POSTDIS: A SHORT RATING SCALE FOR MEASURING POST PURCHASE DISSONANCE

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ABSTRACT

This paper examines the methods and scales that have been developed to measure post purchase dissonance. Post purchase dissonance occurs when the buyer wonders if he or she made the correct decision. Dissonant consumers often display anxiety and uncertainty with purchase and need their decisions supported.The authors develop a 10 item post purchase dissonance scale (POSTDIS) and validate the scale by assessing content validity, predictive validity and construct validity. Coefficient alpha was used to assess scale reliability, exploratory alpha factoring and confirmatory factor analysis were used to assess construct validity. Scale reliability was .84 for the 10 item scale and .88 for a shorter 8 item version. Factor analysis revealed that two factors "correctness of the decision" and "support" accounted for 35% of the variance. Multiple regression was used to assess predictive validity. Predictors of dissonance included consumer's self confidence, stores visited, purchase expectations, frequency of purchase and how easily the consumer was persuaded by salespeople. The most important predictor was the consumer's self confidence level.

INTRODUCTION

One of the more intriguing areas of consumer purchase decisions involves post purchase phenomena such as consumer dissonance. Dissonance, sometimes confused with consumer dissatisfaction, is defined as the situation which exists when consumers who have made recent purchases have doubts about the wisdom of their decisions (Engel 1963). Consumer dissatisfaction, on the other hand, is the degree to which expectations are negatively confirmed (Tse, Nicosia and Wilton 1990). Dissonance may occur before the consumer has even used the product but feelings of dissatisfaction tend to occur only after the consumer has compared product performance with expectations. Consumer dissonance is often referred to as "buyer's remorse" or post purchase dissonance (Bell 1967).

It can occur after important and difficult decisions have been made, after being easily persuaded (Bell 1967), after being coerced to do or say something contrary to one's beliefs, attitudes and opinions and after being exposed to discrepant information (Oshikawa 1969). Post purchase dissonance is often affected by the number of alternatives considered (Holloway 1967) and price (e.g. more expensive items may tend to increase dissonance) (Oshikawa 1970). Consumers often make attempts to reduce dissonance by either returning products or selecting information that supports and reinforces their decisions (Holloway 1967; Rosenfeld, Kennedy and Giacalone 1986).

Importance of Post Purchase Dissonance

Numerous applications have been developed with respect to consumer behavior since Festinger (1957) first introduced the theory of cognitive dissonance. However, since the late 1970's and early 1980's most researchers have turned their attention to other post purchase phenomena such as satisfaction/dissatisfaction (LaBarbara and Mazursky 1983; Ross and Oliver 1984; Hunt 1991), complaint behavior (Bearden and Teel 1983, Resnick and Harmon 1983; Hunt 1991), and negative word-of-mouth (Richins 1983). Very little research has been conducted with post purchase dissonance since that time as marketers have focused their attention on other theories that may better explain consumer behavior.

Why then is it important to develop a measure of dissonance? It is important for a variety of reasons. First, psychology and other disciplines continue to view dissonance as a worthwhile and viable topic. Since 1983, over 275 journal articles with dissonance theory as a central topic area have been published. Obviously, psychology has not abandoned dissonance theory. Marketers continue to do research on related topics such as complaint behavior, dissatisfaction with purchase, and negative word of mouth. Second, the consequences of dissonance and dissatisfaction, such as negative word of mouth, consumers who

quit using the product, consumers who tell others of bad experiences and consumers who vow never to shop at a store again (Hunt 1991), may be important. Clearly, post purchase responses are important enough to warrant continued research. Third, since no validated measures of dissonance exist the results of many past studies may be in doubt. Many of these empirical studies may have been carried out with questionable and perhaps unreliable measures. Finally, post purchase dissonance may be the first step that eventually leads to dissatisfaction with purchase. For these reasons, it is important to be able to measure post purchase dissonance with some degree of confidence.

The purpose of this paper is to develop and validate a measurement scale that will capture the consumer's post purchase dissonance accurately and reliably. This scale will be general in nature and thus should possess a wide range of marketing applications. Past attempts at measurement will be examined, and the future of post purchase dissonance and its relationship to marketing phenomena will be discussed.

Attempts at Measurement

Bell (1967) first attempted to develop a dissonance measure in a study of 234 new car buyers. He conducted personal interviews within a week of purchase and attempted to measure post purchase dissonance by asking consumers such questions about their purchase as "Did you make the right decision ?" No attempts to validate Bell's scale were reported.

