second-order confirmatory factor analysis to model the flow of the original brand switching items into the three higher-order constructs, with a χ^2 of 769, CFI=.98, NFI=.97, and RMSEA=.056. This parsimonious model fit the data well, and the three sub-constructs identified in earlier discussion (Procedural, Financial, and Relational) were found to be discriminant. The criteria of Fornell and Larcker (1981) were utilized, in which the average variance extracted for each sub-construct was found to be greater than the squared correlation for all pairs of sub-constructs, thus leading to that conclusion.

The first confirmatory factor analysis measurement model was constructed for the Brand Switching Barriers construct. The 30 item scale was included as directly observed variables, with the notation of S for the first wave variable and T for the second wave variable utilized.

The first sub-construct, Procedural Risk, was a composition of four clusters of items. These items were Economic Risk Costs, Evaluation Costs, Learning Costs, and Set-Up Costs. This was disaggregated to 18 directly observed variables for each wave.

Three of the items were reverse-coded, and were identified with a (r) notation following the item label. In addition, item 16a was not asked in the same Likert-type agree-disagree format, so was asked separately following the other scale items.

The second sub-construct, Financial Risk, was a composition of two clusters of items. These items are Benefit Loss Costs and Monetary Loss costs. This was disaggregated to five directly observed variables for each wave. Two of the items, 16b and 16c, were not asked in the same Likert-type agree-disagree format, so they were asked separately following the other scale items.

The third sub-construct, Relational Risk, was a composition of two clusters of items. These items are Personal Relationship Loss Costs and Brand Relationship Loss Costs. This was disaggregated to seven directly observed variables for each wave. One of the items was reverse-scored and was identified with the (r) notation.

The brand switching barriers confirmatory factor analysis measurement model is shown in the following figure. Though complex, the model did have a solid RMSEA of .051, with a CMIN/DF of 4.190, indicating a good model of the data. The χ^2 was 7119 with 1699 degrees of freedom and a probability of .000. The CFI=.957 and the NFI=.945, which again support the conclusion that the model is a good fit of the data. The path weights are shown for the main constructs. For the structural equation model, all path arrows are reversed for the main constructs. This is shown in Figure 5.2.

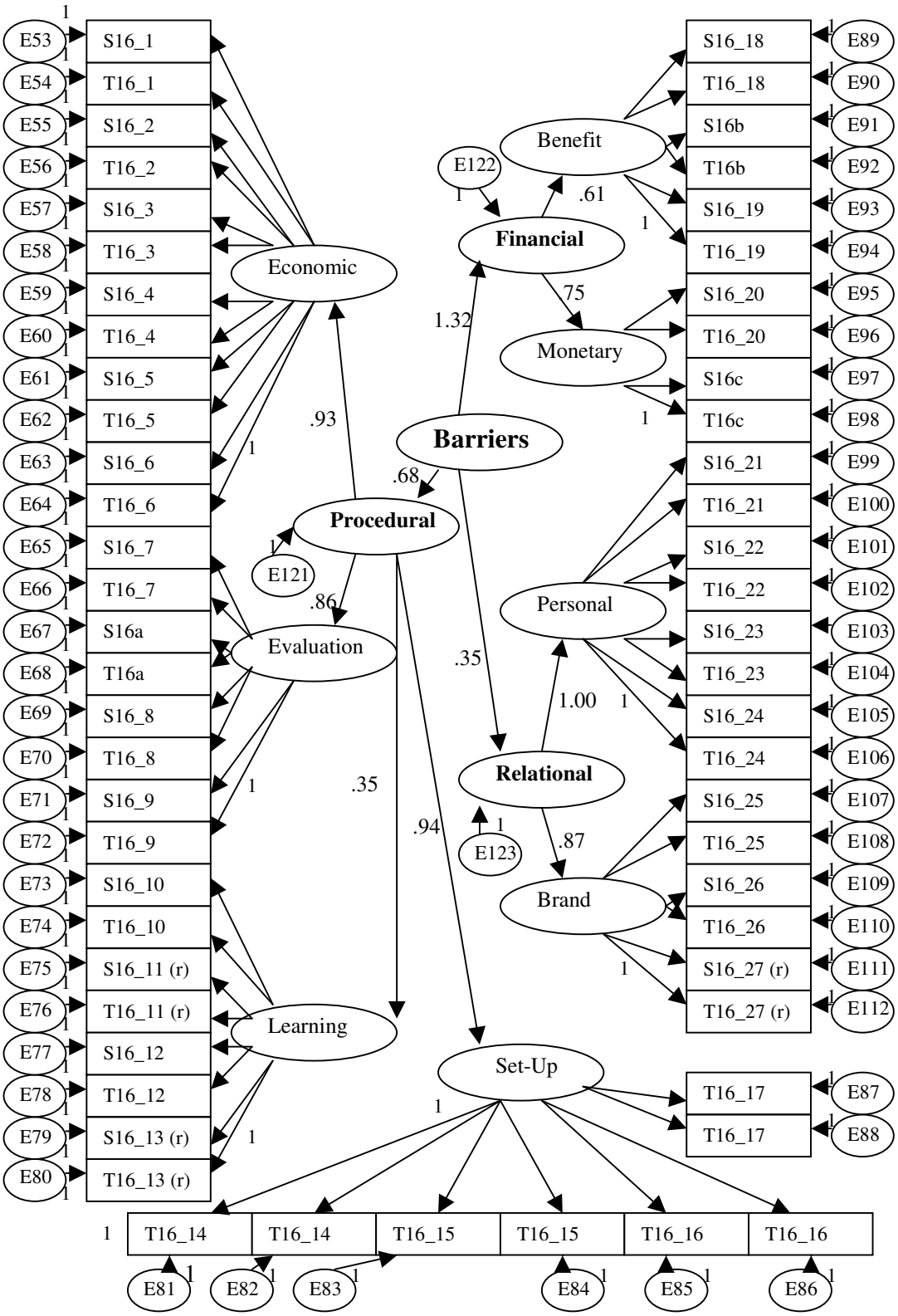

Figure 5.2 Confirmatory Factor Analysis Barriers Model

The second confirmatory factor analysis measurement model was built for the Affect construct. There were twenty items in the affect scale for each wave, resulting in a total of forty items being measured. The measurement model is shown in Figure 5.3.

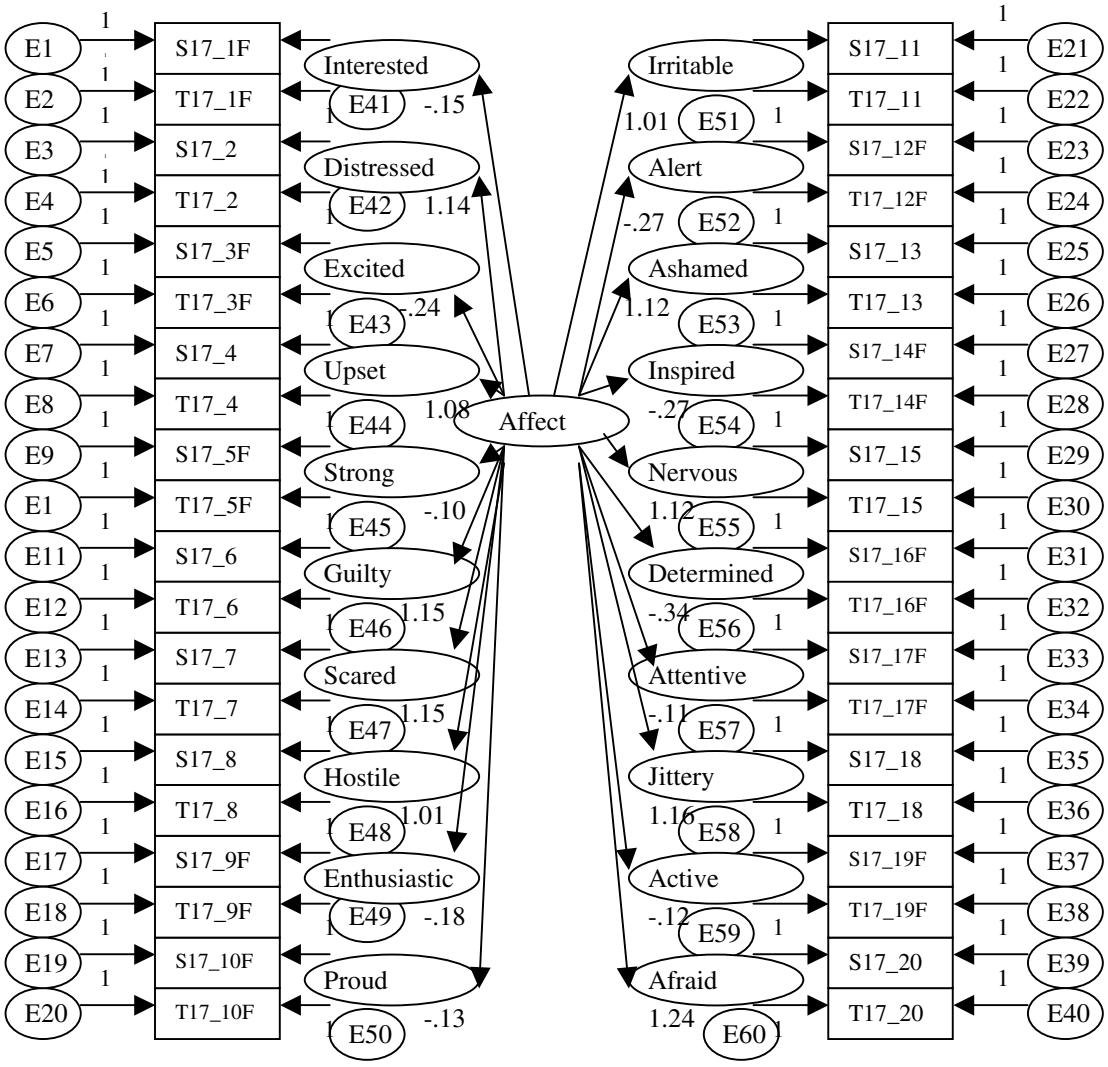

Figure 5.3 Confirmatory Factor Analysis
Affect Measurement Model

Each of the affect items has a first wave and a second wave component. They flow into the unobserved affect descriptor variables. This builds the Affect construct.

The RMSEA for this measurement model is .103, with a slightly high, though acceptable, CMIN/DF of 14.256. The χ^2 was 10279 with 721 degrees of freedom and a probability of .000. The CFI was .907 and the NFI was .901.

The third confirmatory factor analysis measurement model was built for the Satisfaction construct. There were four initial items for each wave. The fifth item was excluded from subsequent analysis. There were observations for each of the two waves, which flowed into the five unobserved variables, and then into the Satisfaction construct. The RMSEA was .064, with a CMIN/DF of 6.071. The χ^2 was 176 with 719 degrees of freedom, and a probability of .000. The CFI was .994 and the NFI was .992. The measurement model is shown in Figure 5.4.

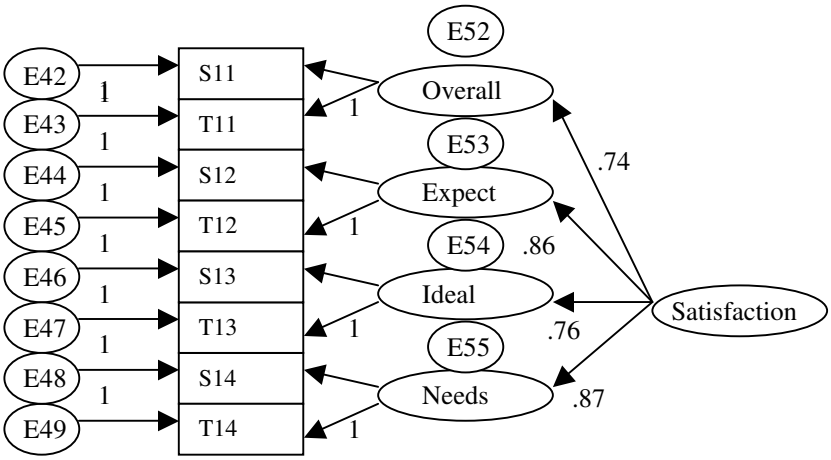

Figure 5.4 Confirmatory Factor Analysis
Satisfaction Measurement Model

5.4.3 Fully Developed Structural Equation Model

A fully developed structural equation model utilizing all four constructs was developed, with the constructs serving as the unobserved variables and the scales serving as the respective observed variables. Error terms were added for each variable, and were constrained with an upper bound of 1. Particular attention was given to the inter-relationships between the independent variables, as well as the relationships between these independent variables and the dependent variable, the customer retention construct.

The systematic method of developing the model was to start first with the relationship between the dependent variable, Retention, and the initial independent variable discussed in the theoretical discussion section, Satisfaction. This was followed by the addition of the Brand Switching Barriers independent construct, with examination of the difference in χ^2 measures and related fit measures. This second iteration was, in essence, a replication of Burnham's work, though with a longitudinal and nationally representative sample in place of Burnham's smaller student sample.

The third iteration was to incorporate the Affect independent construct, providing the fully explicated model. Again, the differences between χ^2 measures from the second to the third iteration were examined.

The option of unstandardized estimates versus standardized estimates was provided by structural equation modeling software. With unstandardized estimates, the single-headed arrows can be interpreted as regression weights, but with standardized estimates, this interpretation shifts to standardized regression weights. For the

unstandardized estimates, the double-headed arrows were interpreted as covariances, while with standardized estimates, they were interpreted as correlations. The coefficients found near endogenous (dependent or response) variables were interpreted in the unstandardized estimates as intercepts, while they were interpreted as the squared multiple correlations with standardized estimates. The squared multiple correlations could be interpreted as the proportion of variance in a construct accounted for by the predictor variables feeding into it. Finally, the coefficients found near exogenous (independent or predictor) variables were interpreted in unstandardized estimates as means and variances, similarly interpreted in standardized estimates. For the purposes of subsequent analysis, the standardized estimates were utilized

For the longitudinal data, variables were input as wave 1 and wave 2 for each construct. These were flowed into the structural equation model as observed variables. The unobserved variables were the four major constructs of the model. This was consistent with Arbuckle and Wothke (1999). The structural equation model is shown in Figure 5.5.

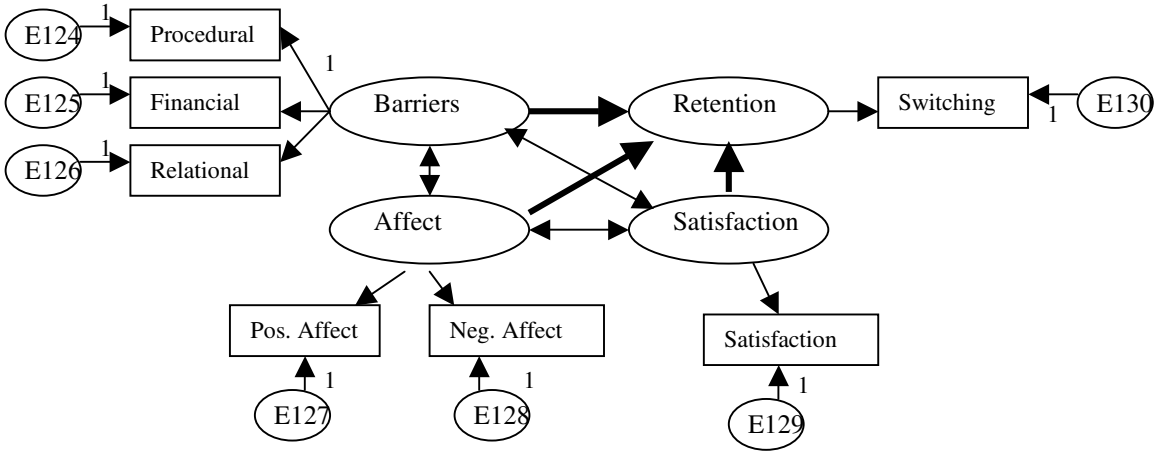

Figure 5.5 Structural Equation Model

Different configurations of the structural equation model were tested to determine the best approach for interpreting the results and evaluating the hypotheses. Analysis for each of these models is available upon request from the author, but was not included in the Appendices due to their length. The final two models utilized in the analysis were included in Appendix H.

The first configuration examined the dependent variable, Retention. A full structural equation model was developed, utilizing the 9 "likelihood to switch" question, followed by the same model utilizing theS10 "probability of staying" question. The first question provided a marginally better fit measure.

The second configuration examined the differences between the positive affect items, 17_1, 17_3, 17_5, 17_9, 17_10, 17_12, 17_14, 17_16, 17_17, and 17_19, and the negative affect items, which were the remaining ten items in the scale. A structural equation model was developed that eliminated the negative affect items, and compared to a structural equation model that eliminated the positive affect items. The impact of

positive affect on the model provided a slightly better fit than the impact of negative affect, and both models provided a slightly better fit than the full structural equation model with both positive and negative affect included. The conclusion was that positive and negative affect items tend to have a slightly dampening effect on each other, and when the effect of just one of these two complementary processes was teased from the data, the model fit became better.

The third configuration examined the sub-constructs of the Barriers construct, Procedural, Financial, and Relational, and whether or not linking them directly to the other constructs without the larger Barriers construct in the model would improve the efficiency of the model. The model that eliminated the larger Barriers construct was more effective in fitting the data, indicating that the three sub-constructs (as demonstrated by the confirmatory factor analysis on this construct) did capture different aspects of the barriers model, and when they were combined into a single construct, the fit with the data suffered.

