

Cognitive Dissonance after Purchase: A Multidimensional Scale

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ABSTRACT

The concept of cognitive dissonance has been discussed widely in the consumer behavior literature, yet paradoxically, there is no well established scale to measure it. This article describes the development of a 22-item scale for assessing cognitive dissonance immediately after purchase. First, the article discusses the conceptualization of the construct, recognizing that dissonance is not only cognitive in nature, but also has an emotional component, consistent with Festinger's early description of dissonance as a psychologically uncomfortable state. The procedures used to develop and refine the scale are subsequently described. This included a qualitative study to generate the items and two samples for each stage of the quantitative stages of scale refinement. Evidence of the scale's sound psychometric properties, including its reliability, validity and factor structure is given. © 2000 John Wiley & Sons, Inc.

Festinger (1957) described cognitive dissonance as a psychologically uncomfortable state that motivates a person to reduce that dissonance. Following Festinger's early work, dissonance has been discussed in a

multitude of studies and remains a topic of great interest in social psychology, as can be seen in the recent book of Harmon-Jones and Mills (1999). However, a review by Cummings and Venkatesan (1976) marked a reduction of interest in the subject in marketing, despite their conclusion that "the evidence in favor of dissonance theory in the consumer behavior literature looks good" (p. 307). We agree with Oliver (1997) that this reduction in interest was both inexplicable and unfortunate. The concept needs to be further delineated and the relationships between cognitive dissonance and other postpurchase constructs, such as consumer satisfaction and attributions, need to be investigated. The time is ripe for a review of dissonance, a redefinition of the construct, and the development of an operational measure. Indeed, Oliver (1997, p. 261) concluded a chapter on cognitive dissonance with the hope "that the construction, validation and dissemination of comprehensive dissonance measures will be forthcoming."

Cognitive dissonance is an elusive construct. In experimental situations it has been measured in terms of indicators such as physiological reactions following dissonance arousal, attitude change following dissonance arousal or through changes in attitude to chosen and unchosen alternatives that were initially similarly valued. Cognitive dissonance has been occasionally measured by one or more indicators selected by researchers (e.g., Elliot & Devine, 1994; Menasco & Hawkins, 1978) or by items that represent a related but different construct, such as anxiety (e.g., Hunt, 1970).

Recently, Montgomery and Barnes (1993) attempted to develop a dissonance scale for use in marketing situations. Although their scale was a meritorious attempt to clarify this elusive construct, it suffers from several flaws. The various sections of the present article describe the development of a scale that attempts to measure cognitive dissonance, following Churchill's (1979) suggested procedures. First, previous measures are discussed, and then the domain of the cognitive dissonance construct is outlined. The development of the scale, including data collection and scale purification, is then discussed, followed by an assessment of the validity of the scale. The final section discusses the benefits of having developed such a scale and its potential uses.

PREVIOUS MEASUREMENT OF DISSONANCE

Many empirical explorations of dissonance theory have manipulated dissonance experimentally within the induced/forced compliance paradigm, in which subjects were forced to comply publicly, while holding an opposite and unchanging private opinion. Such compliance is brought about largely through threats of punishment for noncompliance or rewards for compliance. Subjects have, for example, been required to write essays contrary to their own opinion or to give a public speech on

an issue in the opposite direction to their own opinion. In line with Festinger's dissonance theory, which specifically addresses the forced compliance paradigm, subjects tend to change their opinion on the issue toward the opinion proffered in the experiment. Dissonance has been measured in such cases by looking at opinions at different stages of the experiment. The settings of the experiments have been described as artificial, trivial, and irrelevant to marketers, because consumers are rarely trapped in a situation of being forced to buy a product or service (Cohen & Goldberg, 1970; Oliver, 1997; Oshikawa, 1970).

Dissonance has also been examined through dissonance reduction. For example, Engel (1963) examined differences in the readership of Chevrolet advertisements among recent Chevrolet owners and nonowners, expecting that Chevrolet owners would be more likely to read the advertisements so they could add information consonant with their purchase.

Kassarjian and Cohen (1965) examined the attitudes of smokers and nonsmokers toward the believability of a report on the relationship between smoking and lung cancer. Results indicated that the more people smoke, the less likely they were to believe the report, hence distorting the cognitive element (the believability of the report). Losciuto and Perloff (1967) found that people choosing between two similarly attractive record albums subsequently rated the chosen one as more desirable and the unchosen one as less desirable. Once again, an element (similar preference) was distorted to be consonant with the outcome. More recently, Gilovich, Husted Medvec, and Chen (1995) examined the perceived cash value of prizes in a game show context. Subjects who had switched from an unopened box with a grand prize to one with a modest prize, placed greater cash value on their prize than participants who failed to switch from a modest prize to a grand prize. This offers an example of selective distortion as increasing the attractiveness of the chosen alternative decreased the attractiveness of another alternative.