Hunt (1970) later developed a measure of post purchase dissonance. His measure included such questions as "Did you buy the right brand?" and "Did you shop at the right store?" Hunt used a measure of post transaction anxiety to indicate the level of dissonance experienced by consumers. Hunt used a sample of 153 department store customers, who were interviewed in their homes shortly after purchase. No validation attempts were reported with Hunt's scale.

Menasco and Hawkins (1978) also developed a scale to measure post purchase dissonance by conducting interviews within a week with 73 consumers who had just purchased major appliances. Typical items included statements such as, "I feel calm" and "I feel tense". Questions concerning the number of stores visited before purchase were asked as well. They found a high correlation between decision difficulty and anxiety and concluded that post purchase dissonance was a form of anxiety.

Korgaonkar and Moschis (1982) used a four item scale to measure post purchase dissonance with a sample of 22 college students who were asked to evaluate a radio and a soft drink they had just purchased. These authors designed four items to measure specific dimensions of post purchase dissonance; uncertainty, tendency to avoid negative information about the product purchased, tendency to defend one's decision and the tendency to collect positive information. Responses were measured on two point scales and scale reliability was .63 (coefficient alpha). No other validation attempts were reported.

Problems with Measurement

Problems have been encountered when trying to measure dissonance. Many researchers have voiced concerns over the lack of validated measures of dissonance (Hunt 1970), and the validity of measures being used that claimed to measure dissonance (Hawkins 1972; Bell 1967; Oshikawa 1972). Some researchers noted that at least two different measures of dissonance were being used; one scale to measure the consumer's sensitivity to new information and the other to measure the way this information was being evaluated (Straits 1964).

Many researchers have measured variables other than dissonance (Oshikawa 1972; Straits 1964). Oshikawa (1972) also noted that 1) dissonance occurs after purchase but before attempts to reduce it have begun, and 2) when researchers simply ask consumers how dissonant they feel, this may not produce a valid measure because some consumers exaggerate their feelings while others downplay theirs. Straits (1964) suggested that many researchers were not actually measuring dissonance, but the consumer's attempts to reduce dissonance. Similarly, Hawkins (1972) noted that Bell's (1967) scale measured overall anxiety rather than temporary anxiety that occurs after purchase.

Better measures of dissonance are needed.

The use of dissonance in marketing can be greatly enhanced by employing more direct measures of dissonance (Menasco and Hawkins 1978). Until relevant and unambiguous measures of dissonance are developed, the results of studies involving post purchase dissonance may be in doubt.

DEVELOPMENT OF POSTDIS

To develop and validate better marketing measures, researchers should first specify the domain of the construct (Churchill 1979). In this case, the domain is identified 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. These feelings, attitudes, emotions, situations and conditions were identified by a literature review.

The next step in developing a scale is to generate scale items that capture the domain of the construct (Churchill 1979). Consumers who experienced dissonance also displayed the following feelings, attitudes and emotions; dissatisfaction, anxiety, uncertainty, need for support, and forced compliance. The intent was to develop a set of items to tap dimensions that may exist for the underlying construct and to develop specific scale items to reflect qualities that dissonant consumers display. (see Appendix I for POSTDIS items)

Expected Satisfaction

Previous researchers have found that consumers who expected to be satisfied with purchase experienced little dissonance (Swan and Combs 1976; Westbrook, Newman and Taylor 1978; Prakash and Lounsbury 1984; Harrison and James 1984). It is suggested in this paper that dissonant consumers may experience low levels of expected satisfaction with purchase, thus dissonance may, in fact, lead to eventual dissatisfaction with purchase. If consumers expect the product to perform well and expect to be pleased, they should encounter little dissonance (Hunt 1991). Items 1 and 2 reflect expected satisfaction with purchase and highly dissonant consumers should disagree with these items.

Anxiety

Other authors noted that dissonant consumers often display anxiety. Dissonance may be a type of anxiety that occurs when having to choose among several alternatives. It may be a special type of anxiety associated with purchase (Anderson 1973) which occurs a short time after purchase (Straits 1964; Hawkins 1972). Dissonance may be described as a form of temporary anxiety that affects consumers who have trouble making decisions (Menasco and Hawkins 1972). Bell (1967) measured dissonance as a form of anxiety, though other researchers suggested that he was actually measuring overall anxiety rather than the temporary anxiety that occurs with purchase (Oshikawa 1972). When consumers feel comfortable with their decisions, they should experience little dissonance (Knox and Inkster 1968). Item 3 and item 4 reflect purchase anxiety and highly dissonant consumers should disagree with item 3 and should agree with item 4.