Each of these four sets of analyses led to the conclusion that the optimal models to examine for the purposes of testing hypotheses included the first retention question, S9, included both sets of affect valence measures, and included only the first wave of data. The measures for the four sets of analyses are shown in Table 5.43.

Table 5.43 Structural Equation Model Parameter Comparison

Analysis and model	CMIN/DF	RMSEA	NFI	CFI	χ^2	d.f.	p
Retention Q9 12f	6.361	.065	.942	.951	8714	1370	.000
Retention Q10 11c	6.743	.068	.938	.947	9238	1370	.000
Pos Affect only 12	7.664	.073	.936	.944	7548	985	.000
Neg Affect only 12a	8.446	.077	.938	.944	8318	985	.000
Sub-Barriers, No Affect 10a	6.588	.067	.959	.965	3860	586	.000
Barriers, No Affect 12b	11.015	.089	.931	.937	6532	593	.000
Barriers and Sub-Barriers, No Affect 13c	10.682	.088	.899	.908	15823	1480	.000
Full SEM, First wave only 11a	11.920	.093	.888	.896	17641	1480	.000
Full SEM, Second wave only 11b	7.508	.072	.892	.905	11111	1480	.000

5.5 Hypotheses Evaluation and Conclusions

This section presents an analysis of the six major hypotheses, plus the secondary hypotheses derived from these major hypotheses. The two major areas of analysis for this section are examining the path coefficients and examining the critical ratios.

Per Arbuckle and Wothke, the critical ratio is the covariance parameter estimate divided by its standard error. Using a significance level of .05, a critical ratio that exceeds one standard deviation, or a measure of 1.96, would be considered significant and the alternate hypothesis supported. This is a two-tailed distribution, so the same statement applies to negative critical ratios.

5.5.1 Evaluation of Hypothesis 1

The first hypothesis proposed a relationship between the Affect construct and the dependent Retention construct. To evaluate the Affect construct, a first order construct was constructed for Positive Affect and another one for Negative Affect. These then flowed into a second order construct called Affect, which proved to be less predictive than the two first order constructs.

When the structural equation model was run, the path coefficient was .18 for positive affect and .32 for negative affect, which indicated a positive relationship between the constructs. For the standardized model, this measure was a standardized regression weight. When low levels of affect dominated, there was a correspondingly low level of retention, or negative switching behavior. When high levels of affect dominated, there was a correspondingly high level of retention. The critical ratio was 3.583 for positive affect and 6.574 for negative affect, both significant at a .05 level.

This led to the conclusion that affect did have an impact on the level of retention, and that negative affect had a slightly stronger impact.

The path coefficient led to the conclusion that there was a positive relationship between affect and retention. However, this relationship needed further examination to make sure it was being correctly interpreted. The first step was to make sure that all the scales were oriented in the proper manners, such that the scale ratings allowed this type of interpretation. During the instrument development phase, the retention question used in this model (question 9) was developed such that a high score would indicate high retention (low switching) intention. This was tested in an earlier structural equation model by substituting the oppositely phrased question (question 10) that asked the probability of staying. In that alternate question, retention was a low value, and high switching was a high value. However, for this model, it was found that the first question (question 9) did a slightly superior job of fitting the data, and was selected for the ultimate model.

The affect items presented a particular challenge. As affect is a two-dimensional construct, with both arousal (action/inaction) and valence (good/bad) dimensions, there is a lot of interpretation with that construct. In an earlier factor analysis, it was confirmed that the 20 affect items from Clark and Watson's PANAS scale did load nicely onto two factors. However, as Nguyen and Richarme pointed out in an earlier paper, most affect scales do a poor job of distinguishing between the two dimensions, and most (including PANAS) typically only do a good job of capturing the

valence dimension. The PANAS scale did load onto a good affect factor and a bad affect factor, each with ten items, almost as if it were constructed in that manner.

Because half of the items were positive in nature and half were negative in nature, interpreting the scale initially would be a high score was either positive or negative affect, depending on which items were scored high. If all the positive items got scores of 5 and all the negative items got scores of 1, this would be a positive affect condition. However, for this model, that wouldn't work because the hypothesis was high levels of affect, not distinguishing between positive and negative affect. So the negative affect items were flipped (indicated by the letter "F" after the item label) such that it would be possible to detect high levels of affect (scores approaching 5) versus low levels of affect (scores approaching 1), regardless of valence.

As an aside, the same logical process was utilized in the presentation of the barriers scale and the satisfaction scale to respondents, with a high score indicating a high level of barriers (difficult to switch) and a high level of satisfaction. Several of the barriers items were presented to the respondents as inverse responses, and were reverse coded. Two of the five satisfaction items were presented as reverse items, and were flipped in the database, again with the letter "F" indicating a flipped variable.

So what direction does the theory provide for interpreting the negative path coefficient between affect and retention? The first part of the answer could be derived from Forgas' Affect Infusion Model, in which judgments that require more processing effort were likely to be more affect-laden. Judgments that required less processing, relying on heuristics, were more likely to be less affect-laden. This followed earlier

works by Zajonc and others, who developed the dual-process theory of affect and cognition as separate, parallel processes that interact to produce decisions and subsequent behavior. Forgas' model might suggest that high barriers generated high processing effort, suggesting a positive correlation between barriers and affect level. The structural equation model did find this expected relationship.

However, the path coefficient for the relationship between barriers and retention was positive (0.23), the path coefficient between positive affect and retention was positive (0.18), and the path coefficient between negative affect and retention was positive (.32). The answer to this apparent conundrum might be viewed as follows: the model simply looked at strength of affect, ignoring for the moment whether the affect levels were positive or negative. From Tversky and Kahneman's prospect theory, losses (conditions that one would loosely relate to negative affect) are weighed more heavily than gains (conditions that one would loosely associate with positive affect). We also know from Isen, Mellers, Levine, and others that positive affect and negative affect are two parallel processes operating in the brain, so that positive affect conditions are differentiated from negative affect conditions, not simply the absolute value as constructed in the model. Isen even related, in a series of articles, negative affect with more cognitive effort and positive affect with more utilization of heuristics. Utilizing this data would provide the foundation for an excellent subsequent paper. In fact, when the model was constrained with only positive affect items (model 5.12) or only negative affect items (model 5.12a), the path coefficients for the relationship between affect and retention is positive (.17 and .36, respectively). Along with these positive path

coefficients, the correlations between all three independent constructs were also positive.

Another area of discussion was the possibility that the structural equation model software produced the path coefficient due to multi-collinearity. Because of the nature of each construct, the underlying variables are correlated with that construct and often with each other, but the real question is correlation of the constructs themselves. The strongest correlation (covariance in the unstandardized model, correlation in the standardized model) was .42 between positive affect and satisfaction and .43 between negative (flipped) affect and satisfaction, indicating a high level of affect was related to a high level of satisfaction. The correlations between barriers and positive affect (.12), negative affect (.01) and satisfaction (.17) were not particularly high. However, it is possible that because the path coefficient between satisfaction and retention is so high (.69) that the correlation between satisfaction and affect may have impacted the path coefficient between affect and retention.

5.5.2 Evaluation of Hypothesis 2

The second hypothesis proposed a co-varying relationship between the Affect construct and the Barriers construct, both being independent variables. In addition, there were relationships proposed between the Affect construct and the three sub-constructs of Barriers, which were Procedural, Financial, and Relational constructs, respectively. When the structural equation model was run, the main path coefficient was .12 for positive affect and .01 for negative affect, which indicated a relationship between the constructs. The covariance critical ratio for this relationship was 3.277 for

positive affect and .0324 for negative affect, supporting the hypothesis. The null hypothesis is rejected, and the alternate hypothesis that there is a relationship between these constructs receives support for positive affect, but not for negative affect.

Teasing apart the impact of positive affect and negative affect became an important part of subsequent analysis. Though the hypothesis was confirmed that there is a relationship between affect and barriers, it was important to understand whether it was specific to one element of affect – the valence dimension. If positive affect valence drove the relationship and not negative affect valence, that would be consistent with Mellers, Isen, and others who postulated separate positive and negative affect processes. Because negative affect loomed larger than positive affect in the minds of respondents, the correlation of flipped negative affect and barriers was slightly stronger than the correlation of positive affect and barriers, leading to a weighted correlation of .06 between affect and barriers.

For the three sub-constructs of Barriers, Procedural, Financial, and Relational, the critical ratio was 7.905 for Financial and 7.915 for Relational, with Procedural constrained in the model. When the constraint was shifted to Relational, the Procedural critical ratio became 8.747. This supported the three sub-hypotheses for this relationship.

5.5.3 Evaluation of Hypothesis 3

The third hypothesis proposed a co-varying relationship between the Affect construct and the Satisfaction construct, both independent variables. When the structural equation model was run, the path coefficient was .42 for positive affect and

.43 for negative (flipped) affect, which indicated a positive correlation relationship between affect and satisfaction. The covariance critical ratio was 11.193 for positive affect and 11.266 for negative affect, supporting the hypothesis. The null hypothesis is rejected, and the alternate hypothesis that there is a relationship between these constructs receives support.

5.5.4 Evaluation of Hypothesis 4

The fourth hypothesis proposed a relationship between the Barriers construct and the dependent Retention construct. In addition, there were relationships proposed between the three sub-constructs of Barriers, which were Procedural, Financial, and Relational constructs, respectively, with the Retention construct. When the structural equation model was run, the main path coefficient was .22, with a critical ratio of 4.286, providing support for this hypothesis. The path coefficient was the standardized regression weight for that path. The null hypothesis is rejected, and the alternate hypothesis that there is a relationship between these constructs receives support.

5.5.5 Evaluation of Hypothesis 5

The fifth hypothesis proposed a co-varying relationship between the Barriers construct and the Satisfaction construct. In addition, there were relationships proposed between the three sub-constructs of Barriers, which were Procedural, Financial, and Relational constructs, respectively, with the Satisfaction construct. When the structural equation model was run, the main path coefficient was .17, with a covariance critical ratio of 4.222. This supported this hypothesis. The null hypothesis is rejected, and the

alternate hypothesis that there is a relationship between these constructs receives support.

5.5.6 Evaluation of Hypothesis 6

The sixth hypothesis proposed a relationship between the Satisfaction construct and the dependent Retention construct. When the structural equation model was run, the path coefficient was .69 with a critical ratio of 20.093, which supported this hypothesis. The null hypothesis is rejected, and the alternate hypothesis that there is a relationship between these constructs receives support.

5.5.7 Conclusions

Incorporating affect into a generalized model of brand switching that already utilized satisfaction and brand switching barriers as independent constructs did prove to increase the model's utility. Satisfaction as a single construct explained approximately 30 percent of the variance in retention. The variance in retention that was explained by the initial replication of Burnham's model was 51 percent. This increased to 59 percent with the addition of the Affect construct, indicating that the construct did provide additional explanatory power. However, it was not clear that the Clark and Watson PANAS affect scale was the most effective measure that could have been utilized for the research, and it was not clear that the affect measure was close enough in time proximity to the switching decision to accurately reflect the affect condition. In fact, if one only looks at the second wave of data, the variance explained jumps to 74 percent.

Having stated that, the six hypotheses established at the beginning of the research were generally supported, as well as the sub-hypotheses. These findings were

similar to those of Burnham's prior work, both validating that prior work and establishing a need for more work in the area of affect measurement. The six major hypotheses are summarized in Table 5.44.

Table 5.44 Summary of Evaluation of Six Major Hypotheses

Hypothesis	Path Coefficient	Critical Ratio	Support
1. Pos. Affect → Retention	.17	3.583	Yes
Neg. Affect → Retention	.32	6.574	Yes
2. Pos. Affect ↔ Barriers	.12	3.277	Yes
Neg. Affect ↔ Barriers	.01	0.324	No
3. Pos. Affect ↔ Satisfaction	.44	11.349	Yes
Neg. Affect ↔ Satisfaction	.43	11.166	Yes
4. Barriers → Retention	.23	4.258	Yes
5. Barriers ↔ Satisfaction	.16	3.886	Yes
6. Satisfaction → Retention	.69	20.093	Yes

CHAPTER 6

FUTURE RESEARCH

The purpose of this chapter is to discuss limitations of this research and present considerations for future research that might overcome some of these limitations and extend the body of knowledge in this subject area. Concentrated focus is applied to the specific methodology utilized for this research, including discussion of weaknesses in the construct development and research protocols, and expansion of the scope of the research to include additional types of products and services which might require different purchasing strategies by consumers.

6.1 Enhancements to Methodology

This section contains a focus on enhancements to the methodology that could possibly improve further research in this area. In some cases, the improvements are a result of conclusions drawn following months of extensive work in this area; in others, the constraints imposed by the selection of specific methodology choices prohibited implementation of some of these considerations. Each of the major constructs is examined, followed by a discussion of the specific longitudinal methodology utilized and possible expansion of this research into additional countries.

6.1.1 Customer Retention Construct

The customer retention construct was operationalized in several different ways in this research. One way was asking respondents if they had switched service in the

past year or past four months – a direct measure of actual behavior. The second way was asking respondents how likely they were to switch in the next year, or conversely, how likely they were to remain with their current provider in the next year. Finally, given the possibilities of contractual limitations that restricted, either in actuality or in perception, the ability of respondents to switch in the next year, a third way was to postulate removal of contractual restrictions and then ask the likelihood of switching in the next year. Of most interest was the comparison of behavior and attitude, made possible by the longitudinal nature of the study. Respondents in wave one were asked how likely they were to switch within a definite point in the future, and then the same respondents were asked in wave two if they had switched in the past four months, allowing this comparison.

Because of the high churn rate in the cellular telephone service market, this particular service had great appeal from the research perspective of being able to find enough people who would make a switching decision within the four month window allotted the researcher for data collection. However, it might make more sense to adjust the methodology in two significant areas. First, given the prevalence of annual contracts in this market, it might make sense to extend the longitudinal time period to a year, though this presents additional problems in terms of a matched sample. Even with the relatively short four month interval, plus an active panel management activity provided by the commercial organization that provided the sample, a repeat survey rate of only about 60% was obtained. In the course of a year, it is highly likely that this percentage would be even smaller.

Second, the linkage of affect to the brand switching barriers model could possibly benefit from a closer proximity of the data collection to the actual switching decision. In this methodological approach, the switching decision may have been taken and executed up to four months prior to the second wave, causing one to wonder how much of the affective component could actually be recaptured and reported by the respondent. Even with a directed question to the respondent that the evaluation of affect was about the cellular services carrier, one can only wonder how much more effective this measurement might be if there was a means of capturing the information immediately before and immediately after the switching decision was taken. In Burnham et al. (2003) seminal work in this area, respondents were given a hypothetical situation to consider, but a widespread consumer product evaluated in a real setting generates actual decision-making considerations, and thus more real responses. One suggestion might be working with a company experiencing high switching, surveying a sample of their customers and then capturing switchers from company transaction records, administering a second wave survey within a few days of the switch.

6.1.2 Satisfaction Construct

Oliver (1980) and others have identified the importance of satisfaction in customer retention. A four item scale was utilized in this research, replicating the work done by Burnham. In addition, a "willingness to recommend" item was added, and analysis conducted separately for the original scale used by Burnham and the augmented scale. There are many satisfaction scales in existence, and scales that capture the three key elements of satisfaction (how satisfied was the purchaser, how

willing was the purchaser to repeat the purchase in the future, and how willing was the purchaser to recommend to friends and family) are prevalent, as discussed in the satisfaction module construction section. A stronger satisfaction scale could possibly enhance the quality of this research, following current trends in satisfaction scale development.

6.1.3 Brand Switching Barriers Construct

The brand switching barriers construct was developed by Burnham following pre-testing and extensive factor analysis of many items. As such, the scale has a high degree of reliability and validity. The scale is also 30 complex items in length, requiring moderate to high cognitive effort on the part of most respondents to answer. If this scale could be further reduced to a shorter length without sacrificing too much predictive ability, it would be more practical for administration. While 27 of the 30 items are Likert-type statements, three additional statements do not fall in this pattern, though they are embedded in the instrument, requiring respondents to stop, incorporate additional instructions from the researcher, and then proceed. This disruptive pattern was mitigated by this researcher by removing the three disruptive questions from the remaining 27 and administering them immediately following the 27 items.

There were also three reverse-scored items in the Burnham instrument, which is a technique often used in research to assist respondents in staying alert to the items being presented. These were all located in close proximity to each other in the original Burnham instrument, as items 11, 13, and 16. It would have been more effective to

utilize several more reverse-scored items at different points in the instrument, or to separate these three items more widely.

The Burnham instrument was administered as a paper and pencil survey, limiting the ability of the researcher to randomize or rotate items. This constraint was eliminated by this researcher with an Internet-based survey, in which items within the brand switching scale were presented in a random sequence to respondents.

6.1.4 Affect Construct

After considerable deliberation, the PANAS scale was used as a measure of affect. It had the elegance of being easily understood and administered in an unsupervised field setting, but prior research by this researcher (discussed in the affect construct development section) casts concern on existing affect scales and their ability to completely capture both the valence and arousal dimensions of this construct. Both are important in the understanding of how affect impacts decision-making and consumer behavior. One might consider development of a more robust affect scale prior to further research in this area.

