

# "AFTER I HAD MADE THE DECISION, I...:" TOWARD A SCALE TO MEASURE COGNITIVE DISSONANCE

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## ABSTRACT

The objective of the present research study is to begin the development of a scale to measure cognitive dissonance that arises from free choice in consumer purchase decisions. This represents an advance in the measurement of cognitive dissonance. Cognitive, emotional and behavioral aspects of the dissonance construct are isolated and described, as are relationships with other post purchase variables. In particular, it is noted that the reduction of cognitive dissonance is a necessary condition for the occurrence of satisfaction. Multiple items, developed from focus groups, were evaluated by a series of independent judges (consumer behavior researchers). A total of 81 measurement items are offered for further refinement.

## INTRODUCTION

"One hopes that the construction, validation and dissemination of comprehensive dissonance scales will be forthcoming." (Oliver 1997, p. 261) With this plea, Oliver concluded his chapter length review of dissonance research as part of a landmark treatise on consumer satisfaction. Since Leon Festinger coined the term "cognitive dissonance" in 1957, the concept has been interpreted, debated, and re-interpreted with some frequency and ferocity. Many of the early critical issues, however, remain at the center of disagreements. Underlying these continued debates are attempts to fit the same concept into a set of evolving theories and paradigms.

Various conceptualizations have been used in attempts to identify the relationships between cognitive dissonance and consumer satisfaction/dissatisfaction [CS/D]. Some authors have discussed how dissonance generally fits theories of consumer behavior (e.g., Cummings and Venkatesan 1976; Schewe 1973), while others have made explicit distinctions among the constructs and their relationships (e.g.,

Montgomery and Barnes 1993; Oliver 1997). To date, however, no one has settled convincingly the conflicts that have been raised.

Whereas the satisfaction construct has been widely discussed, and measures and models developed around it (e.g., Churchill and Surprenant 1982; Johnson and Fornell 1991; Oliver 1980), fewer measurement studies have examined the concept of dissonance. Some early dissonance studies have been criticized as tapping related constructs, such as anxiety, rather than dissonance itself (Cummings and Venkatesan 1976). Other earlier studies did not measure dissonance but, rather, inferred the occurrence of dissonance from evidence of dissonance reducing behaviors. For example, Engel (1963) assessed the attention paid to advertising of a brand after purchasing that brand (Engel 1963), while Loscuito and Perloff (1967) measured attitude changes towards selected and non-selected products. Both are examples of how people strive to achieve congruence among attitudes, knowledge and behavior (Schewe 1973).

Despite four decades of discussion, an agreed upon and measurable construct continues to elude social scientists. It has been suggested recently that, "dissonance, at least as presently measured, may not have discriminant validity when compared to other post purchase constructs" (Sweeney, Soutar and Johnson 1996, p. 138). Oliver (1997) discusses the relationships among these constructs with an acknowledgment of the need for improved measures consistent with theoretical models.

## THE DISSONANCE CONCEPT

Festinger's early explanation of the dissonance construct does not identify clearly whether "dissonance" is cognitive or emotional. The cognitive view is supported by his definition that "the obverse of one element follows from the other" (Festinger 1957, p. 261). Yet, he seems also to have intended an emotional conceptualization, suggesting that "for some

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people, dissonance is an extremely painful and intolerable thing" (Festinger 1957, p. 266). In a recent social psychology treatment, Gilovich, Medvec and Chen (1995), appear to treat dissonance in a traditional cognitive sense. Conversely, Harmon-Jones et al. (1996) seem to be more concerned with the emotions aroused by the "aversive consequences" of an individual's action. In fact, they subscribe to the theory that it is these consequences that are necessary and sufficient to create the emotion, rather than mere cognitions. However, they were working within the "induced-compliance" paradigm and their conclusions may not have direct relevance to the "free-choice" paradigm that is most often of interest to consumer researchers.