Uncertainty

Other researchers note that dissonant consumers are uncertain (e.g. unsure) about product choices and decisions (Engel 1963; Straits 1964). Dissonance occurs when consumers have doubts about their choices. When consumers feel that they have made "correct" decisions they tend to experience little dissonance (Hunt 1970).

Less dissonant consumers may develop brand loyalty and may be less likely to engage in brand switching (Losciuto and Perloff 1967; Mittelstaedt 1969). More dissonant consumers may be more likely to return products and engage in brand switching (Hunt 1991). Less dissonant consumers often feel as though they got a good deal. Thus, brand loyalty may be a function of dissonance at purchase, since less dissonant consumers may be more likely to be repeat buyers with higher purchase intentions (Mittelstaedt 1969; Prakash and Lounsbury 1984). Items 5, 6, and 7 were generated to reflect uncertainty. Highly dissonant consumers should disagree with these items.

Support

Various researchers have noted that dissonant

consumers need reassurance (e.g. support) that a wise purchase decision has been made (Donnelly and Ivancevich 1970; Jacoby, Jaccard et al. 1987). Consumers are tempted to reduce dissonance by turning to family and friends to back up purchase decisions (Holloway 1967; Straits 1964; Oshikawa 1970). Personal influence is usually more effective than media in reducing dissonance (Straits 1964). Dissonant consumers can also derive needed support from advertising which can help consumers gain greater value from their purchases (Engel 1963). Advertisements help to reassure the wisdom of purchase by reemphasizing desirable features, and reinforcing the buying decision (Bell 1967; Oshikawa 1970). Items 9 and 10 reflect the tendency of consumers to turn to advertising and friends for support. Highly dissonant consumers should agree with these items.

Forced Compliance

Forced compliance may occur when consumers are forced to purchase products they don't really need (Holloway 1967), when consumers are constrained by their budgets or by the unavailability of items (Cummings and Venkatesan 1976), when they feel that they have been too easily persuaded by aggressive salespeople or coerced in buying products they really didn't want (Bell 1967; Oshikawa 1969), when consumers select products which are inappropriate for their needs (Kaish 1967), and when a wide variety of alternatives are not available to choose from. When consumers experience forced compliance increased dissonance occurs since it makes consumers choose brands perceived as inferior to desired brands (Oshikawa 1969). Item 8 reflects forced compliance and highly dissonant consumers should disagree with it.

SAMPLE, RESEARCH DESIGN AND DATA COLLECTION

The initial POSTDIS instrument contained 16 statements that purchasers and consumers were asked to either agree or disagree with. A 5-point Likert scale was used with 1 = strongly disagree and 5 = strongly agree. The purchasers in the study were told that the study was measuring attitudes about shopping so that the subjects would not guess the purpose of the study. Demand characteristics may reduce the validity of experiments if subjects are able to guess the purpose of the study (Sawyer 1975).

Consumers were instructed to consider the most expensive item just purchased (if several items were purchased). More expensive items should give a better indication of dissonance (Oshikawa 1970). The type of product was not considered as we wanted to develop a general scale that would have a wider range of applications.

Predictors of Dissonance and Research Hypotheses

Page two of the survey contained nine questions regarding shopping habits that should be able to predict dissonance. Information such as alternative brands considered,number of stores visited, frequency of purchase, importance of purchase, consumer's self confidence, ability to be persuaded by salespeople, and cost of the item was included. A literature review revealed that these should be predictors of dissonance. (for survey questions, factor loadings and item to total correlation see Appendix I)

Alternative brands. Several authors found that post purchase dissonance and anxiety might be increased by the number of alternative brands available and the attractiveness of those alternatives (Straits 1964; Holloway 1967; Kaish 1967; Menasco and Hawkins 1978; Harrison et al. 1984). The more alternative brands considered before purchase increased the level of post purchase dissonance for consumers (Straits 1964; Oshikawa 1969). When consumers consider a large number of alternative brands, they are more likely to read advertisements after purchase (Oshikawa 1969). Two items, 11 and 17, reflect the number of alternative brands considered. From the discussion above, the following hypothesis was formulated;

H1: The greater the number of alternative brands considered, the higher the level of post purchase dissonance that will occur.