6.1.5 Longitudinal Methodology

The methodology utilized in this research consisted of two waves, administered to the same respondents with a separation of four months between waves. It was felt that a lesser period would not allow for an adequate sample of switchers to be collected. The calculation to determine the cell size of switchers was simple – using the annual rate of switchers for this service, estimated by trade sources at about 22% per year, a four month rate of about seven per cent of the second wave would produce the

minimum number of switchers for meaningful analysis. The assumption of a three-quarter retention rate from the first wave to the second wave was found to be slightly optimistic, but an over-sampling in the firs wave was built in to the sample size to accommodate this possibility.

Future research might wish to consider a tighter time frame around the switching decision, as discussed previously. In addition, tracking switching behaviors among those who are rare switchers versus those who are frequent switchers might provide insights into variety seeking behaviors as possible switching stimulators.

6.1.6 International Expansion

The research contains a representative sample of adult respondents drawn from the United States. A natural and common extension of this type of research is extension into other countries, examining how consumers in different markets behave. Expansion into markets with centrally controlled economies, with limited competition, or with a narrower product selection might provide some interesting insights.

6.2 Expansion to Additional Products and Services

This section examines possible expansion of the research to include different types of products and services beyond the two contained in Burnham et al. (2003) research and the third contained in this research. It should be noted that all three products were in the consumer service category, in which purchase decisions are made on a less frequent basis compared to consumer packaged goods, and decisions involve more deliberation and cognitive effort. In this section, non-contract services, consumer

package goods, consumer durable goods, and industrial products and services are considered.

6.2.1 Non-Contract Services

One of the possible limitations of this research is the focus on a consumer service that, though the switching rate is high on an annual basis, also has a consumer barrier to switching in the form of annual or two-year contracts with termination penalties. This mechanism has been implemented by service providers to recoup the subsidized cost of the cellular telephone, and to try and extend the service length of existing consumers. It would be interesting to examine a consumer service in which switching was not as bound by contractual agreements. To a degree, Burnham did so with telephone long distance service, but this area also has some emerging contractual barriers to switching.

6.2.2 Consumer Packaged Goods

An area that has received considerable attention in the past sixty years relative to brand switching behaviors is that of consumer packaged goods. This area consists of products and services for which the purchase cycle is often fairly short, and for which there are often many competing alternatives. However, it is also felt that, per the integrative structure proposed by Forgas (2000), the cognitive effort expended in most consumer package goods purchase decisions may be very low, and may in fact be more based on heuristics rather than deliberate choice. It would be interesting to examine this category for a product with a longer life cycle, such as automobile maintenance, to see if the relationships still exist as they do in the current research.

6.2.3 Consumer Durable Goods

An even longer purchase cycle is found in consumer durable goods. This is an area in which brand switching may not be done as frequently, but for which there is ample room for research. Small appliances, such as coffee makers or food processors, or furniture items, might be good candidates for this type of research.

6.2.4 Industrial Products and Services

The most daunting area of research relative to brand switching might be in the area of industrial products and services, simply from the standpoint of acquiring sample. However, it seems that there is ample room for research, and a ready candidate for this type of research would be overnight package delivery services. Several major brands exist, and there exist few barriers for switching from one service to another. This might provide some insights into corporate decision-making and how the perceptions of cost barriers (procedural, financial, and relationship) fare in this environment.

APPENDIX A

SURVEY INSTRUMENT

Decision Analyst, Inc. Version: Final 1

MTR/20050532sx/Quest.doc/08-24-05

http://www.daisurvey.com/MTR/050532sx/index.asp?s=1

(S18)Male (n=500) 1

(S18)Female (n=500)..... 2

Sample Source (ACOP):..... 01

QC Password: *barriers*

Client Topline (SHOW ALLCLOSED ENDS)

(Sample: Screen 6,000 ACOP members. Nationally representative U.S. sample [including Hawaii and Alaska] ages 18 and older. CAPTURE ALL SCREENING DATA)

Brand Switching Survey—INTERNET

American Consumer Opinion®

(Screener Introduction For Panel Member)

Dear (firstname):

Thanks for agreeing to complete this brief screening questionnaire.

As soon as you respond, the panel member's name will be entered into a drawing for an average of $1,000 in cash awards (ranging from $5 to $100) for participating in this screener. Winners of this drawing will receive a check in the mail within four weeks.

Your individual answers will be anonymous and strictly confidential, of course. Once you have answered all of the questions on a page, please click on the "Next Page" button.

Please answer the following questions, and be as honest and truthful as possible.

S1. **Do you currently have cellular telephone service?** {Choose One Answer}

SR

1 Yes

2 No (SKIP TO S18)

S2. **Are you the decision-maker with respect to selection of your cellular telephone service provider?** {Choose One Answer}

SR

1 Yes, I am the primary decision maker

2 Yes, I share equally in the decision making with others

3 No, I am not the primary decision maker (SKIP TO S18)

S3**.** **Who is your primary cellular telephone service provider?** {Choose One Answer}

SR

1 AT&T Wireless

2 Cellular One

3 Cingular Wireless

4 Nextel

5 Sprint PCS

6 T-Mobile

7 Verizon Wireless

8 Some other cellular wireless provider (Please Type In The Other Service Provider)

VERBATIMS

S4. **Who pays the bill for your cellular telephone service?** {Choose One Answer}

SR

1 I do

2 Another family member

3 My employer or business

4 Other

S5. **How long have you, personally, had cellular telephone service?** {Choose One Answer}

SR

1 Less than 1 year

2 Between 1 and 4 years

3 More than 4 years

S6. **How long have you, personally, had cellular telephone service <blue: from your current provider>?** {Choose One Answer}

SR

1 Less than 1 year

2 Between 1 and 4 years

3 More than 4 years

(VALIDATE THAT S6 IS LESS THAN OR EQUAL TO S5)

S7. **Have you ever switched from one cellular telephone service provider to another cellular telephone service provider?** {Choose One Answer}

SR

1 Yes

2 No (SKIP TO S9)

S8. **Have you switched from one cellular telephone service provider to another cellular telephone service provider <blue: in the last 4 months>?** {Choose One Answer}

SR

1 Yes

2 No

S9. **How likely are you to switch to a competing service provider during the next year?** {Choose One Answer}

SR

1 Very likely

2 Somewhat likely

3 Uncertain

4 Somewhat unlikely

5 Very unlikely

S10. **What is the chance that you will stay with your service provider for the next year?** {Choose One Answer}

SR

1 100%, I will certainly stay

2 75%, good chance

3 50%, moderate chance

4 25%, some chance

5 0%, no chance I will stay

S10a. **What is the length of the agreement on your current plan?** {Choose One Answer}

SR

1 One-year contract

2 Two-year contract

3 No contract, only month to month service

4 Prepaid service

5 Other arrangement

(ASK IF CODES 1, 2 OR 5. OTHERWISE SKIP TO S10C)

S10b. **About how many months do you have left until the contract is over?** {Please Select Your Answer In The Box Below.} (0-24 MONTHS IN 1 MONTH INCREMENTS, ALSO MORE THAN 24 MONTHS)(VALIDATE CODES 1 AND 2 FROM S10A)

DD

S10c. **If you could switch in the next few months <blue: without any penalty charges>, what is the likelihood that you would switch to a competing service provider?** {Choose One Answer}

SR

1 Very likely

2 Somewhat likely

3 Uncertain

4 Somewhat unlikely

5 Very unlikely

S11. **Imagine an ideal cellular telephone service provider that meets all of your needs. How does <blue: your> service provider compare with this <blue: ideal> service provider?** {Choose One Answer}

SR

1 Far below this ideal provider

2 Somewhat below this ideal provider

3 Equal to this ideal provider

S12. **How well does your service provider meet your needs at this time?** {Choose One Answer}

SR

1 Extremely well

2 Somewhat well

3 Average

4 Somewhat poor

5 Extremely poor

Please indicate the degree to which you agree or disagree with each of the following statements.

S13. **"I am satisfied with my current cellular telephone service provider."**

{Choose One Answer}

SR

1 Completely agree

2 Somewhat agree

3 Neither agree nor disagree

4 Somewhat disagree

5 Completely disagree

S14. **"What I get from my service provider falls short of what I expect from this type of service."** {Choose One Answer}

SR

1 Completely agree

2 Somewhat agree

3 Neither agree nor disagree

4 Somewhat disagree

5 Completely disagree

S15. **"I would recommend this cellular service provider to my family and friends."** {Choose One Answer}

SR

1 Completely agree

2 Somewhat agree

3 Neither agree nor disagree

4 Somewhat disagree

5 Completely disagree

S16. **Please choose the number that indicates how much you agree or disagree with each statement. All of the statements refer to your current cellular telephone service provider.** {Choose One Answer For Each Statement} (PROGRAMMER: SHOW GRIDLINES. REPEAT SCALE IF NECESSARY.)

SG

	Statements	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
16_01	I worry that the service offered by other service providers won't work as well as expected	1	2	3	4	5
16_02	If I try to switch service providers, I might end up with bad service for awhile	1	2	3	4	5
16_03	Switching to a new service provider will probably involve	1	2	3	4	5

	hidden costs/charges					
16_04	I am likely to end up with a bad deal financially if I switch to a new service provider	1	2	3	4	5
16_05	Switching to a new service provider will probably result in some unexpected hassle	1	2	3	4	5
16_06	I don't know what I'll end up having to deal with while switching to a new service	1	2	3	4	5

	provider					
16_07	I cannot afford the time to get the Information to fully evaluate other service providers	1	2	3	4	5
16a	How much time/effort does it take to get the information you need to feel comfortable evaluating new service providers (1=very little, 5=a lot)	1	2	3	4	5
16_08	Comparing the benefits of my service provider with the benefits	1	2	3	4	5

	of other service providers takes too much time/effort, even when I have the information					
16_9	It is tough to compare the other service providers	1	2	3	4	5
16_10	Learning to use the feature offered by a new service provider as well as I use my service would take time	1	2	3	4	5
16_11	There is not much involved in understanding a new service provider well (r)	1	2	3	4	5

16_12	Even after switching, it would take effort to “get up to speed” with a new service	1	2	3	4	5
16_13	Getting used to how another service provider works would be easy (r)	1	2	3	4	5
16_14	It takes time to go through the steps of switching to a new service provider	1	2	3	4	5
16_15	Switching service providers involves an unpleasant sales process	1	2	3	4	5
16_16	The process of starting up with a	1	2	3	4	5

	new service is quick/easy (r)					
16_17	There are a lot of formalities involved in switching to a new service provider	1	2	3	4	5
16_18	Switching to a new service provider would mean losing or replacing points, credits, service and so on that I have accumulate with my service provider	1	2	3	4	5
16b	How much would you lose in credits,	1	2	3	4	5

	accumulated points, service you have already paid for, and so on if you switched to a new service provider (1=lose nothing, 5=lose a lot)					
16_19	I will lose benefits of being a long-term customer if I leave my service provider	1	2	3	4	5
16_20	Switching to a new service provider would involve some up-front costs (set-up fees, membership fees, deposits, etc.)	1	2	3	4	5

16c	How much money would it take to pay for all of the costs associated with switching service providers (1=no money, 5=a lot of money)	1	2	3	4	5
16_21	I would miss working with the people at my service provider if I switched providers	1	2	3	4	5

16_22	I am more comfortable interacting with the people working for my service provider than I would be if I switched providers	1	2	3	4	5
16_23	The people where I currently get my service matter to me	1	2	3	4	5
16_24	I like talking to the people where I get my service	1	2	3	4	5
16_25	I like the public image my service provider has	1	2	3	4	5
16_26	I support my service provider as a firm	1	2	3	4	5
16_27	I do not care about the brand/company name of the service provider I use (r)	1	2	3	4	5

S17. **This next scale consists of number of words that describe different feelings and emotions. Read each item and then choose the appropriate answer. Indicate the degree to which each word reflects your feelings about *your current cellular service provider.*** {Choose One Answer For Each Statement} (PROGRAMMER: SHOW GRIDLINES. REPEAT SCALE IF NECESSARY.)

SG

	Statements	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
17_01	Interested	1	2	3	4	5
17_02	Distressed	1	2	3	4	5
17_03	Excited	1	2	3	4	5
17_04	Upset	1	2	3	4	5
17_05	Strong	1	2	3	4	5
17_06	Guilty	1	2	3	4	5
17_07	Scared	1	2	3	4	5
17_08	Hostile	1	2	3	4	5
17_09	Enthusiastic	1	2	3	4	5
17_10	Proud	1	2	3	4	5

17_11	Irritable	1	2	3	4	5
17_12	Alert	1	2	3	4	5
17_13	Ashamed	1	2	3	4	5
17_14	Inspired	1	2	3	4	5
17_15	Nervous	1	2	3	4	5
17_16	Determined	1	2	3	4	5
17_17	Attentive	1	2	3	4	5
17_18	Jittery	1	2	3	4	5
17_19	Active	1	2	3	4	5
17_20	Afraid	1	2	3	4	5

The following information is being collected only for statistical analysis, and will be kept completely confidential.

S18. **What is your gender?** {Choose One Answer}

SR

1 Male

2 Female

S19. **What is your age?** {Choose One Answer}

SR

1 Under 18

2 18 to 29

3 30 to 39

4 40 to 49

5 50 to 59

6 60 or older

S20. **What is your marital status?** {Choose One Answer}

SR

1 Single

2 Married

3 Living with partner

4 Divorced/Separated/Widowed

S21. **What is your educational background?** {Choose One Answer}

SR

1 High school or less

2 Trade/technical school

3 Some college or Associate degree

4 Graduated college/Bachelor's degree

5 Attended graduate school

6 Advanced degree (Master's, Ph.D.)

S22. **What is your household's total annual income before taxes?** {Choose One Answer}

SR

1 Under $25,000

2 $25,000 to $34,999

3 $35,000 to $49,999

4 $50,000 to $74,999

5 $75,000 to $99,999

6 $100,000 to $149,999

7 $150,000 or over

S23. **What is your ethnic background?** {Choose One Answer}

SR

1 African American or Black

2 American Indian, Eskimo or Aleut

3 Asian or Pacific Islander

4 Caucasian or White

5 Hispanic or Latin American

6 Multi-ethnic

7 Other ethnic background

Once You Have Answered All Of The Questions Above, Please Click On The "SUBMIT" Button Below.

SUBMIT

Survey Completed!

APPENDIX B

VARIABLE MAPPINGS

Instrument Mappings to Constructs

Customer Retention Construct

Attitudinal evaluation – S9, S10, S10c

Behavioral evaluation – S7, S8

Satisfaction Construct

Anderson et al. (1993) four item scale – S11, S12, S13, S14

Likely to recommend – S15

Brand Switching Barriers Construct

Sub-construct 1 Procedural Switching Costs – S16_01 to S16_17, S16a

Sub-construct 2 Financial Switching Costs – S16_18 to S16_20, S16b, and S16c

Sub-construct 3 Relational Switching Costs– S16_21 to S16_27

Affect Construct

Valence dimension – S17

Arousal dimension – S17

Demographic Variables

Gender – S18

Age – S19

Marital Status – S20

Education – S21

Household Annual Income – S22

Ethnicity – S23

APPENDIX C

BRAND SWITCHING BARRIER ITEM PARAMETERS

Brand Switching Barrier Items, Means and Standard Deviations, Each Wave

Item	Wave 1 Mean	Std. Dev.	Wave 2 Mean	Std. Dev.
16_01	3.53	.979	3.60	.929
16_02	3.27	.950	3.26	.922
16_03	3.65	.948	3.64	.889
16_04	3.12	1.063	3.18	.956
16_05	3.53	.944	3.60	.895
16_06	3.53	.946	3.56	.888
16_07	2.89	.975	2.92	.984
16_08	2.95	.996	3.02	.993
16_09	3.15	1.001	3.15	1.009
16_10	3.21	.985	3.27	.954
16_11 ®	3.02	.984	3.04	.982
16_12	3.12	.950	3.18	.931
16_13 ®	2.78	.914	2.83	.912
16_14	3.53	.920	3.53	.937
16_15	3.33	.996	3.33	.960
16_16 ®	2.87	.957	3.06	.966
16_17	3.38	.978	3.42	.965
16_18	2.69	1.180	2.79	1.152
16_19	2.86	1.140	2.93	1.110

16_20	3.78	.904	3.72	.936
16_21	2.41	.972	2.47	.987
16_22	2.82	.928	2.82	.950
16_23	2.69	.990	2.69	.896
16_24	20.93	.943	3.00	.931
16_25	3.27	.897	3.34	.873
16_26	3.04	.911	3.11	.908
16_27 ®	3.08	1.087	3.13	1.113
16a	3.31	1.078	3.49	1.072
16b	2.41	1.423	2.54	1.466
16c	3.37	1.201	3.39	1.132

® reverse-scored items

APPENDIX D

AFFECT ITEM PARAMETERS

PANAS Scale Means and Standard Deviations, Each Wave

Item	Wave 1 Mean	Std. Dev.	Wave 2 Mean	Std. Dev.
Interested	2.53	1.216	2.54	1.277
Distressed	1.54	.998	1.43	.872
Excited	2.22	1.221	2.34	1.312
Upset	1.68	1.095	1.51	.908
Strong	2.59	1.307	2.64	1.364
Guilty	1.31	.738	1.28	.743
Scared	1.33	.760	1.27	.697
Hostile	1.53	.991	1.37	.794
Enthusiastic	2.40	1.297	2.54	1.326
Proud	2.41	1.280	2.52	1.321
Irritable	1.68	1.086	1.51	.923
Alert	2.43	1.249	2.49	1.291
Ashamed	1.39	.830	1.30	.732
Inspired	2.08	1.192	2.19	1.249
Nervous	1.44	.843	1.33	.732
Determined	2.34	1.252	2.39	1.303
Attentive	2.51	1.246	2.54	1.282
Jittery	1.39	.812	1.31	.705
Active	2.56	1.267	2.61	1.323