Oliver (1997) revived the free-choice version of dissonance, which he characterized as having lain dormant for some time. In Oliver's model of satisfaction, the dissonance concept is stretched across two-thirds of the satisfaction process. Originating in a pre-purchase phase, the construct is labeled "apprehension." These same cognitions and feelings mutate into true dissonance after the decision is made. With use and experience, dissonance dissipates and yields to dis/satisfaction (as can be seen in Oliver's figure 1-3, 1997, p. 22).

While Oliver (1997) argues that dissonance occurs at various stages of the consumption process, it is generally recognized as a post-decisional, but pre-use phenomenon (e.g. Festinger, 1957; Insko and Schopler, 1972). Indeed, Oliver (1997, p. 24), in a subsequent section, views dissonance as resulting "from a personal decision or action." He termed this narrower window the "Gamma" phase (Oliver 1997, p. 242). The concept of dissonance addressed in the present research best fits this period that immediately follows the purchase decision but precedes use or experience with the result of the purchase decision.

This relationship is made explicit in Figure 1, in which the horizontal axis represents changes over a purchase and consumption process, but does not presume causality. Dissonance constructs arise only after the decision is made and in response to a number of factors.

It is important to note that the presentation of satisfaction models and dissonance models is not

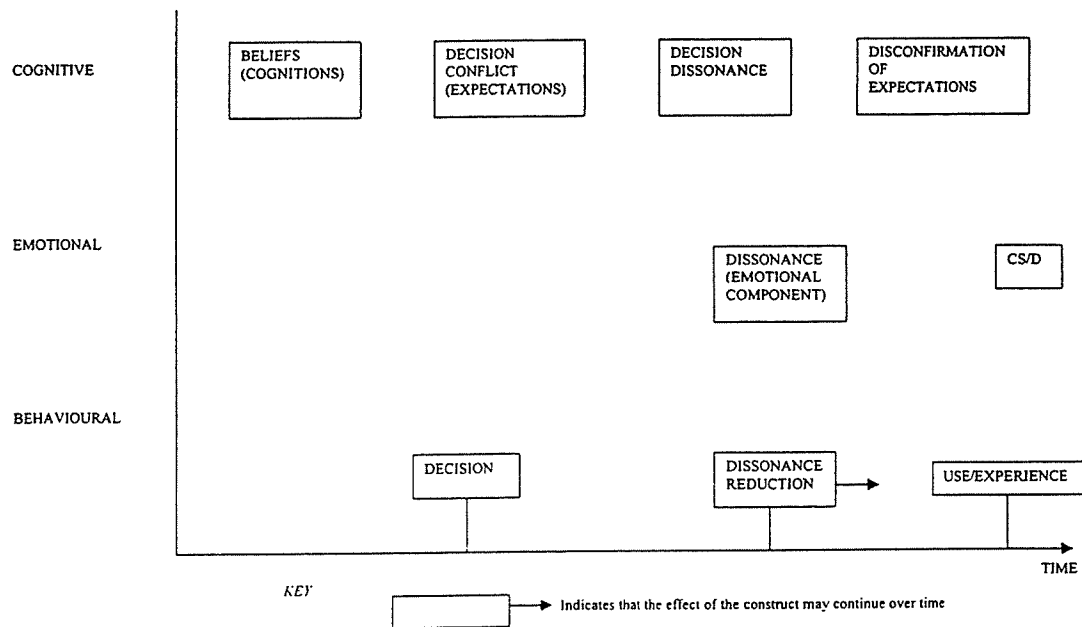
meant to pre-suppose that every purchase results in the arousal of either or both of these processes. For example, it has been argued that satisfaction and/or dissatisfaction may not arise in low involvement situations (Hausknecht 1988; Oliver 1997). Using Oliver's (1997, p. 13) concept of satisfaction as a fulfillment response, it is apparent that either the cognitive or emotional components may not be aroused in given situations.