Stores visited. The number of stores visited prior to purchase is an important predictor of

dissonance (Hunt 1970; Menasco and Hawkins 1978). Consumers who experience greater difficulty in making purchase decisions and who consider a wider range of stores are more likely to experience dissonance (Menasco and Hawkins 1978). When consumers purchased products that involved shopping at several stores, such as durable shopping goods, more dissonance occurred (Kaish 1967). Two items, 12 and 16, were constructed to gather information about the number of stores visited prior to purchase. From this discussion the following hypothesis has been developed;

> H2: The greater number of stores visited prior to purchase, the higher the level of post purchase dissonance that will occur.

Frequency of purchase. Satisfied consumers should continue to purchase the same brands and products (Losciuto and Perloff 1967) and when products are purchased more frequently, such as convenience items, less dissonance should occur. Infrequently purchased items should create more dissonance (Kaish 1967; Oshikawa 1969; Oshikawa 1970; Hunt 1970). Yet, specialty goods, which are purchased less frequently, may cause more dissonance (Kaish 1967). Consumers experience little enjoyment and encounter more dissonance when purchasing consumer durable goods which are less frequently purchased. Item 13 was constructed to measure frequency of purchase. The following hypotheses has been developed;

> H3: The less frequently an item is purchased, the higher the level of post purchase dissonance that will occur.

Expectations. High product expectations may increase levels of post purchase dissonance if those products do not live up to expectations (Olshavsky and Miller 1972; Cummings and Venkatesan 1976; Oliver 1980; Folkes 1984; Harrison et al. 1984). Deviations from expectations may be caused by the degree a product meets, exceeds or falls short of expectations (Oliver 1980).

Expectations are beliefs the consumer may hold about the product (Olson and Dover 1979). When disconfirmation discredits these expectations, high pre-trial expectations or unconfirmed expectations can lead to psychological discomfort and dissonance (Anderson 1973; Olson and Dover 1979; Harrison et al. 1984). Unrealistic expectations may play an important role in creating dissonance (Anderson 1973). The discrepancy between expectations and performance can be minimized if consumers adjust their perceptions (Anderson 1973). When products fail to live up to unrealistic expectations, dissonance occurs (Woodruff, Cadotte and Jenkins 1983; Folkes 1984; Tse, Nicosia,and Wilton 1990). Item 14 was developed to reflect the expectations of the consumer. The following hypothesis was developed from the discussion above;

> H4: The more unrealistic expectations consumers have, the higher the level of post purchase dissonance that will occur.

Importance. When consumers make important product decisions more dissonance should occur (Straits 1964; Oshikawa 1970; Oliver and Bearden 1987; Holloway 1967). Consumers do not encounter much dissonance with unimportant decisions or purchases. When consumers purchase relatively unimportant convenience goods very little dissonance occurs, but with more important specialty and shopping goods dissonance is more pronounced (Kaish 1967). Item 15 was constructed to reflect the importance of purchase. The following hypothesis has been developed;

> H5: The more important the product that is purchased, the higher the level of post purchase dissonance that will occur.

Self Confidence. The self confidence that consumers place in their decision making abilities can be predictive of dissonance (Bell 1967). Highly confident consumers are hard to influence and have more faith in their decisions while consumers with less self confidence are easily persuaded and some doubt the wisdom of their decisions (Bell 1967). Consumers with higher levels of self confidence in their decision making abilities and greater levels of commitment to their decisions generally have been found to experience lower levels of dissonance and greater satisfaction with purchase (Bell 1967; Cohen and Goldberg 1970; Westbrook 1980). Item 18 was constructed

to reflect the consumer's self confidence. The following hypothesis has been developed from the above discussion;

> H6: The greater the level of self confidence, the higher the level of post purchase dissonance that will occur.

Persuasion by salespeople. Consumers who are very easily persuaded by salespeople tend to encounter less dissonance (Bell 1967). However, dissonance may occur if purchasers feel they have been overly persuaded or if they felt coerced to purchase products they may not have really wanted (Oshikawa 1969). Consumers may encounter post purchase dissonance if they feel the salesperson forced them to purchase a less than desired product. Item 19 was developed to reflect how easily the consumer was influenced by salespeople. The following hypothesis was developed as well;

> H7: The more easily persuaded by salespeople, the higher the level of post purchase dissonance that will occur.

Cost of purchase. Unusual, expensive and less frequently purchased items should create higher levels of dissonance for the consumer (Engel 1965; Oshikawa 1969; Oshikawa 1970). Dissonance is greater for durable shopping goods and specialty goods than for inexpensive convenience items (Kaish 1967). Item 20 was designed to measure the cost of purchase. The following hypothesis was developed from the discussion above;

> H8: The more expensive the item when purchased, the higher the level of post purchase dissonance that will occur.