Afraid	1.33	.850	1.26	.655

APPENDIX E

SATISFACTION CONSTRUCT CONFIRMATORY FACTOR ANALYSIS TABLES

Satisfaction Confirmatory Factor Analysis

Computation of degrees of freedom

Number of distinct sample moments = 65
Number of distinct parameters to be estimated = 36
Degrees of freedom = 65 – 36 = 29

Minimum was achieved

Chi-square = 176.051
Degrees of freedom = 29
Probability level = 0.000

Regression Weights

			Estimate	S.E.	C.R.	P
S11	←	satisfaction1	1.000			
S12F	←	satisfaction1	1.815	0.069	26.324	0.000
S13	←	satisfaction1	2.084	0.089	23.292	0.000
S14	←	satisfaction1	2.447	0.092	26.726	0.000
S15F	←	satisfaction1	1.860	0.079	23.601	0.000
T11	←	satisfaction2	1.000			
T12F	←	satisfaction2	1.848	0.087	21.235	0.000
T13	←	satisfaction2	2.081	0.117	17.762	0.000
T14	←	satisfaction2	2.411	0.120	20.119	0.000
T15F	←	satisfaction2	1.975	0.100	19.812	0.000

Standardized Regression Weights

			Estimate
S11	←	satisfaction1	0.739
S12F	←	satisfaction1	0.860
S13	←	satisfaction1	0.757
S14	←	satisfaction1	0.875
S15F	←	satisfaction1	0.772
T11	←	satisfaction2	0.728
T12F	←	satisfaction2	0.884
T13	←	satisfaction2	0.722
T14	←	satisfaction2	0.840
T15F	←	satisfaction2	0.819

Intercepts

	Estimate	S.E.	C.R.	P
S11	2.302	0.021	107.108	0.000

S12F	3.797	0.033	113.333	0.000
S13	3.397	0.044	77.728	0.000
S14	3.143	0.044	70.845	0.000
S15F	3.711	0.038	97.027	0.000
T11	2.368	0.025	94.647	0.000
T12F	3.904	0.037	105.164	0.000
T13	3.579	0.052	69.493	0.000
T14	3.320	0.052	64.459	0.000
T15F	3.877	0.043	89.912	0.000

Covariances

				Estimate	S.E.	C.R.	P
satisfaction2	<->	satisfaction1		0.156	0.013	11.580	0.000
e1	<->	e6	0.046	0.009	4.992	0.000	
e2	<->	e7	0.071	0.014	4.917	0.000	
e3	<->	e8	0.379	0.039	9.677	0.000	
e4	<->	e9	0.099	0.028	3.586	0.000	
e5	<->	e10	0.164	0.024	6.747	0.000	

Correlations

			Estimate
satisfaction2	<->	satisfaction1	0.691
e1	<->	e6	0.240
e2	<->	e7	0.300
e3	<->	e8	0.469
e4	<->	e9	0.209
e5	<->	e10	0.345

Variances

	Estimate	S.E.	C.R.	P
satisfaction1	0.236	0.018	12.796	0.000
satisfaction2	0.215	0.021	10.122	0.000
e1	0.195	0.010	18.921	0.000
e2	0.274	0.018	15.308	0.000
e3	0.764	0.041	18.653	0.000
e4	0.432	0.030	14.372	0.000
e5	0.552	0.030	18.336	0.000
e6	0.191	0.013	15.188	0.000
e7	0.204	0.018	11.055	0.000
e8	0.853	0.055	15.377	0.000
e9	0.522	0.040	12.965	0.000
e10	0.410	0.030	13.663	0.000

Squared Multiple Correlations

	Estimate
T15F	0.671
T14	0.705
T13	0.522
T12F	0.782
T11	0.530
S15F	0.596
S14	0.766
S13	0.572
S12F	0.739
S11	0.547

Fit Measures

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	176.051	0.000	22908.717	CMIN
Degrees of freedom	29	0	55	DF
P	0.000	0.000		P
Number of parameters	36	65	10	NPAR
Discrepancy / df	6.071		416.522	CMINDF
Normed fit index	0.992	1.000	0.000	NFI
Relative fit index	0.985		0.000	RFI
Incremental fit index	0.994	1.000	0.000	IFI
Tucker-Lewis index	0.988		0.000	TLI
Comparative fit index	0.994	1.000	0.000	CFI
Parsimony ratio	0.527	0.000	1.000	PRATIO
Parsimony-adjusted NFI	0.523	0.000	0.000	PNFI
Parsimony-adjusted CFI	0.524	0.000	0.000	PCFI
Noncentrality parameter estimate		147.051	0.000 22853.717	NCP
NCP lower bound	108.929	0.000	22359.243	NCPLO
NCP upper bound	192.680	0.000	23354.470	NCPHI
FMIN	0.141	0.000	18.312	FMIN
F0	0.118	0.000	18.268	F0
F0 lower bound	0.087	0.000	17.873	F0LO
F0 upper bound	0.154	0.000	18.669	F0HI
RMSEA	0.064		0.576	RMSEA
RMSEA lower bound	0.055		0.570	RMSEALO
RMSEA upper bound	0.073		0.583	RMSEAHI
P for test of close fit	0.006		0.000	PCLOSE

Akaike information criterion (AIC)	248.051	130.000	22928.717	AIC
Browne-Cudeck criterion	248.690	131.153	22928.894	BCC
Bayes information criterion				BIC
Consistent AIC				CAIC
Expected cross validation index	0.198	0.104	18.328	ECVI
ECVI lower bound	0.168	0.104	17.933	ECVILO
ECVI upper bound	0.235	0.104	18.729	ECVIHI
MECVI	0.199	0.105	18.328	MECVI

Hoelter .05 index	303	5	HFIVE
Hoelter .01 index	353	5	HONE

Fit Measures

	CMIN	DF	P	NPAR	CMINDF
Default model	176.051	29	0.000	36	6.071
Saturated	0.000	0		65	
Independence	22908.717	55	0.000	10	416.522

	NFI	RFI	IFI	TLI	CFI
Default model	0.992	0.985	0.994	0.988	0.994
Saturated	1.000		1.000		1.000
Independence	0.000	0.000	0.000	0.000	0.000

	PRATIO	PNFI	PCFI
Default model	0.527	0.523	0.524
Saturated	0.000	0.000	0.000
Independence	1.000	0.000	0.000

	NCP	NCPLO	NCPHI
Default model	147.051	108.929	192.680
Saturated	0.000	0.000	0.000
Independence	22853.717	22359.243	23354.470

	FMIN	F0	F0LO	F0HI
Default model	0.141	0.118	0.087	0.154
Saturated	0.000	0.000	0.000	0.000
Independence	18.312	18.268	17.873	18.669

	RMSEA	RMSEALO	RMSEAHI	PCLOSE
Default model	0.064	0.055	0.073	0.006
Saturated				
Independence	0.576	0.570	0.583	0.000

	AIC	BCC	BIC	CAIC
Default model	248.051	248.690		
Saturated	130.000	131.153		
Independence	22928.717	22928.894		

	ECVI	ECVILO	ECVIHI	MECVI
Default model	0.198	0.168	0.235	0.199
Saturated	0.104	0.104	0.104	0.105
Independence	18.328	17.933	18.729	18.328

	HFIVE	HONE
Default model	303	353
Saturated		
Independence	5	5

APPENDIX F

AFFECT CONSTRUCT CONFIRMATORY FACTOR ANALYSIS TABLES

Affect Confirmatory Factor Analysis

Computation of degrees of freedom

Number of distinct sample moments = 860
Number of distinct parameters to be estimated = 141
Degrees of freedom = 860 – 141 = 719

Minimum was achieved

Chi-square = 13518.809
Degrees of freedom = 719
Probability level = 0.000

Regression Weights

			Estimate	S.E.	C.R.	P
T17_1	←	affect2	1.000			
T17_2F	←	affect2	-0.058	0.032	-1.836	0.066
T17_3	←	affect2	1.027	0.033	30.853	0.000
T17_4F	←	affect2	0.007	0.033	0.225	0.822
T17_5	←	affect2	1.072	0.034	31.512	0.000
S17_1	←	affect1	1.000			
S17_2F	←	affect1	-0.038	0.032	-1.211	0.226
S17_3	←	affect1	1.016	0.030	34.365	0.000
S17_4F	←	affect1	0.050	0.035	1.442	0.149
S17_5	←	affect1	1.054	0.032	32.458	0.000
T17_6F	←	affect2	-0.099	0.027	-3.749	0.000
T17_7F	←	affect2	-0.102	0.025	-4.099	0.000
T17_8F	←	affect2	-0.040	0.028	-1.427	0.154
T17_9	←	affect2	1.090	0.032	34.523	0.000
T17_10	←	affect2	1.031	0.033	30.936	0.000
T17_11F	←	affect2	0.043	0.033	1.303	0.192
T17_12	←	affect2	0.972	0.034	28.550	0.000
T17_13F	←	affect2	-0.082	0.026	-3.084	0.002
T17_14	←	affect2	0.934	0.033	28.197	0.000
T17_15F	←	affect2	-0.112	0.026	-4.348	0.000
T17_16	←	affect2	0.911	0.036	24.969	0.000
T17_17	←	affect2	0.984	0.033	29.491	0.000
T17_18F	←	affect2	-0.099	0.025	-3.874	0.000
T17_19	←	affect2	1.002	0.035	28.825	0.000
T17_20F	←	affect2	-0.110	0.024	-4.658	0.000
S17_6F	←	affect1	-0.118	0.023	-5.105	0.000
S17_7F	←	affect1	-0.088	0.024	-3.672	0.000
S17_8F	←	affect1	-0.002	0.031	-0.069	0.945

S17_9	←	affect1	1.128	0.030	37.354	0.000
S17_10	←	affect1	1.052	0.031	33.777	0.000
S17_11F	←	affect1	0.091	0.034	2.658	0.008
S17_12	←	affect1	0.965	0.032	30.301	0.000
S17_13F	←	affect1	-0.050	0.026	-1.900	0.057
S17_14	←	affect1	0.954	0.030	32.280	0.000
S17_15F	←	affect1	-0.111	0.026	-4.206	0.000
S17_16	←	affect1	0.879	0.034	26.246	0.000
S17_17	←	affect1	0.998	0.031	32.136	0.000
S17_18F	←	affect1	-0.075	0.026	-2.902	0.004
S17_19	←	affect1	0.988	0.032	30.660	0.000
S17_20F	←	affect1	-0.085	0.024	-3.549	0.000

Standardized Regression Weights

			Estimate
T17_1	←	affect2	0.879
T17_2F	←	affect2	-0.074
T17_3	←	affect2	0.880
T17_4F	←	affect2	0.009
T17_5	←	affect2	0.885
S17_1	←	affect1	0.849
S17_2F	←	affect1	-0.040
S17_3	←	affect1	0.859
S17_4F	←	affect1	0.048
S17_5	←	affect1	0.829
T17_6F	←	affect2	-0.149
T17_7F	←	affect2	-0.164
T17_8F	←	affect2	-0.056
T17_9	←	affect2	0.924
T17_10	←	affect2	0.879
T17_11F	←	affect2	0.052
T17_12	←	affect2	0.844
T17_13F	←	affect2	-0.123
T17_14	←	affect2	0.840
T17_15F	←	affect2	-0.170
T17_16	←	affect2	0.787
T17_17	←	affect2	0.860
T17_18F	←	affect2	-0.156
T17_19	←	affect2	0.851
T17_20F	←	affect2	-0.188
S17_6F	←	affect1	-0.165
S17_7F	←	affect1	-0.120
S17_8F	←	affect1	-0.002
S17_9	←	affect1	0.898

S17_10	←	affect1 0.850
S17_11F	←	affect1 0.086
S17_12	←	affect1 0.796
S17_13F	←	affect1 -0.062
S17_14	←	affect1 0.828
S17_15F	←	affect1 -0.135
S17_16	←	affect1 0.725
S17_17	←	affect1 0.826
S17_18F	←	affect1 -0.095
S17_19	←	affect1 0.803
S17_20F	←	affect1 -0.117

Intercepts

	Estimate	S.E.	C.R.	P
T17_1	2.535	0.051	50.075	0.000
T17_2F	4.536	0.036	126.462	0.000
T17_3	2.341	0.052	45.101	0.000
T17_4F	4.476	0.037	120.160	0.000
T17_5	2.633	0.054	49.052	0.000
S17_1	2.527	0.040	63.529	0.000
S17_2F	4.457	0.033	136.114	0.000
S17_3	2.220	0.040	55.571	0.000
S17_4F	4.321	0.036	120.104	0.000
S17_5	2.589	0.043	60.308	0.000
T17_6F	4.709	0.030	155.772	0.000
T17_7F	4.721	0.028	166.013	0.000
T17_8F	4.612	0.032	142.964	0.000
T17_9	2.540	0.052	48.618	0.000
T17_10	2.517	0.052	48.360	0.000
T17_11F	4.459	0.038	118.594	0.000
T17_12	2.487	0.051	48.527	0.000
T17_13F	4.679	0.030	155.640	0.000
T17_14	2.186	0.050	44.133	0.000
T17_15F	4.652	0.030	156.621	0.000
T17_16	2.388	0.052	46.079	0.000
T17_17	2.546	0.051	49.974	0.000
T17_18F	4.677	0.029	162.182	0.000
T17_19	2.614	0.052	49.800	0.000
T17_20F	4.726	0.027	175.836	0.000
S17_6F	4.685	0.024	193.416	0.000
S17_7F	4.668	0.025	187.088	0.000
S17_8F	4.468	0.032	137.541	0.000
S17_9	2.399	0.042	56.584	0.000
S17_10	2.413	0.042	57.734	0.000

S17_11F	4.324	0.036	121.480	0.000
S17_12	2.433	0.041	59.384	0.000
S17_13F	4.614	0.027	169.601	0.000
S17_14	2.077	0.039	53.325	0.000
S17_15F	4.554	0.028	164.610	0.000
S17_16	2.342	0.041	57.143	0.000
S17_17	2.510	0.041	61.523	0.000
S17_18F	4.604	0.027	172.560	0.000
S17_19	2.560	0.042	61.596	0.000
S17_20F	4.666	0.025	189.415	0.000

Covariances

			Estimate	S.E.	C.R.	P
affect1	<->	affect2	0.629	0.055	11.418	0.000
e15	<->	e10	0.017	0.019	0.894	0.371
e16	<->	e11	0.296	0.038	7.830	0.000
e17	<->	e12	0.014	0.019	0.740	0.460
e18	<->	e13	0.288	0.043	6.721	0.000
e19	<->	e14	0.101	0.022	4.586	0.000
e20	<->	e35	0.186	0.023	8.063	0.000
e21	<->	e36	0.172	0.022	7.649	0.000
e22	<->	e37	0.324	0.034	9.470	0.000
e23	<->	e38	0.017	0.015	1.146	0.252
e24	<->	e39	0.064	0.020	3.160	0.002
e25	<->	e40	0.376	0.043	8.680	0.000
e26	<->	e1	0.107	0.024	4.407	0.000
e27	<->	e2	0.206	0.026	7.878	0.000
e28	<->	e3	0.073	0.021	3.469	0.001
e29	<->	e4	0.243	0.026	9.273	0.000
e30	<->	e5	0.109	0.031	3.511	0.000
e31	<->	e6	0.054	0.022	2.530	0.011
e32	<->	e7	0.176	0.024	7.233	0.000
e33	<->	e8	0.068	0.024	2.803	0.005
e34	<->	e9	0.136	0.021	6.576	0.000

Correlations

			Estimate
affect1	<->	affect2	0.545
e15	<->	e10	0.043
e16	<->	e11	0.337
e17	<->	e12	0.036
e18	<->	e13	0.289
e19	<->	e14	0.219
e20	<->	e35	0.348

e21	<->	e36	0.329
e22	<->	e37	0.409
e23	<->	e38	0.060
e24	<->	e39	0.151
e25	<->	e40	0.374
e26	<->	e1	0.204
e27	<->	e2	0.339
e28	<->	e3	0.162
e29	<->	e4	0.400
e30	<->	e5	0.158
e31	<->	e6	0.119
e32	<->	e7	0.311
e33	<->	e8	0.130
e34	<->	e9	0.283