Bell (1967) suggested long ago that some individuals simply may not experience dissonance. The literature has established well the *necessary* conditions for dissonance arousal (Oliver 1997); although there is some confusion caused by mixing paradigms (i.e., forced compliance versus free choice). A physiological state, arousal, has been suggested as another necessary condition (Elliot and Devine 1994), but no one has demonstrated *sufficient* conditions to force the process. The forced compliance paradigm has been used most often in dissonance studies to ensure having something to measure, but has been assailed as not likely, or even rare, in consumption situations (Cummings and Venkatesan, 1976; Oliver 1997).

The previously mentioned controversy as to the treatment of dissonance as cognitive or emotional is similar to that which exists in the attitude literature between proponents of the tripartite attitude model and those who favor the attitude-as-affect version. To clarify the nature of the constructs, the present model introduces distinctions over time and separates cognitive from emotional concepts. The first of these, decision conflict, is not usually presented as part of the consumer decision process. Davidson and Kiesler (1964) cited Festinger's distinction between decision conflict, a pre-decision concept, and dissonance, a post-decision concept. The same authors also present a contrary view, "Janis (1959) on the other hand, thinking in terms of 'conflict resolution', implied that there is little or no distinction between pre- and post-decision behavior and that systematic re-evaluation occurs both before and after the decision" (Davidson and Kiesler 1964, p. 10). Even if the two concepts are similar structurally, they are divided in time by the act (behavior) of having made a decision. In any case, they describe decision conflict as a cognitive imbalance that is resolved by the decision.

Whatever the relationship of dissonance with

**Figure 1**  
**Temporal Relations Among Dissonance Concepts**



pre-decision variables may be, there is consensus that beliefs that are inconsistent with a decision may persist after a purchase. For clarity of exposition, Figure 1 labels this 'decision dissonance'. If decision conflict exists up to the moment of decision, it is decision dissonance that follows immediately. Insko and Schopler (1972, p. 109) reasoned similarly, suggesting that "dissonance is thus postdecisional conflict." Further, they suggested that there may be a "spreading" of the evaluation of the decision alternatives as part of the conflict or the dissonance. Oshikawa (1972, p. 65) agreed with the temporal positioning of dissonance but labeled it as only, "an intervening variable; ... after a decision is made and before attempts at dissonance reduction."

More substantially, this period in a decision process has been characterized as representing a change in confidence (Knox and Inkster 1968), a motivation to solve a puzzle regarding one's own behavior (Greenwald and Ronis 1978) or a wonder about the wisdom of the decision (Lowe and

Steiner 1968). All of these concepts appear to be devoid of feeling, evaluation, or emotion. Thus, decision dissonance appears to be the same kind of mental entity as cognitions and decision conflict.

Cognitive dissonance is most commonly defined as psychological discomfort (Carlsmith and Aronson 1963; Elliot and Devine 1994; Festinger 1957), a psychologically uncomfortable state (Menasco and Hawkins 1978), linked with anxiety and uncertainty or doubt (Montgomery and Barnes 1993; Mowen 1995; Oshikawa 1972) or synonymous with the regret or remorse reported in salespeople's anecdotes (Insko and Schopler 1972; Mowen 1995). Thus, the forty-year history of the literature appears to have created a theoretical oxymoron in which an essentially emotional construct bears the burden of "cognitive" in its name. Nevertheless, "to date, there have been no systematic attempts to directly empirically validate the psychological discomfort component of dissonance" (Elliot and Devine 1994, p. 383). The emotional aspect of dissonance, representing the psychological discomfort

described above, is termed "dissonance - emotional component" in Figure 1. Subsequent to the arousal of cognitive dissonance, dissonance reduction behaviors may arise and these have often been used as surrogate measures for dissonance in prior work. Finally, satisfaction is assessed post-purchase and post-use, when performance is compared to expectations. Satisfaction has been described as an affective (emotion) state or feeling reaction, in which the consumer's needs, desires and expectations during the course of the consumption experience have been met or exceeded (Oliver, 1989). Dissonance, should it be induced, is critical to the formation of satisfaction, in that dissonance reduction is a necessary condition for satisfaction to occur (Oliver, 1997).