Design and Sample

The study took place in a shopping mall in a small southeastern college town where college students made up fifty per cent of the population. 623 shoppers, mostly either students or housewives, were interviewed over a period of several weekends. The shoppers were stopped as they had exited a large discount department store and were asked if they would answer a few questions about their recent purchase. We chose to interview shoppers immediately after purchase rather than wait a week or so. Although it may be debatable as to whether this approach offers a better indication of dissonance, after a week consumers might actually experience dissatisfaction with purchase rather than dissonance. Face to face mall intercept surveys are often very effective in collecting sensitive information, are easier to conduct and the answers of respondents tend to be less distorted than those collected by other methods such as telephone surveys or personal interviews conducted within the home (Bush and Hair 1985).

Each shopper was read the instructions, statements and questions on the survey by an interviewer and responded to each question as the interviewer asked it. The responses were marked and coded by the interviewer. Interviewers should get more complete, serious, and honest responses this way (Aronson and Carlsmith 1968). This method is often preferred to simply letting the respondent fill-in the questionnaire by himself or herself (Aronson and Carlsmith 1968). This way the interviewer was able to make sure that every question was answered and no items were left unanswered.

No attempt to measure whether the sample was composed of primarily students or housewives but Sheth (1970) noted that few differences exist in the answers between students and housewives when attempting to measure the dissonance that occurs with purchase. The Kaiser-Meyer-Olkin measure of sampling adequacy was .88299 and was judged to be adequate. This was strictly a convenience sample and it is difficult to determine how representative the sample is of consumers in general.

Ten surveys were unusable due to either incomplete information or invalid consistency errors (Hulbert and Lehman 1975). Therefore 613 surveys made up the final sample. Five items were negatively stated, were reverse scored and a total score was obtained for each respondent.

ASSESSMENT OF SCALE VALIDITY

Several components of construct validity were examined including reliability, convergent validity, and discriminant validity (Peter 1981). Content validity was also examined (Messick 1975).

Reliability was assessed through a measure of internal consistency and coefficient alpha, and multiple regression was used to assess predictive validity. Both exploratory alpha and confirmatory factor analysis were used to assess construct validity.

Content Validity

A pool of 20 items was submitted to a panel of expert judges including doctoral students in marketing and several marketing professors to assess content validity (Green and Tull 1978). The items were checked for ambiguity, clarity, triviality and sensible construction and four items were deleted that seemed vague, ambiguous or unclear. One hundred per cent of the judges were in agreement that the remaining 16 items were representative of post purchase dissonance.

Face validity asks "does the scale measure the construct in question?" (Nunnally 1978) To assess face validity, an informal exit survey was conducted where shoppers were asked what they thought POSTDIS was measuring. This question was asked after the respondents had completed the survey. Most responses were concerned with satisfaction with purchase and since laymen should be unfamiliar with the term dissonance, evidence of face validity was present.

Exploratory Alpha Factor Analysis

Exploratory alpha factor analysis was used to assess construct validity and whether the number of dimensions conceptualized could be confirmed empirically (Churchill 1979). Factor analysis is also a useful tool for reducing a large number of items into a more manageable set (Gerbing and Anderson 1986). Alpha factoring was used to factor the overall set of items and to construct subscales based on factor loadings. The factors were formed by assigning items to the same factor that loaded highly on that factor but low or not at all on others (Gerbing and Anderson 1986). A varimax rotation procedure was used and SPSSX utilized which yielded 2 factors that accounted for 34.6% of the variance. Refer to table 1 and Appendix I for a summary of the results.

The first factor, "correctness" had an eigen value of 4.51 and explained 28.2% of the variance. This factor consisted of 8 items: V1 to V8. These items were concerned with expected satisfaction, purchase anxiety and uncertainty. Factor loadings ranged from .82 to .50. The second factor, "support", explained 6.5% of the variance and had an eigen value of 1.036. These items were concerned with support received from family, friends and advertisements. These included items V9 and V10 which had factor loadings of .56 and .38, respectively.

Table 1
Results of Exploratory Alpha Factor Analysis

factor	eigen value	% variance	cumulative %
1	4.51	28.2	28.2
2	1.04	6.5	34.6

Discussion. Only two factors with eigen values higher than one were found. Previous researchers had hypothesized there might be four dimensions of dissonance (see Korgaonkar and Moschis 1982); uncertainty, avoidance of negative information, collection of positive information, and defense of one's decision. Yet, Korgoanker and Moschis (1982) never confirmed their hypothesis since they did not factor analyze their scale. In addition, 1) their method of scale construction was questionable (they used 1 item scales to measure each dimension), 2) if they had conducted a factor analysis of 4 items it seems highly unlikely that four separate dimension would have been found; most of their items seemed to measure one dimension, "uncertainty".