Variances

	Estimate	S.E.	C.R.	P
affect2	1.255	0.093	13.547	0.000
affect1	1.062	0.066	15.974	0.000
e15	0.370	0.024	15.211	0.000
e16	0.776	0.045	17.062	0.000
e17	0.386	0.025	15.192	0.000
e18	0.831	0.049	17.046	0.000
e19	0.399	0.026	15.099	0.000
e10	0.411	0.021	19.120	0.000
e11	0.993	0.046	21.489	0.000
e12	0.389	0.021	18.907	0.000
e13	1.196	0.056	21.486	0.000
e14	0.536	0.028	19.477	0.000
e20	0.544	0.032	17.058	0.000
e21	0.477	0.028	17.047	0.000
e22	0.643	0.038	17.113	0.000
e23	0.257	0.018	13.920	0.000
e24	0.391	0.026	15.206	0.000
e25	0.864	0.051	17.086	0.000
e26	0.478	0.030	15.707	0.000
e27	0.540	0.032	17.058	0.000
e28	0.455	0.029	15.746	0.000
e29	0.530	0.031	17.092	0.000
e30	0.639	0.040	16.160	0.000
e31	0.427	0.028	15.506	0.000
e32	0.490	0.029	17.040	0.000
e33	0.482	0.031	15.632	0.000
e34	0.418	0.025	17.024	0.000

e35	0.529	0.025	21.466	0.000
e36	0.569	0.026	21.477	0.000
e37	0.980	0.046	21.497	0.000
e38	0.323	0.018	17.651	0.000
e39	0.452	0.024	19.110	0.000
e40	1.167	0.054	21.487	0.000
e1	0.573	0.029	19.913	0.000
e2	0.683	0.032	21.487	0.000
e3	0.445	0.023	19.501	0.000
e4	0.698	0.032	21.479	0.000
e5	0.739	0.036	20.475	0.000
e6	0.492	0.025	19.524	0.000
e7	0.654	0.030	21.481	0.000
e8	0.571	0.029	19.831	0.000
e9	0.554	0.026	21.476	0.000

Squared Multiple Correlations

	Estimate
S17_20F	0.014
S17_19	0.645
S17_18F	0.009
S17_17	0.682
S17_16	0.526
S17_15F	0.018
S17_14	0.685
S17_13F	0.004
S17_12	0.633
S17_11F	0.007
S17_10	0.722
S17_9	0.807
S17_8F	0.000
S17_7F	0.014
S17_6F	0.027
T17_20F	0.035
T17_19	0.723
T17_18F	0.024
T17_17	0.740
T17_16	0.619
T17_15F	0.029
T17_14	0.706
T17_13F	0.015
T17_12	0.713
T17_11F	0.003
T17_10	0.773

T17_9	0.853
T17_8F	0.003
T17_7F	0.027
T17_6F	0.022
S17_5	0.688
S17_4F	0.002
S17_3	0.738
S17_2F	0.002
S17_1	0.721
T17_5	0.783
T17_4F	0.000
T17_3	0.774
T17_2F	0.005
T17_1	0.772

Fit Measures

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	13518.809	0.000	103367.255	CMIN
Degrees of freedom	719	0	820	DF
P	0.000		0.000	P
Number of parameters	141	860	40	NPAR
Discrepancy / df	18.802		126.058	CMINDF

Normed fit index	0.869	1.000	0.000	NFI
Relative fit index	0.851		0.000	RFI
Incremental fit index	0.875	1.000	0.000	IFI
Tucker-Lewis index	0.858		0.000	TLI
Comparative fit index	0.875	1.000	0.000	CFI

Parsimony ratio	0.877	0.000	1.000	PRATIO
Parsimony-adjusted NFI	0.762	0.000	0.000	PNFI
Parsimony-adjusted CFI	0.767	0.000	0.000	PCFI

Noncentrality parameter estimate		12799.809	0.000	102547.255	NCP
NCP lower bound	12425.639	0.000		101494.837	NCPLO
NCP upper bound	13180.375	0.000		103605.965	NCPHI
FMIN	10.806	0.000	82.628		FMIN
F0	10.232	0.000	81.972		F0
F0 lower bound	9.933	0.000	81.131		F0LO
F0 upper bound	10.536	0.000	82.819		F0HI
RMSEA	0.119		0.316		RMSEA
RMSEA lower bound	0.118		0.315		RMSEALO
RMSEA upper bound	0.121		0.318		RMSEAHI

P for test of close fit	0.000		0.000	PCLOSE

Akaike information criterion (AIC)	13800.809	1720.000	103447.255	AIC
Browne-Cudeck criterion	13810.365	1778.281	103449.966	BCC
Bayes information criterion				BIC
Consistent AIC				CAIC
Expected cross validation index	11.032	1.375	82.692	ECVI
ECVI lower bound	10.733	1.375	81.850	ECVILO
ECVI upper bound	11.336	1.375	83.538	ECVIHI
MECVI	11.039	1.421	82.694	MECVI

Hoelter .05 index	73	11	HFIVE
Hoelter .01 index	75	12	HONE

Fit Measures

	CMIN	DF	P	NPAR	CMINDF
Default model	13518.809	719	0.000	141	18.802
Saturated	0.000	0		860	
Independence	103367.255	820	0.000	40	126.058

	NFI	RFI	IFI	TLI	CFI
Default model	0.869	0.851	0.875	0.858	0.875
Saturated	1.000		1.000		1.000
Independence	0.000	0.000	0.000	0.000	0.000

	PRATIO	PNFI	PCFI
Default model	0.877	0.762	0.767
Saturated	0.000	0.000	0.000
Independence	1.000	0.000	0.000

	NCP	NCPLO	NCPHI
Default model	12799.809	12425.639	13180.375
Saturated	0.000	0.000	0.000
Independence	102547.255	101494.837	103605.965

	FMIN	F0	F0LO	F0HI
Default model	10.806	10.232	9.933	10.536
Saturated	0.000	0.000	0.000	0.000
Independence	82.628	81.972	81.131	82.819

	RMSEA	RMSEALO	RMSEAHI	PCLOSE
Default model	0.119	0.118	0.121	0.000
Saturated				
Independence	0.316	0.315	0.318	0.000

	AIC	BCC	BIC	CAIC
Default model	13800.809	13810.365		
Saturated	1720.000	1778.281		
Independence	103447.255	103449.966		

	ECVI	ECVILO	ECVIHI	MECVI
Default model	11.032	10.733	11.336	11.039
Saturated	1.375	1.375	1.375	1.421
Independence	82.692	81.850	83.538	82.694

	HFIVE	HONE
Default model	73	75
Saturated		
Independence	11	12

APPENDIX G

BRAND SWITCHING BARRIERS

CONFIRMATORY FACTOR ANALYSIS TABLES

Brand Switching Barriers Confirmatory Factor Analysis

Computation of degrees of freedom

Number of distinct sample moments = 1890
Number of distinct parameters to be estimated = 302
Degrees of freedom = 1890 – 302 = 1588

Minimum was achieved

Chi-square = 4753.185
Degrees of freedom = 1588
Probability level = 0.000

Regression Weights

			Estimate	S.E.	C.R.	P
Economic1	←	Procedural1	1.000			
Evaluation1	←	Procedural1	0.856	0.065	13.125	0.000
Learning1	←	Procedural1	0.576	0.058	9.874	0.000
Setup1	←	Procedural1	1.119	0.066	17.056	0.000
Benefit1	←	Financial1	1.000			
Monetary1	←	Financial1	0.538	0.056	9.679	0.000
Personal1	←	Relational1	1.000			
Brand1	←	Relational1	0.311	0.059	5.316	0.000
Brand2	←	Relational2	0.440	0.097	4.522	0.000
Personal2	←	Relational2	1.000			
Monetary2	←	Financial2	0.723	0.097	7.447	0.000
Benefit2	←	Financial2	1.000			
Learning2	←	Procedural2	0.672	0.089	7.564	0.000
Setup2	←	Procedural2	1.139	0.101	11.327	0.000
Evaluation2	←	Procedural2	0.988	0.101	9.775	0.000
Economic2	←	Procedural2	1.000			
S16_2	←	Economic1	1.000			
S16_1	←	Economic1	0.951	0.054	17.689	0.000
S16_3	←	Economic1	0.971	0.059	16.405	0.000
S16_4	←	Economic1	1.017	0.063	16.197	0.000
s16_5	←	Economic1	1.136	0.062	18.247	0.000
s16_6	←	Economic1	1.036	0.058	17.757	0.000
s16a	←	Evaluation1	1.000			
S16_7	←	Evaluation1	1.074	0.079	13.675	0.000
s16_8	←	Evaluation1	1.112	0.081	13.763	0.000
s16_9	←	Evaluation1	1.124	0.079	14.258	0.000
S16_11	←	Learning1	1.000			
s16_10	←	Learning1	1.509	0.161	9.363	0.000

s16_12	←	Learning1	1.858	0.184	10.104	0.000
s16_13	←	Learning1	1.003	0.103	9.744	0.000
s16_15	←	Setup1	1.000			
s16_14	←	Setup1	0.926	0.047	19.593	0.000
s16_16	←	Setup1	-0.554	0.047	-11.733	0.000
s16_17	←	Setup1	0.982	0.050	19.638	0.000
s16b	←	Benefit1	1.000			
s16_18	←	Benefit1	0.900	0.052	17.245	0.000
s16_19	←	Benefit1	0.927	0.065	14.286	0.000
s16_20	←	Monetary1	0.555	0.068	8.177	0.000
s16c	←	Monetary1	1.000			
s16_24	←	Personal1	1.000			
s16_23	←	Personal1	1.263	0.068	18.707	0.000
s16_22	←	Personal1	0.992	0.064	15.579	0.000
S16_21	←	Personal1	1.092	0.065	16.720	0.000
s16_27	←	Brand1	1.000			
s16_26	←	Brand1	2.940	0.513	5.729	0.000
s16_25	←	Brand1	2.624	0.455	5.761	0.000
t16_2	←	Economic2	1.000			
t16_1	←	Economic2	0.961	0.078	12.287	0.000
t16_3	←	Economic2	1.084	0.089	12.152	0.000
t16_4	←	Economic2	0.974	0.084	11.613	0.000
t16_5	←	Economic2	1.260	0.095	13.292	0.000
t16_6	←	Economic2	1.014	0.080	12.718	0.000
t16a	←	Evaluation2	1.000			
t16_7	←	Evaluation2	0.962	0.095	10.178	0.000
t16_8	←	Evaluation2	0.950	0.094	10.099	0.000
t16_9	←	Evaluation2	1.047	0.101	10.334	0.000
t16_11	←	Learning2	1.000			
t16_10	←	Learning2	1.625	0.210	7.726	0.000
t16_12	←	Learning2	1.751	0.220	7.953	0.000
t16_13	←	Learning2	1.075	0.129	8.306	0.000
t16_15	←	Setup2	1.000			
t16_14	←	Setup2	1.100	0.080	13.714	0.000
t16_16	←	Setup2	0.764	0.080	9.532	0.000
t16_17	←	Setup2	1.029	0.079	13.104	0.000
t16b	←	Benefit2	1.000			
t16_18	←	Benefit2	0.867	0.082	10.619	0.000
t16_19	←	Benefit2	0.958	0.101	9.496	0.000
t16_20	←	Monetary2	0.658	0.097	6.771	0.000
t16c	←	Monetary2	1.000			
t16_24	←	Personal2	1.000			
t16_23	←	Personal2	1.088	0.089	12.174	0.000
t16_22	←	Personal2	1.096	0.095	11.483	0.000

t16_21	←	Personal2	1.155	0.095	12.158	0.000
t16_27	←	Brand2	1.000			
t16_26	←	Brand2	2.330	0.463	5.038	0.000
t16_25	←	Brand2	2.045	0.404	5.058	0.000

Standardized Regression Weights

			Estimate
Economic1	←	Procedural1	1.000
Evaluation1	←	Procedural1	1.000
Learning1	←	Procedural1	1.000
Setup1	←	Procedural1	1.000
Benefit1	←	Financial1	1.000
Monetary1	←	Financial1	1.000
Personal1	←	Relational1	1.000
Brand1	←	Relational1	1.000
Brand2	←	Relational2	1.000
Personal2	←	Relational2	1.000
Monetary2	←	Financial2	1.000
Benefit2	←	Financial2	1.000
Learning2	←	Procedural2	1.000
Setup2	←	Procedural2	1.000
Evaluation2	←	Procedural2	1.000
Economic2	←	Procedural2	1.000
S16_2	←	Economic1	0.640
S16_1	←	Economic1	0.591
S16_3	←	Economic1	0.622
S16_4	←	Economic1	0.580
s16_5	←	Economic1	0.728
s16_6	←	Economic1	0.664
s16a	←	Evaluation1	0.486
S16_7	←	Evaluation1	0.571
s16_8	←	Evaluation1	0.581
s16_9	←	Evaluation1	0.583
S16_11	←	Learning1	0.356
s16_10	←	Learning1	0.535
s16_12	←	Learning1	0.682
s16_13	←	Learning1	0.385
s16_15	←	Setup1	0.682
s16_14	←	Setup1	0.680
s16_16	←	Setup1	-0.394
s16_17	←	Setup1	0.679
s16b	←	Benefit1	0.641
s16_18	←	Benefit1	0.694
s16_19	←	Benefit1	0.740

s16_20	←	Monetary1	0.299
s16c	←	Monetary1	0.406
s16_24	←	Personal1	0.704
s16_23	←	Personal1	0.853
s16_22	←	Personal1	0.710
S16_21	←	Personal1	0.748
s16_27	←	Brand1	0.191
s16_26	←	Brand1	0.671
s16_25	←	Brand1	0.606
t16_2	←	Economic2	0.569
t16_1	←	Economic2	0.540
t16_3	←	Economic2	0.638
t16_4	←	Economic2	0.533
t16_5	←	Economic2	0.732
t16_6	←	Economic2	0.593
t16a	←	Evaluation2	0.485
t16_7	←	Evaluation2	0.504
t16_8	←	Evaluation2	0.493
t16_9	←	Evaluation2	0.535
t16_11	←	Learning2	0.358
t16_10	←	Learning2	0.597
t16_12	←	Learning2	0.659
t16_13	←	Learning2	0.416
t16_15	←	Setup2	0.618
t16_14	←	Setup2	0.699
t16_16	←	Setup2	0.471
t16_17	←	Setup2	0.632
t16b	←	Benefit2	0.490
t16_18	←	Benefit2	0.540
t16_19	←	Benefit2	0.615
t16_20	←	Monetary2	0.361
t16c	←	Monetary2	0.453
t16_24	←	Personal2	0.626
t16_23	←	Personal2	0.715
t16_22	←	Personal2	0.670
t16_21	←	Personal2	0.681
t16_27	←	Brand2	0.231
t16_26	←	Brand2	0.660
t16_25	←	Brand2	0.608

Intercepts

	Estimate	S.E.	C.R.	P
S16_2	3.273	0.031	105.333	0.000
S16_1	3.530	0.032	110.426	0.000

S16_3	3.645	0.031	117.384	0.000
S16_4	3.120	0.035	89.537	0.000
s16_5	3.534	0.031	113.875	0.000
s16_6	3.535	0.031	113.802	0.000
s16a	3.311	0.035	94.634	0.000
S16_7	2.894	0.032	90.454	0.000
s16_8	2.951	0.033	90.569	0.000
s16_9	3.152	0.033	96.041	0.000
S16_11	3.019	0.032	93.740	0.000
s16_10	3.207	0.032	99.345	0.000
s16_12	3.120	0.031	99.922	0.000
s16_13	2.775	0.030	93.092	0.000
s16_15	3.326	0.033	101.888	0.000
s16_14	3.533	0.030	116.551	0.000
s16_16	2.874	0.031	91.900	0.000
s16_17	3.377	0.032	104.972	0.000
s16b	2.410	0.046	52.090	0.000
s16_18	2.692	0.038	69.996	0.000
s16_19	2.858	0.037	77.003	0.000
s16c	3.374	0.039	85.873	0.000
s16_20	3.781	0.030	127.781	0.000
s16_24	2.931	0.031	94.565	0.000
s16_23	2.695	0.032	83.381	0.000
s16_22	2.822	0.030	92.619	0.000
S16_21	2.414	0.032	75.779	0.000
s16_27	3.078	0.036	86.577	0.000
s16_26	3.044	0.030	102.319	0.000
s16_25	3.272	0.029	111.287	0.000
t16_2	3.260	0.038	86.559	0.000
t16_1	3.596	0.038	94.440	0.000
t16_3	3.634	0.037	99.336	0.000
t16_4	3.181	0.039	81.141	0.000
t16_5	3.597	0.037	96.999	0.000
t16_6	3.563	0.037	96.762	0.000
t16a	3.481	0.043	80.108	0.000
t16_7	2.928	0.041	72.126	0.000
t16_8	3.018	0.041	73.716	0.000
t16_9	3.146	0.042	75.568	0.000
t16_11	3.046	0.040	75.617	0.000
t16_10	3.268	0.039	83.267	0.000
t16_12	3.178	0.038	82.680	0.000
t16_13	2.838	0.037	76.189	0.000
t16_15	3.329	0.040	83.917	0.000
t16_14	3.533	0.038	91.907	0.000

t16_16	3.060	0.040	77.186	0.000
t16_17	3.415	0.040	85.437	0.000
t16b	2.539	0.060	42.594	0.000
t16_18	2.791	0.047	59.632	0.000
t16_19	2.922	0.045	64.804	0.000
t16c	3.380	0.047	72.675	0.000
t16_20	3.716	0.038	97.185	0.000
t16_24	3.000	0.038	78.129	0.000
t16_23	2.686	0.037	73.500	0.000
t16_22	2.825	0.039	71.872	0.000
t16_21	2.474	0.041	60.647	0.000
t16_27	3.140	0.045	70.066	0.000
t16_26	3.111	0.037	83.311	0.000
t16_25	3.335	0.035	94.177	0.000