Based on the foregoing definitions and distinctions, this paper seeks to identify measures that can be used to measure cognitive dissonance discreetly from its related constructs. In the next section, prior measures are reviewed briefly and the first steps are taken to identify candidate items for a final measure.

### MEASURES

As is so often true in the consumer behavior literature, inconsistencies in construct definition and measurement go hand in hand. A variety of techniques have been used to measure dissonance and these are not always consistent with the definition asserted by the researcher(s). One way to view these measures is along the same cognitive versus emotional versus behavioral dimensions used previously for CS/D measures (Hausknecht 1990). These dimensions were used for the purposes of the present study, which considers dissonance as occurring post-purchase, to disentangle the concept as follows:

**Cognitive Construct** - a person's recognition that beliefs which are inconsistent with a decision exist after the purchase has been made

**Emotional Construct** - a person's psychological discomfort subsequent to the purchase decision

**Behavioral Construct** - a person's actions that

serve to confirm a decision or reduce tension

These classifications approximate the concepts of decision dissonance, dissonance (emotional component), and dissonance reduction described above. The first two classifications also correspond to the antecedents of dissonance and psychological aspects of dissonance itself described by Oliver (1997).

Some examples of these measures from the existing literature are:

#### Cognitive measures

a. To what extent do you wonder whether or not you made the right decision?  
Would most people expect to get the same kind of deal you got?  
(Bell 1967)

b. I feel that I will be happy with the purchase I have just made.  
I'm sure that I'll be pleased with the way this product performs.  
I'm confident that I've made the "right" choice when I purchased this product.  
(Montgomery and Barnes 1993)

c. I should have spent more time shopping.  
It was difficult to decide which brand to buy.  
(Menasco and Hawkins 1978; Sweeney, Soutar and Johnson 1996)

d. Differences in the valuation (cognition) of chosen versus unchosen alternatives.  
(Gilovich, Medvec and Chen 1995)

#### Emotional measures include:

a. I am comfortable/uneasy with the purchase decision I've just made.  
(Montgomery and Barnes 1993)

b. Measures of anxiety  
(Bell 1967; Hunt 1970)

c. How do you feel right now?  
(Uncomfortable, uneasy, bothered)

(Elliot and Devine 1994)

d. Similar to c above, but with the addition of anxious, tense, apprehensive. (Oliver 1997)

Behavioral measures include:

a. All of the attempts to measure or record behaviors thought to "reduce dissonance."

b. Behavioral intent scales, e.g.,  
I'll probably talk to my friends or family to ask them if they think I've made a wise choice with my purchase.  
I would probably pick up a copy of Consumer Reports to make sure the product or brand I just bought received high ratings.  
(Montgomery and Barnes 1993)

Most researchers admit that the behavioral measures are, at best, indirect measures of dissonance. Under its earlier conceptualization, many were concerned about being able to measure the construct directly (e.g., Menasco and Hawkins 1978; Oshikawa 1972). In the mid 1970's, Cummings and Venkatesan (1976, p. 304) argued for a "theoretically relevant and unambiguous measure of magnitude of dissonance." By necessity, this should be as direct a measure as possible. The effort by Elliot and Devine (1994) is instructive, but not directly on point. Their experiments were grounded strictly in the forced compliance paradigm (students writing counter-attitudinal essays) and the conclusions reached are of dubious relevance to consumption situations. A scale of cognitive dissonance within the free-choice paradigm was developed by Montgomery and Barnes (1993, p. 206), who defined the domain of cognitive dissonance as "those feelings attitudes and emotions that consumers have or display when they experience dissonance and the situations and conditions in which dissonance has occurred." Thus, by definition, they included emotions as outward evidence of dissonance (e.g. "dissonant consumers often display anxiety", or "dissonant consumers may experience low levels of satisfaction"). This is not necessarily dissonance