In analyzing the results of the factor analysis, it is suggested that strong consideration be given to deletion of factor 2 "support" for several reasons; 1) this may be viewed by some as an attempt to reduce dissonance (Straits 1964), 2) the item to total correlations for this factor (.24 and .30) are marginal to poor, 3) factor loadings (.38 and .56) are not particularly strong, 4) the reliability of the subscale (.55) has the tendency to lower overall scale reliabilty from .88 to .84. Thus, researchers interested in a cleaner, more unidimensional scale should only consider using items v1 through v8.

Researchers even desirous of a smaller scale may consider items v1 to v5, which seem to measure how the consumer feels about the product

or buying experience, although the deletion of items v6 through v8, which seem to measure expected and perceived performance, actually lowers overall reliability from .88 to .87.

Evidence of construct validity exists since factor one contains emotions and feelings displayed by dissonant consumers; expected satisfaction, purchase anxiety and uncertainty and factor two contains need for support. However, our research indicates that post purchase dissonance is more of a bidimensional construct, though it may be considered unidimensional if the support factor, and the items in that factor, are removed.

Reliability of Measures

Coefficient alpha was the first measure of reliability to be calculated (Churchill 1979) and was used to assess internal consistency of the sixteen item scale (Peter 1979). Four items had low item to total correlations near zero and were deleted (Churchill 1979). These were items that produced a sudden drop in overall reliability and might not be drawn from the appropriate domain, thus producing error (see Appendix I for item to total correlations).

Two items that did not load on any factor were deleted from the original sixteen item POSTDIS instrument. Coefficient alpha was also calculated for each subscale of factors which emerged through alpha factoring (Churchill 1979). Subscale reliabilities ranged from .88 for subscale one for "correctness" to .55 for subscale "support". The final POSTDIS instrument contains 10 items and the reliability for the scale was .84 (standardized item alpha). Nunnally (1978) suggests that in the early stages of research reliability in the range of .5 or .6 is sufficient, thus reliability estimates in the .8 range should be highly acceptable.

Predictive Validity

Predictive validity is the degree to which predictors have been confirmed (Venkatraman and Grant 1986). We assessed the predictive validity of POSTDIS by including a section on the second page of the survey designed to obtain information about consumer shopping habits. The independent variables were ALTBRA, STORES, FREQ, EXPECT, IMPORT, STOR1, BRAND1, CONF, SALES, and EXPEN. Each independent variable or predictor was regressed on the dependent variable, post purchase dissonance and multiple regression was performed using the stepwise procedure with SPSSX.

Since multiple regression is particularly sensitive to multicollinearity, a zero order correlation matrix was constructed. Each independent variable was regressed on one another and any high possible correlations between variables were noted. No evidence of multicollinearity was present.

Results of Multiple Regression. Self confidence (CONF) entered the equation first. R^2 with confidence in the equation was .127. Confidence was a significant predictor of dissonance with $p < .0001$, df (1, 612) and $F = 88.67$. Hypothesis 6 was supported. Individuals who had more self confidence encountered less dissonance. CONF was the most important predictor of post purchase dissonance with a beta value of .356.

The number of stores visited (STORES), entered the equation next on the second step and was the next most important predictor with a beta value of -.208. R^2 increased to .169 and STORES was a significant predictor of dissonance with $p < .0001$, df (2, 611) and $F = 62.44$. Consumers who shopped at more stores had higher levels of dissonance and hypothesis 2 was confirmed.

Purchase expectations, EXPECT, entered the equation third. The addition of EXPECT to the equation increased R^2 to .195. EXPECT was a significant predictor of dissonance with $p < .0001$, df (3, 610) and $F = 49.12$. The beta value for EXPECT was .17. However, consumers with higher expectations had lower levels of dissonance, thus hypothesis 4 was not supported. This may be because these consumers did not consider their expectations to be unrealistically high.

The fourth variable to enter the equation was FREQ. The addition of this variable increased R^2 to .202. FREQ was a significant predictor of dissonance with $p < .05$, df (4, 609), and $F = 38.43$. The beta value for FREQ was -.0865 and hypothesis 3 was supported. Consumers who purchased items more frequently had lower levels of dissonance.