Covariances

			Estimate	S.E.	C.R.	P
Procedural1	<->	Financial1	0.336	0.032	10.334	0.000
Financial1	<->	Relational1	0.301	0.032	9.390	0.000
Procedural1	<->	Relational1	0.107	0.016	6.533	0.000
Relational2	<->	Financial2	0.244	0.037	6.580	0.000
Procedural2	<->	Financial2	0.251	0.035	7.195	0.000
Procedural2	<->	Relational2	0.067	0.017	4.018	0.000
e5	<->	e6	0.048	0.019	2.574	0.010
e4	<->	e5	0.032	0.022	1.455	0.146
e3	<->	e4	0.132	0.024	5.419	0.000
e2	<->	e3	0.025	0.020	1.217	0.224
e2	<->	e1	0.129	0.022	5.925	0.000
e4	<->	e6	-0.010	0.023	-0.433	0.665
e3	<->	e6	0.085	0.020	4.133	0.000
e2	<->	e6	0.046	0.020	2.340	0.019
e1	<->	e6	0.022	0.021	1.054	0.292
e3	<->	e5	0.128	0.020	6.429	0.000
e2	<->	e5	0.000	0.019	-0.011	0.991
e1	<->	e5	-0.023	0.020	-1.163	0.245
e2	<->	e4	0.077	0.023	3.281	0.001
e1	<->	e4	0.052	0.025	2.102	0.036
e1	<->	e3	-0.006	0.021	-0.288	0.773
e9	<->	e10	0.174	0.024	7.199	0.000
e8	<->	e9	0.118	0.026	4.505	0.000
e8	<->	e7	0.121	0.026	4.680	0.000
e8	<->	e10	0.161	0.027	6.025	0.000
e7	<->	e10	0.147	0.024	6.214	0.000
e7	<->	e9	0.289	0.025	11.467	0.000

e13	<->	e14	0.056	0.019	2.874	0.004
e12	<->	e14	0.237	0.026	9.025	0.000
e11	<->	e14	0.101	0.022	4.493	0.000
e11	<->	e13	0.096	0.021	4.526	0.000
e17	<->	e18	-0.081	0.023	-3.593	0.000
e16	<->	e17	-0.094	0.023	-4.106	0.000
e16	<->	e15	0.044	0.019	2.353	0.019
e16	<->	e18	0.059	0.020	2.876	0.004
e15	<->	e18	0.117	0.019	6.044	0.000
e15	<->	e17	-0.035	0.021	-1.673	0.094
e20	<->	e21	-0.077	0.040	-1.916	0.055
e20	<->	e19	0.292	0.052	5.631	0.000
e23	<->	e22	0.261	0.033	7.945	0.000
e30	<->	e29	0.022	0.025	0.903	0.367
e30	<->	e28	0.059	0.025	2.304	0.021
e29	<->	e28	0.083	0.027	3.106	0.002
e27	<->	e26	-0.054	0.040	-1.334	0.182
e26	<->	e25	-0.050	0.040	-1.248	0.212
e25	<->	e24	0.031	0.038	0.819	0.413
e27	<->	e25	-0.060	0.035	-1.722	0.085
e27	<->	e24	-0.040	0.038	-1.074	0.283
e26	<->	e24	-0.034	0.043	-0.793	0.428
e511	<->	e611	0.024	0.022	1.084	0.278
e411	<->	e511	0.045	0.024	1.889	0.059
e311	<->	e411	0.084	0.026	3.276	0.001
e211	<->	e311	0.030	0.024	1.280	0.201
e211	<->	e111	0.143	0.027	5.297	0.000
e411	<->	e611	0.041	0.026	1.577	0.115
e311	<->	e611	0.015	0.023	0.651	0.515
e211	<->	e611	0.120	0.025	4.726	0.000
e111	<->	e611	0.123	0.026	4.737	0.000
e311	<->	e511	0.076	0.022	3.519	0.000
e211	<->	e511	0.029	0.022	1.279	0.201
e111	<->	e511	0.036	0.023	1.565	0.118
e211	<->	e411	0.116	0.028	4.221	0.000
e111	<->	e411	0.034	0.027	1.249	0.212
e111	<->	e311	0.033	0.024	1.346	0.178
e911	<->	e1011	0.213	0.033	6.358	0.000
e811	<->	e911	0.150	0.034	4.373	0.000
e811	<->	e711	0.141	0.034	4.168	0.000
e811	<->	e1011	0.111	0.034	3.282	0.001
e711	<->	e1011	0.191	0.033	5.839	0.000
e711	<->	e911	0.266	0.034	7.836	0.000
e1311	<->	e1411	0.109	0.024	4.527	0.000

e1211	<->	e1411	0.261	0.032	8.098	0.000
e1111	<->	e1411	0.069	0.025	2.731	0.006
e1111	<->	e1311	0.139	0.025	5.451	0.000
e1711	<->	e1811	0.058	0.029	2.028	0.043
e1611	<->	e1711	-0.044	0.028	-1.567	0.117
e1611	<->	e1511	0.002	0.024	0.089	0.929
e1611	<->	e1811	0.051	0.027	1.899	0.058
e1511	<->	e1811	0.074	0.025	3.020	0.003
e1511	<->	e1711	0.029	0.026	1.116	0.264
e2011	<->	e2111	0.109	0.049	2.231	0.026
e2011	<->	e1911	0.447	0.062	7.190	0.000
e2311	<->	e2211	0.073	0.038	1.921	0.055
e3011	<->	e2911	0.029	0.035	0.840	0.401
e3011	<->	e2811	0.053	0.033	1.604	0.109
e2911	<->	e2811	0.118	0.035	3.380	0.001
e2711	<->	e2611	0.030	0.041	0.732	0.464
e2611	<->	e2511	0.057	0.043	1.314	0.189
e2511	<->	e2411	0.151	0.049	3.094	0.002
e2711	<->	e2511	0.032	0.043	0.737	0.461
e2711	<->	e2411	0.075	0.045	1.650	0.099
e2611	<->	e2411	0.104	0.046	2.271	0.023
e1	<->	e111	0.138	0.025	5.567	0.000
e2	<->	e211	0.106	0.022	4.912	0.000
e3	<->	e311	0.062	0.020	3.109	0.002
e4	<->	e411	0.122	0.028	4.277	0.000
e5	<->	e511	0.019	0.017	1.063	0.288
e6	<->	e611	0.039	0.021	1.858	0.063
e7	<->	e711	0.056	0.024	2.353	0.019
e8	<->	e811	0.214	0.035	6.058	0.000
e9	<->	e911	0.069	0.024	2.871	0.004
e10	<->	e1011	0.067	0.027	2.502	0.012
e11	<->	e1111	0.113	0.026	4.290	0.000
e12	<->	e1211	0.122	0.032	3.802	0.000
e13	<->	e1311	0.056	0.021	2.675	0.007
e14	<->	e1411	0.096	0.025	3.786	0.000
e15	<->	e1511	0.110	0.020	5.521	0.000
e16	<->	e1611	0.079	0.025	3.222	0.001
e17	<->	e1711	-0.138	0.031	-4.390	0.000
e18	<->	e1811	0.029	0.023	1.298	0.194
e19	<->	e1911	0.150	0.055	3.475	0.001
e21	<->	e2111	0.248	0.036	6.918	0.000
e22	<->	e2211	0.176	0.031	5.620	0.000
e23	<->	e2311	0.193	0.047	4.104	0.000
e24	<->	e2411	0.045	0.021	2.202	0.028

e25	<->	e2511	0.056	0.021	2.666	0.008
e26	<->	e2611	0.078	0.018	4.265	0.000
e27	<->	e2711	0.061	0.024	2.561	0.010
e28	<->	e2811	0.111	0.021	5.320	0.000
e29	<->	e2911	0.062	0.020	3.085	0.002
e30	<->	e3011	0.408	0.049	8.300	0.000

Correlations

			Estimate
Procedural1	<->	Financial1	0.616
Financial1	<->	Relational1	0.504
Procedural1	<->	Relational1	0.267
Relational2	<->	Financial2	0.596
Procedural2	<->	Financial2	0.685
Procedural2	<->	Relational2	0.222
e5	<->	e6	0.106
e4	<->	e5	0.057
e3	<->	e4	0.206
e2	<->	e3	0.046
e2	<->	e1	0.227
e4	<->	e6	-0.016
e3	<->	e6	0.162
e2	<->	e6	0.091
e1	<->	e6	0.040
e3	<->	e5	0.269
e2	<->	e5	0.000
e1	<->	e5	-0.045
e2	<->	e4	0.123
e1	<->	e4	0.076
e1	<->	e3	-0.011
e9	<->	e10	0.267
e8	<->	e9	0.157
e8	<->	e7	0.163
e8	<->	e10	0.213
e7	<->	e10	0.228
e7	<->	e9	0.450
e13	<->	e14	0.096
e12	<->	e14	0.309
e11	<->	e14	0.145
e11	<->	e13	0.166
e17	<->	e18	-0.130
e16	<->	e17	-0.148
e16	<->	e15	0.090
e16	<->	e18	0.112

e15	<->	e18	0.241
e15	<->	e17	-0.059
e20	<->	e21	-0.094
e20	<->	e19	0.321
e23	<->	e22	0.279
e30	<->	e29	0.031
e30	<->	e28	0.078
e29	<->	e28	0.175
e27	<->	e26	-0.157
e26	<->	e25	-0.149
e25	<->	e24	0.074
e27	<->	e25	-0.138
e27	<->	e24	-0.094
e26	<->	e24	-0.104
e511	<->	e611	0.055
e411	<->	e511	0.093
e311	<->	e411	0.154
e211	<->	e311	0.060
e211	<->	e111	0.245
e411	<->	e611	0.072
e311	<->	e611	0.031
e211	<->	e611	0.225
e111	<->	e611	0.222
e311	<->	e511	0.185
e211	<->	e511	0.063
e111	<->	e511	0.076
e211	<->	e411	0.193
e111	<->	e411	0.055
e111	<->	e311	0.062
e911	<->	e1011	0.292
e811	<->	e911	0.189
e811	<->	e711	0.181
e811	<->	e1011	0.142
e711	<->	e1011	0.267
e711	<->	e911	0.367
e1311	<->	e1411	0.190
e1211	<->	e1411	0.351
e1111	<->	e1411	0.110
e1111	<->	e1311	0.262
e1711	<->	e1811	0.093
e1611	<->	e1711	-0.070
e1611	<->	e1511	0.004
e1611	<->	e1811	0.091
e1511	<->	e1811	0.150

e1511	<->	e1711	0.051
e2011	<->	e2111	0.100
e2011	<->	e1911	0.374
e2311	<->	e2211	0.084
e3011	<->	e2911	0.040
e3011	<->	e2811	0.073
e2911	<->	e2811	0.257
e2711	<->	e2611	0.067
e2611	<->	e2511	0.131
e2511	<->	e2411	0.298
e2711	<->	e2511	0.062
e2711	<->	e2411	0.144
e2611	<->	e2411	0.234
e1	<->	e111	0.227
e2	<->	e211	0.196
e3	<->	e311	0.124
e4	<->	e411	0.176
e5	<->	e511	0.047
e6	<->	e611	0.078
e7	<->	e711	0.083
e8	<->	e811	0.249
e9	<->	e911	0.099
e10	<->	e1011	0.097
e11	<->	e1111	0.179
e12	<->	e1211	0.147
e13	<->	e1311	0.115
e14	<->	e1411	0.141
e15	<->	e1511	0.245
e16	<->	e1611	0.145
e17	<->	e1711	-0.187
e18	<->	e1811	0.055
e19	<->	e1911	0.187
e20	<->	e2011	0.140
e21	<->	e2111	0.378
e22	<->	e2211	0.236
e23	<->	e2311	0.176
e24	<->	e2411	0.098
e25	<->	e2511	0.123
e26	<->	e2611	0.246
e27	<->	e2711	0.127
e28	<->	e2811	0.228
e29	<->	e2911	0.137
e30	<->	e3011	0.357

Variances

	Estimate	S.E.	C.R.	P
Procedural1	0.365	0.036	10.169	0.000
Financial1	0.814	0.099	8.201	0.000
Relational1	0.440	0.051	8.581	0.000
Relational2	0.336	0.057	5.946	0.000
Financial2	0.498	0.097	5.126	0.000
Procedural2	0.269	0.039	6.981	0.000
e2	0.527	0.028	18.756	0.000
e1	0.615	0.032	19.338	0.000
e3	0.546	0.029	18.952	0.000
e4	0.744	0.038	19.423	0.000
e5	0.418	0.024	17.237	0.000
e6	0.499	0.027	18.364	0.000
e8	0.864	0.042	20.610	0.000
e7	0.637	0.032	20.050	0.000
e9	0.650	0.033	19.992	0.000
e10	0.657	0.033	19.959	0.000
e12	0.837	0.040	21.114	0.000
e11	0.687	0.034	20.279	0.000
e13	0.482	0.025	18.948	0.000
e14	0.699	0.033	21.067	0.000
e16	0.527	0.028	18.571	0.000
e15	0.457	0.024	18.663	0.000
e17	0.763	0.037	20.841	0.000
e18	0.515	0.028	18.594	0.000
e20	1.164	0.086	13.547	0.000
e19	0.708	0.047	14.978	0.000
e21	0.576	0.045	12.904	0.000
e23	1.191	0.059	20.346	0.000
e22	0.737	0.035	20.961	0.000
e27	0.448	0.042	10.565	0.000
e26	0.264	0.052	5.098	0.000
e25	0.425	0.041	10.333	0.000
e24	0.413	0.046	8.972	0.000
e30	1.130	0.053	21.388	0.000
e29	0.449	0.033	13.807	0.000
e28	0.506	0.031	16.265	0.000
e211	0.561	0.036	15.499	0.000
e111	0.604	0.038	15.731	0.000
e311	0.462	0.031	14.795	0.000
e411	0.643	0.041	15.711	0.000
e511	0.370	0.027	13.483	0.000
e611	0.510	0.034	15.205	0.000

e811	0.853	0.052	16.308	0.000
e711	0.714	0.044	16.157	0.000
e911	0.738	0.045	16.220	0.000
e1011	0.719	0.045	16.006	0.000
e1211	0.826	0.049	16.715	0.000
e1111	0.579	0.037	15.609	0.000
e1311	0.486	0.032	15.066	0.000
e1411	0.669	0.040	16.654	0.000
e1611	0.567	0.038	15.060	0.000
e1511	0.444	0.031	14.185	0.000
e1711	0.717	0.045	16.090	0.000
e1811	0.556	0.037	14.907	0.000
e2011	1.573	0.107	14.646	0.000
e1911	0.908	0.063	14.468	0.000
e2111	0.751	0.058	12.960	0.000
e2311	1.006	0.065	15.389	0.000
e2211	0.752	0.047	16.079	0.000
e2711	0.521	0.050	10.317	0.000
e2611	0.382	0.048	7.971	0.000
e2511	0.494	0.054	9.166	0.000
e2411	0.518	0.058	8.869	0.000
e3011	1.156	0.069	16.712	0.000
e2911	0.458	0.044	10.349	0.000
e2811	0.464	0.039	11.813	0.000

Squared Multiple Correlations

	Estimate
t16_25	0.370
t16_26	0.435
t16_27	0.053
t16_21	0.464
t16_22	0.449
t16_23	0.511
t16_24	0.392
t16_20	0.130
t16c	0.206
t16_19	0.379
t16_18	0.292
t16b	0.240
t16_17	0.400
t16_16	0.222
t16_14	0.488
t16_15	0.382
t16_13	0.173

t16_12	0.434
t16_10	0.357
t16_11	0.128
t16_9	0.286
t16_8	0.243
t16_7	0.254
t16a	0.236
t16_6	0.352
t16_5	0.536
t16_4	0.285
t16_3	0.407
t16_1	0.292
t16_2	0.324
s16_25	0.367
s16_26	0.451
s16_27	0.036
S16_21	0.559
s16_22	0.505
s16_23	0.727
s16_24	0.495
s16_20	0.089
s16c	0.165
s16_19	0.548
s16_18	0.482
s16b	0.411
s16_17	0.461
s16_16	0.155
s16_14	0.462
s16_15	0.465
s16_13	0.149
s16_12	0.465
s16_10	0.287
S16_11	0.127
s16_9	0.340
s16_8	0.337
S16_7	0.326
s16a	0.236
s16_6	0.440
s16_5	0.530
S16_4	0.337
S16_3	0.387
S16_1	0.349
S16_2	0.409

Fit Measures

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	4753.185	0.000	129168.667	CMIN
Degrees of freedom	1588	0	1830	DF
P	0.000		0.000	P
Number of parameters	302	1890	60	NPAR
Discrepancy / df	2.993		70.584	CMINDF
Normed fit index	0.963	1.000	0.000	NFI
Relative fit index	0.958		0.000	RFI
Incremental fit index	0.975	1.000	0.000	IFI
Tucker-Lewis index	0.971		0.000	TLI
Comparative fit index	0.975	1.000	0.000	CFI
Parsimony ratio	0.868	0.000	1.000	PRATIO
Parsimony-adjusted NFI	0.836	0.000	0.000	PNFI
Parsimony-adjusted CFI	0.846	0.000	0.000	PCFI
Noncentrality parameter estimate	3165.185	0.000	127338.667	NCP
NCP lower bound	2961.868	0.000	126163.695	NCPLO
NCP upper bound	3376.001	0.000	128519.944	NCPHI
FMIN	3.800	0.000	103.252	FMIN
F0	2.530	0.000	101.790	F0
F0 lower bound	2.368	0.000	100.850	F0LO
F0 upper bound	2.699	0.000	102.734	F0HI
RMSEA	0.040		0.236	RMSEA
RMSEA lower bound	0.039		0.235	RMSEALO
RMSEA upper bound	0.041		0.237	RMSEAHI
P for test of close fit	1.000		0.000	PCLOSE
Akaike information criterion (AIC)	5357.185	3780.000	129288.667	AIC
Browne-Cudeck criterion	5388.146	3973.765	129294.818	BCC
Bayes information criterion				BIC
Consistent AIC				CAIC
Expected cross validation index	4.282	3.022	103.348	ECVI
ECVI lower bound	4.120	3.022	102.409	ECVILO
ECVI upper bound	4.451	3.022	104.293	ECVIHI
MECVI	4.307	3.176	103.353	MECVI
Hoelter .05 index	443	19		HFIVE
Hoelter .01 index	454	20		HONE