itself. In addition, they included "support" in their measure, stating that "dissonant consumers need reassurance that a wise purchasing decision has been made" (Montgomery and Barnes 1993, p. 206-7). The latter is a method of dissonance reduction, in contrast to dissonance itself. Further, items used in their 16 item scale were derived from the marketing literature, rather than from consumers relating dissonance experiences. While the Montgomery and Barnes (1993) scale is a meritorious attempt to clarify this elusive construct, the present research generates measures of dissonance from consumers' thoughts and feelings following a difficult decision. Emotional and cognitive components of dissonance only will be pursued in the present study due to the inappropriateness of behavioral measures, as already discussed.

#### METHOD FOR DEVELOPING A MEASURE OF COGNITIVE DISSONANCE

For the present study, we turned to consumers to generate descriptions of thoughts and feelings at the time of a purchase decision. As Churchill (1979) has noted, this is best achieved through exploratory designs. A combination of such designs was used to elicit the items, which are to be purified in later stages.

Four focus groups were held with consumers in a large metropolitan area in Western Australia. Two sessions were conducted using typical focus group procedures while two used an emerging computerized technique that has been labeled Group Support Systems or GSS (for a full description of this approach see, Soutar, Whiteley and Callan 1996). A total of 34 consumers participated, none in more than one session. Participants were recruited by a professional marketing research firm and were paid a modest honorarium.

The questions used and scenarios given were similar across all groups. Each participant was asked at the start of each session to identify a recent important purchase decision that involved a difficult choice (which may have been among two or more close alternatives). Products selected by respondents varied from expensive shoes to cars and blocks of land. Once each decision was identified, some discussion of the incidents ensued

to clarify the items purchased, other options considered, the duration of the decision process, the recency of decision and the like. The elicitation of thoughts, feelings and impressions that occurred immediately after the decision was the crucial part of the interviews and were used in deriving an understanding of dissonance and in generating dissonance items.

## RESULTS

The transcripts of the group sessions were submitted to two independent judges (postgraduate students studying consumer behavior) in order to distinguish between key themes and elaboration on these themes. Each judge identified and classified statements as "Main Ideas" or "Subordinate Ideas" with respect to the description of cognitive and emotional components of dissonance given in an earlier section (see Horowitz and Newman 1964 for elaboration of these idea categories). Judge one identified a total of 208 main ideas and 50 subordinate ideas, while judge two identified 146 and 67 ideas, respectively.

For the present exploratory study, agreements and discrepancies between the judges were deemed irrelevant. The goal was to identify a wide and deep pool of items to be considered as potential measures of a construct. Perfect agreement was neither necessary, nor particularly desirable.

The authors edited the phrases generated by the focus groups so that they would serve as suitable measurement scale items and to eliminate redundant measures. The introductory phrase, "After I had made the decision I...", was added to make the scale as general purpose as possible. This gave some context to the items without making them situation-specific.

Items were classified into the two categories of interest - emotional and cognitive. Definitions given to judges were as discussed in the section on measures. Twelve consumer behavior experts at universities in Australia and the United States evaluated the total pool of items. Each judge was asked to rate each item on the two dimensions (i.e., emotional and cognitive). A rating scale of 0 (Not representative of construct), to 4 (Clearly representative of construct) was used to determine which of these aspects of dissonance each item tapped (after Zaichkowsky 1985).