SALES or the ease with which a consumer is

persuaded by salespeople entered last. With SALES in the equation, R^2 increased to .208. SALES was a significant predictor of post purchase dissonance with F = 32.00 significant at $p < .05$, df (5, 608). The beta for SALES was -.086 and hypothesis 7 was supported. Consumers who were easily persuaded by salespeople experienced lower levels of dissonance. The results of stepwise regression are summarized in table 2.

Table 2
Results of Stepwise Multiple Regression

step	variable	beta	F	df	R^2
1	CONF	+.356	88.67	1,612	.127
2	STORES	-.210	62.44	2,611	.170
3	EXPECT	+.169	49.12	3,610	.195
4	FREQ	-.086	38.43	4,609	.202
5	SALES	-.086	32.00	5,608	.208

R^2 for entire regression equation = .208

Hypothesis 1, which stated that the number of alternative brands considered would increase dissonance, Hypothesis 5, which stated that more important purchases would lead to more dissonance, and Hypothesis 8, which stated that consumers who purchased more expensive items should encounter more dissonance, were not supported.

This is may be explained by looking at the type of store where the items were purchased. The store carried discount price, medium quality products that were similar in nature. Most items purchased from the discount chain store could be thought of as relatively unimportant in nature and were under $100 in price. There was probably not enough variance with alternative brands, importance and price due to store type. However, since four variables were significant predictors of dissonance, the scale demonstrates some degree of predictive validity.

Construct Validity and Confirmatory Factor Analysis

In order to assess construct validity, convergent and discriminant validity were examined (Messick 1975; Cohen 1979; Peter 1981). High internal consistency estimates also provide a necessary but not sufficient condition for construct validity (Peter 1981). Construct validation procedures are among the most difficult and controversial of all procedures (Gomez-Mejia 1986).

Convergent Validity. Convergent validity was examined by confirmatory factor analysis (Gomez-Mejia 1986; Wilson 1988). Schmidtt, Coyle and Saari (1977) felt that of the six methods used to assess construct validity, path analytic procedures (e.g. confirmatory factor analysis) yielded the most information and was the easiest to understand. When a one dimensional factor structure exists, how well the items summarize this factor can be examined by confirmatory factor analysis (Wilson 1988). The construct validity of POSTDIS was assessed by the unidimensionality of each subscale tested by LISREL. Each subscale was fitted to a one factor LISREL model with one loading. An acceptable level of fit or AGFI (adjusted goodness of fit) should be about .90 and the root mean square residual should be .10 or less (Bentler and Bonnett 1980). If items load moderately well on one factor, then some degree of convergent validity should be present. Factor loadings of less than .30 or .20 would be considered unreliable (Gomez-Mejia 1986).

For the first factor, "correctness ", the squared multiple correlations ranged from .215 to .72 for 8 items. The coefficient of determination was .91, goodness of fit .94, adjusted goodness of fit .90 and the root mean square residual was .05. Chi square with 27 df of freedom was 143.92 ($p < .000$). Factor one has a high degree of convergent validity. The second factor, "support", contained 2 items. The squared multiple correlations ranged from .32 to .36. The coefficient of determination was .56. Factor loadings were less than desirable, thus indicating again that dissonance may be more of a unidimensional construct. The results of confirmatory factor analysis are summarized in table 3.

Discriminant Validity

Discriminant validity was much harder to measure and assess. Since two different factors emerged through exploratory alpha factoring, this

Table 3
Confirmatory Factor Analysis

Factor 1 - "Correctness"

item number	squared multiple correlation
v1	.69
v2	.72
v3	.69
v4	.25
v5	.56
v6	.22
v7	.27
v8	.28

coefficient of determination = .91
adjusted goodness of fit = .90
root mean square residual = .05
chi square with 27 degrees of freedom = 143.92 ($p < .000$)

Factor 2 - " Support"

item number	squared multiple correlation
v9	.36
v10	.32

coefficient of determination = .56

suggests some discriminant validity. The multi method multi trait measure (Campbell and Fiske 1959), which is one of the best methods available to assess discriminant validity, was not employed for time limitations but a variation of that method was used where zero order correlations of two different traits were examined, although not by different methods (Gomez-Mejia 1986).

The scores of our two factors were correlated with each other. Gomez-Mejia (1986) noted that when item to total correlations are calculated for each dimension and within scale total correlations exceed the between scale correlations evidence exists for discriminant validity. The item to total correlations should be .50 or higher for within scale correlations to indicate discriminant validity. When the within versus between scale correlations were examined some evidence of discriminant validity was found. The correlations were higher for within scale items than for between scale items. See table 4 for a summary of findings of within versus between scale correlations.