Fit Measures

	CMIN	DF	P	NPAR	CMINDF
Default model	4753.185	1588	0.000	302	2.993
Saturated	0.000	0		1890	
Independence	129168.667	1830	0.000	60	70.584

	NFI	RFI	IFI	TLI	CFI
Default model	0.963	0.958	0.975	0.971	0.975
Saturated	1.000		1.000		1.000
Independence	0.000	0.000	0.000	0.000	0.000

	PRATIO	PNFI	PCFI
Default model	0.868	0.836	0.846
Saturated	0.000	0.000	0.000
Independence	1.000	0.000	0.000

	NCP	NCPLO	NCPHI
Default model	3165.185	2961.868	3376.001
Saturated	0.000	0.000	0.000
Independence	127338.667	126163.695	128519.944

	FMIN	F0	F0LO	F0HI
Default model	3.800	2.530	2.368	2.699
Saturated	0.000	0.000	0.000	0.000
Independence	82.628	81.972	81.131	82.819

	RMSEA	RMSEALO	RMSEAHI	PCLOSE
Default model	0.040	0.039	0.041	1.000
Saturated				
Independence	0.236	0.235	0.237	0.000

	AIC	BCC	BIC	CAIC
Default model	5357.185	5388.146		
Saturated	3780.000	3973.765		
Independence	129288.667	129294.818		

	ECVI	ECVILO	ECVIHI	MECVI
Default model	4.282	4.120	4.451	4.307
Saturated	3.022	3.022	3.022	3.176
Independence	103.348	102.409	104.293	103.353

	HFIVE	HONE
Default model	443	454
Saturated		
Independence	19	20

APPENDIX H

STRUCTURAL EQUATION MODEL TABLES

Structural equation model without affect construct (model 5.12b)

Computation of degrees of freedom

Number of distinct sample moments = 702
Number of distinct parameters to be estimated = 109
Degrees of freedom = 702 - 109 = 593

Minimum was achieved

Chi-square = 6444.976
Degrees of freedom = 593
Probability level = 0.000

Regression Weights

			Estimate	S.E.	C.R.	P	
retention1	<--	satisfaction1	2.128	0.100	21.206	0.000	
procedural1	<--	barriers1	1.000				
financial1	<--	barriers1	1.364	0.125	10.887	0.000	
relational1	<--	barriers1	0.793	0.096	8.245	0.000	
retention1	<--	barriers1	1.000				
S9	<--	retention1	1.000				
S11	<--	satisfaction1	1.000				
S12F	<--	satisfaction1	1.807	0.075	24.059	0.000	
S13	<--	satisfaction1	2.359	0.099	23.850	0.000	
S14	<--	satisfaction1	2.560	0.100	25.540	0.000	
S15F	<--	satisfaction1	1.882	0.086	21.953	0.000	
S16_27	<--	relational1	-0.135	0.126	-1.071	0.284	
S16_26	<--	relational1	0.763	0.130	5.862	0.000	
S16_25	<--	relational1	0.880	0.136	6.457	0.000	
S16_24	<--	relational1	0.615	0.125	4.915	0.000	
S16_23	<--	relational1	0.869	0.144	6.040	0.000	
S16_22	<--	relational1	1.336	0.172	7.760	0.000	
S16_21	<--	relational1	1.000				
S16CF	<--	financial1	-1.041	0.104	-10.045		0.000
S16_20	<--	financial1	0.784	0.078	10.048	0.000	
S16_19	<--	financial1	1.083	0.102	10.595	0.000	
S16BF	<--	financial1	-1.150	0.120	-9.620	0.000	
S16_18	<--	financial1	1.000				
S16_1	<--	procedural1	1.000				
S16_2	<--	procedural1	1.656	0.116	14.230	0.000	
S16_3	<--	procedural1	1.665	0.117	14.292	0.000	
S16_4	<--	procedural1	1.768	0.128	13.856	0.000	
S16_5	<--	procedural1	1.794	0.120	14.905	0.000	

S16_6	<--	procedural1	1.676	0.117	14.360	0.000
S16_7	<--	procedural1	1.580	0.116	13.649	0.000
S16AF	<--	procedural1	-1.434	0.119	-12.039	0.000
S16_8	<--	procedural1	1.612	0.118	13.645	0.000
S16_9	<--	procedural1	1.589	0.118	13.484	0.000
S16_10	<--	procedural1	1.428	0.112	12.737	0.000
S16_11	<--	procedural1	0.919	0.100	9.221	0.000
S16_12	<--	procedural1	1.713	0.118	14.494	0.000
S16_13	<--	procedural1	0.988	0.095	10.352	0.000
S16_14	<--	procedural1	1.614	0.113	14.278	0.000
S16_15	<--	procedural1	1.812	0.124	14.570	0.000
S16_16	<--	procedural1	-1.027	0.100	-10.297	0.000
S16_17	<--	procedural1	1.753	0.121	14.451	0.000

Standardized Regression Weights

			Estimate
retention1	<--	satisfaction1	0.890
procedural1	<--	barriers1	1.000
financial1	<--	barriers1	1.000
relational1	<--	barriers1	1.000
retention1	<--	barriers1	0.335
S9	<--	retention1	0.770
S11	<--	satisfaction1	0.714
S12F	<--	satisfaction1	0.827
S13	<--	satisfaction1	0.819
S14	<--	satisfaction1	0.881
S15F	<--	satisfaction1	0.753
S16_27	<--	relational1	-0.037
S16_26	<--	relational1	0.249
S16_25	<--	relational1	0.291
S16_24	<--	relational1	0.194
S16_23	<--	relational1	0.261
S16_22	<--	relational1	0.428
S16_21	<--	relational1	0.306
S16CF	<--	financial1	-0.443
S16_20	<--	financial1	0.443
S16_19	<--	financial1	0.485
S16BF	<--	financial1	-0.413
S16_18	<--	financial1	0.433
S16_1	<--	procedural1	0.415
S16_2	<--	procedural1	0.653
S16_3	<--	procedural1	0.658
S16_4	<--	procedural1	0.623
S16_5	<--	procedural1	0.712

S16_6	<--	procedural1	0.663
S16_7	<--	procedural1	0.607
S16AF	<--	procedural1	-0.498
S16_8	<--	procedural1	0.607
S16_9	<--	procedural1	0.595
S16_10	<--	procedural1	0.543
S16_11	<--	procedural1	0.350
S16_12	<--	procedural1	0.675
S16_13	<--	procedural1	0.405
S16_14	<--	procedural1	0.657
S16_15	<--	procedural1	0.682
S16_16	<--	procedural1	-0.402
S16_17	<--	procedural1	0.671

Intercepts

	Estimate	S.E.	C.R.	P
S9	3.469	0.048	72.626	0.000
S11	2.300	0.022	106.748	0.000
S12F	3.794	0.034	112.821	0.000
S13	3.390	0.044	76.525	0.000
S14	3.140	0.045	70.228	0.000
S15F	3.711	0.038	96.568	0.000
S16_2	3.273	0.031	104.716	0.000
S16_1	3.531	0.030	119.040	0.000
S16_3	3.645	0.031	116.889	0.000
S16_4	3.119	0.035	89.207	0.000
S16_5	3.535	0.031	113.877	0.000
S16_6	3.535	0.031	113.601	0.000
S16_7	2.894	0.032	90.227	0.000
S16AF	2.689	0.035	75.873	0.000
S16_8	2.951	0.033	90.125	0.000
S16_9	3.152	0.033	95.719	0.000
S16_10	3.208	0.032	98.975	0.000
S16_11	3.017	0.032	93.222	0.000
S16_12	3.120	0.031	99.810	0.000
S16_13	2.776	0.030	92.362	0.000
S16_14	3.532	0.030	116.672	0.000
S16_15	3.326	0.033	101.553	0.000
S16_16	2.874	0.031	91.309	0.000
S16_17	3.378	0.032	104.977	0.000
S16_18	2.692	0.039	69.348	0.000
S16BF	3.591	0.047	76.711	0.000
S16_19	2.857	0.037	76.207	0.000
S16_20	3.781	0.030	127.207	0.000

S16CF	2.627	0.040	66.468	0.000
S16_21	2.413	0.032	75.484	0.000
S16_22	2.823	0.031	92.466	0.000
S16_23	2.695	0.033	82.786	0.000
S16_24	2.931	0.031	94.439	0.000
S16_25	3.273	0.030	110.875	0.000
S16_26	3.044	0.030	101.652	0.000
S16_27	3.079	0.036	86.089	0.000

Covariances

			Estimate	S.E.	C.R.	P
barriers1	<-->	satisfaction1	0.028	0.007	4.298	0.000

Correlations

			Estimate
barriers1	<-->	satisfaction1	0.160

Variances

	Estimate		S.E.	C.R.	P
satisfaction1	0.219		0.018	12.160	0.000
barriers1	0.140		0.017	8.024	0.000
e1	0.856	0.045	19.004		0.000
e2	0.210	0.011	19.460		0.000
e3	0.330	0.019	17.216		0.000
e4	0.595	0.034	17.453		0.000
e5	0.413	0.028	14.629		0.000
e6	0.589	0.031	18.922		0.000
e31	0.518	0.026	20.203		0.000
e30	0.672	0.032	21.137		0.000
e32	0.509	0.025	20.167		0.000
e33	0.691	0.034	20.390		0.000
e34	0.439	0.022	19.709		0.000
e35	0.500	0.025	20.125		0.000
e36	0.600	0.029	20.478		0.000
e37	0.872	0.042	20.914		0.000
e38	0.626	0.031	20.479		0.000
e39	0.647	0.031	20.540		0.000
e40	0.684	0.033	20.764		0.000
e41	0.849	0.040	21.245		0.000
e42	0.491	0.025	20.039		0.000
e43	0.697	0.033	21.147		0.000
e44	0.482	0.024	20.175		0.000
e45	0.530	0.027	19.985		0.000
e46	0.767	0.036	21.153		0.000

e47	0.525	0.026	20.067	0.000
e48	1.130	0.054	21.087	0.000
e49	1.678	0.079	21.131	0.000
e50	0.992	0.047	20.954	0.000
e51	0.656	0.031	21.064	0.000
e52	1.159	0.055	21.065	0.000
e53	0.856	0.040	21.308	0.000
e54	0.703	0.033	21.099	0.000
e55	0.912	0.043	21.360	0.000
e56	0.856	0.040	21.418	0.000
e57	0.736	0.035	21.325	0.000
e58	0.777	0.036	21.372	0.000
e59	1.179	0.055	21.483	0.000

Squared Multiple Correlations

	Estimate
S16_27	0.001
S16_26	0.062
S16_25	0.085
S16_24	0.038
S16_23	0.068
S16_22	0.183
S16_21	0.093
S16CF	0.196
S16_20	0.196
S16_19	0.235
S16BF	0.170
S16_18	0.187
S16_17	0.450
S16_16	0.162
S16_15	0.464
S16_14	0.431
S16_13	0.164
S16_12	0.455
S16_11	0.122
S16_10	0.294
S16_9	0.354
S16_8	0.368
S16AF	0.248
S16_7	0.368
S16_6	0.440
S16_5	0.507
S16_4	0.388
S16_3	0.433

S16_1	0.172
S16_2	0.426
S15F	0.568
S14	0.776
S13	0.671
S12F	0.684
S11	0.510
S9	0.593

Fit Measures

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	6444.976	0.000	94405.526	CMIN
Degrees of freedom	593	0	666	DF
P	0.000		0.000	P
Number of parameters	109	702	36	NPAR
Discrepancy / df	10.868		141.750	CMINDF
Normed fit index	0.932	1.000	0.000	NFI
Relative fit index	0.923		0.000	RFI
Incremental fit index	0.938	1.000	0.000	IFI
Tucker-Lewis index	0.930		0.000	TLI
Comparative fit index	0.938	1.000	0.000	CFI
Parsimony ratio	0.890	0.000	1.000	PRATIO
Parsimony-adjusted NFI	0.830	0.000	0.000	PNFI
Parsimony-adjusted CFI	0.835	0.000	0.000	PCFI
Noncentrality parameter estimate		5851.976	0.000 93739.526	NCP
NCP lower bound		5597.275	0.000 92733.680	NCPLO
NCP upper bound		6113.159	0.000 94751.663	NCPHI
FMIN	5.152	0.000	75.464	FMIN
F0	4.678	0.000	74.932	F0
F0 lower bound	4.474	0.000	74.128	F0LO
F0 upper bound	4.887	0.000	75.741	F0HI
RMSEA	0.089		0.335	RMSEA
RMSEA lower bound	0.087		0.334	RMSEALO
RMSEA upper bound	0.091		0.337	RMSEAHI
P for test of close fit	0.000		0.000	PCLOSE
Akaike information criterion (AIC)	6662.976	1404.000	94477.526	AIC
Browne-Cudeck criterion	6669.620	1446.791	94479.721	BCC
Bayes information criterion				BIC
Consistent AIC				CAIC

Expected cross validation index	5.326	1.122	75.522	ECVI
ECVI lower bound	5.123	1.122	74.718	ECVILO
ECVI upper bound	5.535	1.122	76.331	ECVIHI
MECVI	5.331	1.157	75.523	MECVI

Hoelter .05 index	127	10	HFIVE
Hoelter .01 index	132	10	HONE

Fit Measures

	CMIN	DF	P	NPAR	CMINDF
Default model	6444.976	593	0.000	109	10.868
Saturated	0.000 0		702		
Independence	94405.526	666	0.000	36	141.750

	NFI	RFI	IFI	TLI	CFI
Default model	0.932	0.923	0.938	0.930	0.938
Saturated	1.000		1.000		1.000
Independence	0.000	0.000	0.000	0.000	0.000

	PRATIO	PNFI	PCFI
Default model	0.890	0.830	0.835
Saturated	0.000	0.000	0.000
Independence	1.000	0.000	0.000

	NCP	NCPLO	NCPHI
Default model	5851.976	5597.275	6113.159
Saturated	0.000	0.000	0.000
Independence	93739.526	92733.680	94751.663

	FMIN	F0	F0LO	F0HI
Default model	5.152	4.678	4.474	4.887
Saturated	0.000	0.000	0.000	0.000
Independence	75.464	74.932	74.128	75.741

	RMSEA	RMSEALO	RMSEAHI	PCLOSE
Default model	0.089	0.087	0.091	0.000
Saturated				
Independence	0.335	0.334	0.337	0.000

	AIC	BCC	BIC	CAIC
Default model	6662.976	6669.620		
Saturated	1404.000	1446.791		

Independence 94477.526 94479.721

	ECVI	ECVILO	ECVIHI	MECVI
Default model	5.326	5.123	5.535	5.331
Saturated	1.122	1.122	1.122	1.157
Independence	75.522	74.718	76.331	75.523

	HFIVE	HONE
Default model	127	132
Saturated		
Independence	10	10

Structural equation model with affect construct (model 5.11b)

Computation of degrees of freedom

Number of distinct sample moments = 1652
Number of distinct parameters to be estimated = 172
Degrees of freedom = 1652 - 172 = 1480

Minimum was achieved

Chi-square = 15823.653
Degrees of freedom = 1480
Probability level = 0.000

Regression Weights

			Estimate	S.E.	C.R.	P
retention1	<--	satisfaction1	2.243	0.109	20.628	0.000
procedural1	<--	barriers1	1.000			
financial1	<--	barriers1	1.358	0.124	10.941	0.000
relational1	<--	barriers1	0.796	0.096	8.329	0.000
retention1	<--	barriers1	1.000			
retention1	<--	affect1	-0.133	0.036	-3.707	0.000
S9	<--	retention1	1.000			
S11	<--	satisfaction1	1.000			
S12F	<--	satisfaction1	1.807	0.075	24.193	0.000
S13	<--	satisfaction1	2.345	0.098	23.843	0.000
S14	<--	satisfaction1	2.550	0.100	25.611	0.000
S15F	<--	satisfaction1	1.893	0.085	22.195	0.000
S16_27	<--	relational1	-0.128	0.125	-1.028	0.304
S16_26	<--	relational1	0.765	0.129	5.939	0.000
S16_25	<--	relational1	0.880	0.135	6.530	0.000
S16_24	<--	relational1	0.620	0.124	4.995	0.000