The goal at this stage of the process was to identify items that were clearly representative of only one dimension of the construct. Analysis of variance and Duncan's multiple range tests were used to select such items. Items with high mean scores on only one dimension, which were significantly higher than the means on the other two dimensions ( $\alpha = .01$  or better) were retained for the final scale. The final list of items, presented in Table 1, included 42 cognitive and 39 emotional measures. Emotional items covered a wide spectrum, including anger, annoyance, embarrassment, guilt, depression, frustration and unhappiness. Many of these (e.g., angry, annoyed, frustrated, depressed) represent the negative end of the pleasure dimension in the psychological space of consumption emotion discussed by Bush (1973) and Russell (1980). Some items also represent the higher end of Bush's aggression dimension (angry, furious with myself), as well as the higher end of Bush's and Russell's arousal dimension (excited, angry, annoyed). Interestingly, considering Plutchik's (1980) circumplex of emotions, in which eight basic emotions ranging from joy to anger are arranged in a ring, the emotional items representing dissonance in this study can be found in a specific segment representing a third of the circumplex area. This suggests some restrictions of the emotions that relate to dissonance.

Cognitive items, in contrast, relate to thoughts about the wisdom of the purchase decision which had taken place. The majority relate to self-attribution (e.g., thought I shouldn't have done it, wondered if I could have made a better buy), although a few concern the sales staff in the shop (e.g., I wondered if they were spinning me a line).

## DISCUSSION

While we wished to develop a general scale to measure cognitive and emotional concepts of dissonance in a variety of situations, we recognize the problems encountered by others who have created scales that were later interpreted as more general than originally intended (e.g., Zaichkowsky 1985). Further steps in the process will circumscribe the domain intended for the measure. At this point, the pronoun is singular (I) and many statements refer to the "purchase" of a "product." These may be limiting features but are

**Table 1**  
**Measurement Items Retained after Judging**

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**“ After I had made the decision I...”**

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**Emotional Concepts**

Felt anguished	Felt anxious
Felt deflated	Felt apprehensive about it
Felt depressed	Felt disappointed
Felt despair	Felt disappointed with myself
Felt dumb	Felt excited
Felt embarrassed	Felt extremely emotional
Felt guilty	Felt fed up
Felt hollow	Felt frightened
Felt I'd let myself down	Felt frustrated
Felt ill	Felt furious with myself
Felt like a complete idiot	Felt in agony
Felt manipulated	Felt not happy with my choice
Felt pain	Felt nervous
Felt queasy	Felt scared
Felt regret	Felt uneasy
Felt sick	Felt unhappy
Felt wary	Felt worried
Resented it	Wasn't really happy with that choice
Was angry	Worried about how I would pay for it
Was annoyed	

**Cognitive Concepts**

Didn't know if I had found the one I wanted	Wondered if I had done the right thing
Expected good performance	Wondered if I had asked the right questions
Had in the back of my mind, "I just don't know"	Wondered if I had made the best choice
Hoped the positive things outweighed the negative	Wondered if I had made the right choice
Knew I didn't want to buy a lemon	Wondered if I really needed it
Realized I might prefer the other choice	Wondered if I should have chosen this one
Realized I didn't need it	Wondered if I should have kept on looking
Remembered another one was cheaper	Wondered if I should have kept the old one
Thought about what others would think	Wondered if I should have negotiated better
Thought I shouldn't have done it	Wondered if I should have spent less
Thought I should have spent more time shopping around	Wondered if I should have spent more
Thought I wasted money	Wondered if I should have spent the money on something else
Thought maybe I'd made the wrong decision	Wondered if it would look strange with my other things
Thought this was too good to be true	Wondered if they were spinning me a line
Was not sure if this is the one I wanted	Wondered if this was a con job
Was thinking about it afterwards	Wondered what other choices are out there
Wondered how long it would last	Wondered whether I had got a lemon
Wondered if I could have made a better buy	Wondered whether I should have chosen anything at all
Wondered if I got a good deal	Wondered why I bought it
Wondered if I got good value for my money	Wondered why the salesperson pushed so hard
Wondered if I had asked all the questions	Wondered whether there was something wrong with the deal I got

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considered necessary for clarity. For example, dissonance theory is mute about the possibility of some kind of "shared dissonance" when the decision is made jointly. In fact, one dissonance

reduction strategy could be to find someone else to blame. The current measures, then, are designed to be part of an instrument that measures one person's individual responses to a typical product

choice decision.