Table 4
MMMT Correlation Matrix

Factor 1 "Correctness"

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10
V1	1.00									
V2	.78	1.00								
V3	.69	.70	1.00							
V4	.40	.42	.48	1.00						
V5	.57	.60	.64	.40	1.00					
V6	.37	.37	.34	.25	.42	1.00				
V7	.36	.39	.42	.33	.47	.33	1.00			
V8	.41	.43	.40	.28	.41	.34	.40	1.00		

Factor 2 "Support"

V9	.17	.14	.15	.17	.16	.12	.10	.14	1.00	
V10	.17	.14	.14	.15	.13	.01	.04	.05	.26	1.00

CONCLUSION

Scale and construct validation is a long and difficult process. In conducting the development and validation of the POSTDIS scale, evidence of both face and content validity was found. The scale reliability of .88 for the 8 item scale and .84 for the 10 item scale indicates acceptable levels. The scale demonstrates adequate predictive validity since 4 of the 8 predictors were significant in the correct direction. Convergent validity was demonstrated since factor 1 "correctness" had an acceptable level of fit and contained moderate to high factor loadings. Evidence of discriminant validity was also found.

Of what value is the validated POSTDIS scale to researchers? The scale should have some value to researchers interested in exploring post purchase phenomena such as dissatisfaction, complaint behavior and negative word of mouth. Researchers interested in modeling the consumer dissatisfaction process may place greater value on this scale. POSTDIS may be also helpful in examining the links between dissonance and returned goods behavior.

Further attempts should be made to validate scales of previously accepted constructs in order to assure that the results of these studies are both

useful and valid. If not, then the results of many studies involving post purchase dissonance may be in doubt (Cummings and Venkatesan 1976).

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APPENDIX I

This is a study designed to measure attitudes about shopping. When answering the questions below please refer to the most expensive item you have just purchased. Please indicate whether or not you agree or disagree with the statements below on a scale of 1 to 5 scale with 1 = strongly disagree and 5 = strongly agree.

Question	Item to Total Correlation	Factor Loading 1	Factor Loading 2
Factor 1 "Correctness" (28.2% variance explained)			
1. I feel that I will be happy with the purchase I have just made.	.62	.75	.17
2. I'm sure that I'll be pleased with the way this product performs.	.67	.76	.15
3. I'm comfortable with the purchase decision I've just made.	.65	.82	.12
4. I'm uneasy about the purchase decision that I just made.	.60	.51	.20
5. I'm confident that I've made the "right" choice when I purchased this product.	.63	.72	.12
6. I would probably purchase this product again in the future.	.38	.50	.02
7. I feel that I got a "good deal" when I purchased this product.	.43	.55	.02
8. This product will probably do a good job of meeting my important needs.	.45	.56	.02
Factor 2 "Support" (6.5% of variance explained)			
9. I'll probably talk to my friends or family to ask them if they think I've made a wise choice with my purchase.	.30	.16	.56
10. I would probably pick up a copy of Consumer Reports to make sure the product or brand I just bought received high ratings.	.24	.10	.38

Please tell us about yourself and your shopping habits. **Remember your answers are completely confidential.**

11. How many alternative brands did you consider when you made this purchase ?
none ___ 1 or 2 ___ 3 or 4 ___ more than 4 ___

12. How many other stores did you visit before you made a purchase decision ?
none ___ 1 or 2 ___ 3 or 4 ___ more than 4 ___

13. How often do you purchase the product that you just bought ?
once or twice week ___ once or twice a month ___ once a year ___ less than once a year ___

14. Describe the expectations that you have for this product.
below avg. ___ average ___
higher than avg. ___ very high ___

15. How important was the item that you just purchased ?
not very ___ slightly ___
very ___ extremely ___

16. When you make any purchase, how many stores do you normally visit ?
one ___ 2 or 3 ___ 4 or 5 ___ more than 5 ___

17. When you make an important purchase, how many brands do you normally consider ?
one ___ 2 or 3 ___ 4 or 5 ___ more than 5 ___

18. How confident are you when you make a purchase ?
not very confident ___ about average ___
slightly confident ___ very ___

19. How easily are you persuaded by salespeople ?
not easily at all ___ slightly ___
very ___ extremely ___

20. How expensive was the item that you just purchased?
less than $10 ___ $10 to $25 ___
$25 to $50 ___ $50 to $100 ___
more than $100 ___

Thank you for your cooperation !

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