S16_23	<--	relational1	0.872	0.142	6.120	0.000
S16_22	<--	relational1	1.330	0.170	7.837	0.000
S16_21	<--	relational1	1.000			
S16CF	<--	financial1	-1.039	0.103	-10.067	0.000
S16_20	<--	financial1	0.781	0.078	10.067	0.000
S16_19	<--	financial1	1.083	0.102	10.636	0.000
S16BF	<--	financial1	-1.151	0.119	-9.657	0.000
S16_18	<--	financial1	1.000			
S16_1	<--	procedural1	1.000			
S16_2	<--	procedural1	1.644	0.115	14.298	0.000
S16_3	<--	procedural1	1.652	0.115	14.354	0.000
S16_4	<--	procedural1	1.757	0.126	13.925	0.000
S16_5	<--	procedural1	1.778	0.119	14.969	0.000
S16_6	<--	procedural1	1.663	0.115	14.423	0.000
S16_7	<--	procedural1	1.567	0.114	13.698	0.000
S16AF	<--	procedural1	-1.422	0.118	-12.069	0.000
S16_8	<--	procedural1	1.599	0.117	13.694	0.000
S16_9	<--	procedural1	1.576	0.116	13.530	0.000
S16_10	<--	procedural1	1.417	0.111	12.783	0.000
S16_11	<--	procedural1	0.909	0.099	9.210	0.000
S16_12	<--	procedural1	1.700	0.117	14.561	0.000
S16_13	<--	procedural1	0.978	0.094	10.354	0.000
S16_14	<--	procedural1	1.599	0.112	14.329	0.000
S16_15	<--	procedural1	1.797	0.123	14.632	0.000
S16_16	<--	procedural1	-1.015	0.099	-10.287	0.000
S16_17	<--	procedural1	1.739	0.120	14.510	0.000
S17_1	<--	affect1	1.000			
S17_3	<--	affect1	1.014	0.029	34.536	0.000
S17_5	<--	affect1	1.047	0.032	32.432	0.000
S17_9	<--	affect1	1.127	0.030	37.702	0.000
S17_10	<--	affect1	1.053	0.031	34.023	0.000
S17_12	<--	affect1	0.958	0.032	30.167	0.000
S17_14	<--	affect1	0.953	0.029	32.300	0.000
S17_16	<--	affect1	0.874	0.034	26.068	0.000
S17_17	<--	affect1	0.996	0.031	32.336	0.000
S17_19	<--	affect1	0.981	0.032	30.670	0.000
S17_20F	<--	affect1	-0.080	0.024	-3.307	0.001
S17_18F	<--	affect1	-0.067	0.026	-2.558	0.011
S17_15F	<--	affect1	-0.105	0.027	-3.846	0.000
S17_13F	<--	affect1	-0.048	0.027	-1.795	0.073
S17_11F	<--	affect1	0.107	0.035	3.042	0.002
S17_8F	<--	affect1	0.012	0.032	0.378	0.705
S17_7F	<--	affect1	-0.079	0.025	-3.197	0.001
S17_6F	<--	affect1	-0.114	0.024	-4.787	0.000

S17_4F	<--	affect1	0.069	0.036	1.945	0.052
S17_2F	<--	affect1	-0.024	0.032	-0.749	0.454

Standardized Regression Weights

			Estimate
retention1	<--	satisfaction1	0.936
procedural1	<--	barriers1	1.000
financial1	<--	barriers1	1.000
relational1	<--	barriers1	1.000
retention1	<--	barriers1	0.336
retention1	<--	affect1	-0.123
S9	<--	retention1	0.773
S11	<--	satisfaction1	0.715
S12F	<--	satisfaction1	0.828
S13	<--	satisfaction1	0.816
S14	<--	satisfaction1	0.879
S15F	<--	satisfaction1	0.759
S16_27	<--	relational1	-0.035
S16_26	<--	relational1	0.252
S16_25	<--	relational1	0.294
S16_24	<--	relational1	0.197
S16_23	<--	relational1	0.264
S16_22	<--	relational1	0.430
S16_21	<--	relational1	0.309
S16CF	<--	financial1	-0.443
S16_20	<--	financial1	0.443
S16_19	<--	financial1	0.487
S16BF	<--	financial1	-0.414
S16_18	<--	financial1	0.434
S16_1	<--	procedural1	0.418
S16_2	<--	procedural1	0.653
S16_3	<--	procedural1	0.657
S16_4	<--	procedural1	0.623
S16_5	<--	procedural1	0.711
S16_6	<--	procedural1	0.663
S16_7	<--	procedural1	0.606
S16AF	<--	procedural1	-0.498
S16_8	<--	procedural1	0.606
S16_9	<--	procedural1	0.594
S16_10	<--	procedural1	0.543
S16_11	<--	procedural1	0.348
S16_12	<--	procedural1	0.675
S16_13	<--	procedural1	0.404
S16_14	<--	procedural1	0.655

S16_15	<--	procedural1	0.681
S16_16	<--	procedural1	-0.400
S16_17	<--	procedural1	0.670
S17_1	<--	affect1	0.852
S17_3	<--	affect1	0.859
S17_5	<--	affect1	0.829
S17_9	<--	affect1	0.900
S17_10	<--	affect1	0.852
S17_12	<--	affect1	0.794
S17_14	<--	affect1	0.827
S17_16	<--	affect1	0.722
S17_17	<--	affect1	0.828
S17_19	<--	affect1	0.802
S17_20F	<--	affect1	-0.111
S17_18F	<--	affect1	-0.086
S17_15F	<--	affect1	-0.129
S17_13F	<--	affect1	-0.060
S17_11F	<--	affect1	0.102
S17_8F	<--	affect1	0.013
S17_7F	<--	affect1	-0.107
S17_6F	<--	affect1	-0.160
S17_4F	<--	affect1	0.065
S17_2F	<--	affect1	-0.025

Intercepts

	Estimate	S.E.	C.R.	P
S9	3.469	0.048	72.679	0.000
S11	2.300	0.022	106.748	0.000
S12F	3.794	0.034	112.821	0.000
S13	3.390	0.044	76.525	0.000
S14	3.140	0.045	70.228	0.000
S15F	3.711	0.038	96.568	0.000
S16_2	3.273	0.031	104.716	0.000
S16_1	3.531	0.030	118.985	0.000
S16_3	3.645	0.031	116.889	0.000
S16_4	3.119	0.035	89.207	0.000
S16_5	3.535	0.031	113.877	0.000
S16_6	3.535	0.031	113.601	0.000
S16_7	2.894	0.032	90.227	0.000
S16AF	2.689	0.035	75.873	0.000
S16_8	2.951	0.033	90.125	0.000
S16_9	3.152	0.033	95.719	0.000
S16_10	3.208	0.032	98.975	0.000
S16_11	3.017	0.032	93.222	0.000

S16_12	3.120	0.031	99.810	0.000
S16_13	2.776	0.030	92.362	0.000
S16_14	3.532	0.030	116.672	0.000
S16_15	3.326	0.033	101.553	0.000
S16_16	2.874	0.031	91.309	0.000
S16_17	3.378	0.032	104.977	0.000
S16_18	2.692	0.039	69.348	0.000
S16BF	3.591	0.047	76.711	0.000
S16_19	2.857	0.037	76.207	0.000
S16_20	3.781	0.030	127.207	0.000
S16CF	2.627	0.040	66.468	0.000
S16_21	2.413	0.032	75.484	0.000
S16_22	2.823	0.031	92.466	0.000
S16_23	2.695	0.033	82.786	0.000
S16_24	2.931	0.031	94.439	0.000
S16_25	3.273	0.030	110.875	0.000
S16_26	3.044	0.030	101.652	0.000
S16_27	3.079	0.036	86.089	0.000
S17_1	2.528	0.040	63.219	0.000
S17_3	2.221	0.040	55.277	0.000
S17_5	2.591	0.043	60.254	0.000
S17_9	2.400	0.043	56.281	0.000
S17_10	2.415	0.042	57.348	0.000
S17_12	2.434	0.041	59.264	0.000
S17_14	2.078	0.039	52.978	0.000
S17_16	2.342	0.041	56.847	0.000
S17_17	2.511	0.041	61.264	0.000
S17_19	2.562	0.042	61.472	0.000
S17_20F	4.666	0.025	189.035	0.000
S17_18F	4.606	0.027	172.449	0.000
S17_15F	4.556	0.028	164.298	0.000
S17_13F	4.613	0.027	169.026	0.000
S17_11F	4.324	0.036	121.054	0.000
S17_8F	4.468	0.033	137.087	0.000
S17_7F	4.669	0.025	186.845	0.000
S17_6F	4.685	0.024	192.876	0.000
S17_4F	4.321	0.036	119.935	0.000
S17_2F	4.456	0.033	135.740	0.000

Covariances

			Estimate	S.E.	C.R.	P
satisfaction1	<-->	barriers1	0.028	0.007	4.309	0.000
affect1	<-->	barriers1	0.048	0.014	3.436	0.001
affect1	<-->	satisfaction1	0.201	0.020	10.157	0.000

Correlations

			Estimate
satisfaction1	<-->	barriers1	0.160
affect1	<-->	barriers1	0.124
affect1	<-->	satisfaction1	0.415

Variances

	Estimate	S.E.	C.R.	P
satisfaction1	0.219	0.018	12.198	0.000
barriers1	0.142	0.018	8.071	0.000
affect1	1.071	0.067	16.030	0.000
e1	0.845	0.045	18.720	0.000
e2	0.209	0.011	19.500	0.000
e3	0.328	0.019	17.292	0.000
e4	0.605	0.034	17.667	0.000
e5	0.419	0.028	14.937	0.000
e6	0.578	0.031	18.898	0.000
e31	0.518	0.026	20.201	0.000
e30	0.671	0.032	21.131	0.000
e32	0.510	0.025	20.169	0.000
e33	0.690	0.034	20.387	0.000
e34	0.440	0.022	19.718	0.000
e35	0.501	0.025	20.128	0.000
e36	0.601	0.029	20.481	0.000
e37	0.872	0.042	20.916	0.000
e38	0.627	0.031	20.482	0.000
e39	0.648	0.032	20.543	0.000
e40	0.684	0.033	20.764	0.000
e41	0.850	0.040	21.247	0.000
e42	0.492	0.025	20.040	0.000
e43	0.698	0.033	21.149	0.000
e44	0.483	0.024	20.184	0.000
e45	0.531	0.027	19.991	0.000
e46	0.768	0.036	21.156	0.000
e47	0.526	0.026	20.073	0.000
e48	1.129	0.054	21.084	0.000
e49	1.676	0.079	21.128	0.000
e50	0.990	0.047	20.949	0.000
e51	0.656	0.031	21.064	0.000
e52	1.159	0.055	21.064	0.000
e53	0.854	0.040	21.303	0.000
e54	0.701	0.033	21.093	0.000
e55	0.910	0.043	21.356	0.000

e56	0.855	0.040	21.416	0.000
e57	0.735	0.034	21.322	0.000
e58	0.775	0.036	21.368	0.000
e59	1.180	0.055	21.483	0.000
e7	0.406	0.021	19.087	0.000
e8	0.390	0.021	18.923	0.000
e9	0.534	0.027	19.488	0.000
e10	0.319	0.018	17.602	0.000
e11	0.449	0.024	19.077	0.000
e12	0.576	0.029	19.938	0.000
e13	0.449	0.023	19.518	0.000
e14	0.749	0.037	20.498	0.000
e15	0.488	0.025	19.510	0.000
e16	0.572	0.029	19.849	0.000
e17	0.556	0.026	21.474	0.000
e18	0.654	0.030	21.479	0.000
e19	0.698	0.033	21.470	0.000
e20	0.685	0.032	21.482	0.000
e21	1.166	0.054	21.476	0.000
e22	0.980	0.046	21.485	0.000
e23	0.570	0.027	21.475	0.000
e24	0.531	0.025	21.462	0.000
e25	1.194	0.056	21.482	0.000
e26	0.994	0.046	21.485	0.000

Squared Multiple Correlations

	Estimate
S17_2F	0.001
S17_4F	0.004
S17_6F	0.025
S17_7F	0.011
S17_8F	0.000
S17_11F	0.010
S17_13F	0.004
S17_15F	0.017
S17_18F	0.007
S17_20F	0.012
S17_19	0.643
S17_17	0.685
S17_16	0.522
S17_14	0.684
S17_12	0.630
S17_10	0.726
S17_9	0.810

S17_5	0.687
S17_3	0.738
S17_1	0.725
S16_27	0.001
S16_26	0.064
S16_25	0.087
S16_24	0.039
S16_23	0.070
S16_22	0.185
S16_21	0.095
S16CF	0.196
S16_20	0.196
S16_19	0.237
S16BF	0.171
S16_18	0.188
S16_17	0.449
S16_16	0.160
S16_15	0.463
S16_14	0.429
S16_13	0.163
S16_12	0.455
S16_11	0.121
S16_10	0.294
S16_9	0.353
S16_8	0.367
S16AF	0.248
S16_7	0.367
S16_6	0.440
S16_5	0.505
S16_4	0.389
S16_3	0.432
S16_1	0.175
S16_2	0.426
S15F	0.576
S14	0.773
S13	0.686
S11	0.512
S9	0.598

Fit Measures

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	15823.653	0.000	156884.628	CMIN
Degrees of freedom	1480	0	1596	DF

P	0.000		0.000		P
Number of parameters	172	1652	56		NPAR
Discrepancy / df	10.692		98.299		CMINDF
Normed fit index	0.899	1.000	0.000		NFI
Relative fit index	0.891		0.000		RFI
Incremental fit index	0.908	1.000	0.000		IFI
Tucker-Lewis index	0.900		0.000		TLI
Comparative fit index	0.908	1.000	0.000		CFI
Parsimony ratio	0.927	0.000	1.000		PRATIO
Parsimony-adjusted NFI	0.834	0.000	0.000		PNFI
Parsimony-adjusted CFI	0.842	0.000	0.000		PCFI
Noncentrality parameter estimate		14343.653	0.000	155288.628	NCP
NCP lower bound		13942.876	0.000	153992.087	NCPLO
NCP upper bound		14750.916	0.000	156591.465	NCPHI
FMIN	12.649	0.000	125.407		FMIN
F0	11.466	0.000	124.132		F0
F0 lower bound	11.145	0.000	123.095		F0LO
F0 upper bound	11.791	0.000	125.173		F0HI
RMSEA	0.088		0.279		RMSEA
RMSEA lower bound	0.087		0.278		RMSEALO
RMSEA upper bound	0.089		0.280		RMSEAHI
P for test of close fit	0.000		0.000		PCLOSE
Akaike information criterion (AIC)		16167.653	3304.000	156996.628	AIC
Browne-Cudeck criterion		16184.075	3461.729	157001.974	BCC
Bayes information criterion					BIC
Consistent AIC					CAIC
Expected cross validation index		12.924	2.641	125.497	ECVI
ECVI lower bound		12.603	2.641	124.461	ECVILO
ECVI upper bound		13.249	2.641	126.538	ECVIHI
MECVI		12.937	2.767	125.501	MECVI
Hoelter .05 index	125			14	HFIVE
Hoelter .01 index	128			14	HONE

Fit Measures

	CMIN	DF	P	NPAR	CMINDF
Default model	15823.653	1480	0.000	172	10.692
Saturated	0.000	0		1652	

Independence	156884.628	1596	0.000	56	98.299

	NFI	RFI	IFI	TLI	CFI
Default model	0.899	0.891	0.908	0.900	0.908
Saturated	1.000		1.000		1.000
Independence	0.000	0.000	0.000	0.000	0.000

	PRATIO	PNFI	PCFI
Default model	0.927	0.834	0.842
Saturated	0.000	0.000	0.000
Independence	1.000	0.000	0.000

	NCP	NCPLO	NCPHI
Default model	14343.653	13942.876	14750.916
Saturated	0.000	0.000	0.000
Independence	155288.628	153992.087	156591.465

	FMIN	F0	F0LO	F0HI
Default model	12.649	11.466	11.145	11.791
Saturated	0.000	0.000	0.000	0.000
Independence	125.407	124.132	123.095	125.173

	RMSEA	RMSEALO	RMSEAHI	PCLOSE
Default model	0.088	0.087	0.089	0.000
Saturated				
Independence	0.279	0.278	0.280	0.000

	AIC	BCC	BIC	CAIC
Default model	16167.653	16184.075		
Saturated	3304.000	3461.729		
Independence	156996.628	157001.974		

	ECVI	ECVILO	ECVIHI	MECVI
Default model	12.924	12.603	13.249	12.937
Saturated	2.641	2.641	2.641	2.767
Independence	125.497	124.461	126.538	125.501

	HFIVE	HONE
Default model	125	128
Saturated		
Independence	14	14

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BIOGRAPHICAL INFORMATION

The oldest of eight children, Michael was the first of his generation to attend college. Growing up in a military family and moving frequently to locations around the world, he gained an early appreciation of flexibility and hard work.

Armed with undergraduate and graduate degrees in Marketing from The University of Texas at Austin, Michael joined GTE in 1979 and advanced through progressively important Marketing positions over the next decade and a half, primarily in Product Management and Market Planning. In 1994 he joined PHH's NTS subsidiary as Vice President of Marketing, and subsequently joined Decision Analyst as Vice President of Client Service in 1998.

Michael also resumed his formal academic career in 1998 at The University of Texas at Arlington, enrolling as a doctoral student while continuing to work full-time at Decision Analyst. Upon completion of his doctorate, he plans to continue his business career until a timely retirement, while also maintaining a foothold in the academic world. His retirement plans involve a full-time commitment to academia, pursuing his interests in consumer and industrial behavior, marketing research, international business, and marketing strategies. He also hopes to continue the legacy given to him by his academic colleagues, utilizing his decades of practical Marketing experience to plant seeds of curiosity in future generations of scholars and businesspeople.