This paper has used actual consumers to describe their experiences and feelings in their own words to generate measurement items. This represents the first step in Churchill's (1979) procedure for developing reliable and valid measures. However, tests of reliability and validity were not appropriate at this preliminary stage. The next stage, in line with Churchill's (1979) recommendations, is to return to the field to interview consumers immediately after they have made a purchase. Some of these people will have met the prerequisites for dissonance arousal, some will not. The measurement items will need to distinguish among the emotional and cognitive dimensions of dissonance when aroused, from situations in which no dissonance occurs. The intention is to develop a measurement instrument, which is rigorous, yet rooted in the vernacular. The instrument can be used to test relationships between dissonance and other constructs such as perceived value and satisfaction/ dissatisfaction in a variety of purchase situations.

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# MODELING THE IMPACT OF RETAIL STOCKOUTS: IMPLICATIONS FOR CUSTOMER SATISFACTION AND RETENTION

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## ABSTRACT

The cost of retail out of stock conditions extends beyond the immediate loss in sales revenue. The impact of stockout conditions is reflected in customer satisfaction, loyalty, and resulting shopping behaviors. A conceptual model is presented to describe customer shopping behaviors prompted by stockout conditions and how such conditions may affect customer satisfaction and loyalty toward the service provider.

## INTRODUCTION

A 1996 Andersen Consulting study "The Retail Problem of Out-of-Stock Merchandise" offered dramatic evidence of the continuing significance of inventory stockout problems discussed by Schary and Christopher in 1979. The Andersen study, conducted in the retail grocery industry, presented the following summary results:

8.2% of items in the categories studied were out of stock each day, 11% on Sundays,

15% of all advertised items were out of stock on a daily basis during promotions,

66% of lost sales due to out of stock positions involved items which contributed to the fastest moving 25% of items,

34% of the time that products were out of stock, consumers postponed their purchases or looked elsewhere,

46% of the sales dollars associated with out of stock items were lost,

\$7 to \$12 billion of sales was "up for grabs" each year because merchandise was out of stock on store shelves.

While it is apparent that the immediate impact of a retail stockout may include the loss of revenue because customers cannot make their intended

purchase and choose not to buy an alternative, the longer term implications for corporate performance include the potential reduction in customer patronage, loyalty, and associated future revenues, as well the threat that negative word of mouth may deter other current and potential customers from patronizing the retailer (Schary and Christopher 1979).

Since the Schary and Christopher article, sophisticated point-of-sale and information management systems have provided retailers with more effective mechanisms to estimate the immediate impact of stock related lost sales. The impact of out-of-stock positions on customer loyalty, retention, and word of mouth behavior, however, is more difficult to assess.

Little research has been conducted to evaluate the impact of retail stockouts on customer behavior (Emmelhainz, Stock, and Emmelhainz 1991). The topic is of concern to researchers and practitioners in logistics, retail management, and marketing. Each of these areas has focused on different issues related to stock out conditions.

Logistics literature has addressed planning and control issues important in determining statistically based stock objectives necessary to meet customer service goals (Ballou 1992), customer decisions and behaviors resulting from out of stock conditions (Walter and LaLonde 1975, Emmelhainz, Emmelhainz, and Stock 1991), and the assessment of the economic cost of lost sales due to stockout conditions (Walter and LaLonde 1975).

Retail literature has also investigated customer decision processes associated with stockout conditions (Emmelhainz, Stock, and Emmelhainz 1991, Schary and Christopher 1979) and incorporated stock selection into the assessment of retail customer service (Westbrook 1981). Yet with few exceptions (Schary and Christopher 1979), the implications of retail stockout conditions have been considered part of an aggregate retail service construct.

Marketing literature in consumer satisfaction and service quality has not addressed inventory stock availability unless it has been interpreted as a tangible attribute of service quality (Zeithaml,