When dissonance is conceptualized as dissonance arousal, other indirect methods of establishing dissonance have been used. For example, several studies found that dissonance possesses arousal properties that can be measured in terms of task performance (Elliot & Devine, 1994). More direct measures of dissonance arousal have centered on physiological responses, such as galvanic skin responses (e.g., Elkin & Leippe, 1986).

Elliott and Devine (1994) argued that, although the dissonance process is initiated by arousal, the conceptualization and assessment of dissonance should include psychological discomfort, as originally conceptualized by Festinger (1957). They proposed a three-item scale of affect items they thought tapped the discomfort component of dissonance and called for an empirical validation of the psychological discomfort component of dissonance.

Some researchers have adopted *ad hoc* paper-and-pencil measures of

dissonance, using items that seemed to tap the dissonance construct within the context of their study. For example, Menasco and Hawkins (1978) used "difficulty of the purchase decision" to infer dissonance when examining the effect of various purchase conditions on dissonance. Bell (1967) used items relating to unease and rightness of the decision. Items relating to other constructs, such as posttransaction anxiety, have also been used (Hunt, 1970). However, none of the studies that used ad hoc measures attempted scale validation, and almost none (Elliot & Devine, 1984, and Korgaonkar & Moschis, 1982, are exceptions) assessed scale reliability.

Montgomery and Barnes (1993, p. 206) developed a short scale of cognitive dissonance, defining 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." They attempted to capture cognitive dissonance's domain through these concurrent psychological experiences (e.g., "dissonant consumers often display anxiety", or "dissonant consumers may experience low levels of expected satisfaction"). However, there was no framework or basis for assuming that such feelings represented dissonance, beyond correlational evidence from previous studies. In addition, they included "support" in their measure, arguing, "dissonant consumers need reassurance (e.g., support) that a wise purchase decision has been made" (Montgomery & Barnes, 1993, pp. 206-207). The latter is a method of dissonance reduction, in contrast to dissonance itself. The authors themselves noted that this factor should be deleted from the scale. Further, following a discussion of related research, the authors subjectively generated a 16-item scale, which they felt measured dissonance, rather than identifying dissonance issues through listening to consumers who had experienced dissonance. While the Montgomery and Barnes (1993) scale is a commendable attempt to clarify dissonance, the present research represents a more rigorous approach to measuring dissonance, following Churchill's (1979) scale development process.

In summary, various indirect measures have been used to establish that dissonance occurs. Other, more direct, measures, including physiological measures and paper-and-pencil tests, have also been used. The latter have included cognitive measures (e.g., evaluating the purchase, the wisdom of the decision, or the actions that should have been taken) and psychological measures (e.g., anxiety, comfort, and feelings), as well as behavioral measures designed to measure dissonance reduction. In part from the Montgomery and Barnes (1993) effort, useful steps in the conceptualization-scale development sequence have not been published. The present study is designed to address this need. The scale development process begins with an exploration of the cognitive dissonance domain.

THE COGNITIVE DISSONANCE DOMAIN

Festinger's early explanation of dissonance did not clearly identify whether *dissonance* is cognitive or emotional. The cognitive view is supported by his suggestion that "the obverse of one element follows from the other" (Festinger, 1957, p. 261). Festinger described a person as being in a dissonant state if two elements in his cognition, that is, in his knowledge of himself, his behavior, his feelings, desires, or in his knowledge of the world, are inconsistent. Cognitive dissonance may result when an opinion is formed or a decision taken when cognition and opinions direct us in different directions. Yet Festinger (1957, p. 266) also seems to have intended an emotional conceptualization, suggesting that, "for some people, dissonance is an extremely painful and intolerable thing."

Cooper and Fazio (1984) considered that dissonance has less to do with an inconsistency among cognitions per se, but rather with expectations of undesirable consequences. Oliver (1997) also believes dissonance includes concern about unknown outcomes, in terms of anticipated regret, and a feeling of apprehension on the consumer's part.

Cognitive dissonance has been defined as psychological discomfort (Carlsmith & Aronson, 1963; Elliot & Devine, 1994), a psychologically uncomfortable state (Festinger, 1957; Menasco & Hawkins, 1978), being linked with anxiety, uncertainty or doubt (Menasco & Hawkins, 1978; Montgomery & Barnes, 1993; Mowen, 1995) or as synonymous with the regret or remorse reported in salespeople's anecdotes (Insko & Schopler, 1972). Thus, the construct's 40-year history appears to have created a theoretical oxymoron in which a construct with an emotional theme bears the burden of *cognitive* in its name. It is apparent that cognitive dissonance has both cognitive and psychological components.

Cooper and Fazio (1984) distinguished between the two psychological components of "dissonance arousal" and "dissonance as a psychologically uncomfortable state." They suggested that arousal is a necessary condition for dissonance to occur and that, if labeled negatively and an attribution is made internally (free choice, "it was my decision"), then psychological discomfort will arise. This psychological discomfort then motivates dissonance reduction, as predicted by dissonance theory. Elliot and Devine (1994) claimed that the latter element has received far less empirical attention than dissonance arousal and urged a systematic attempt to validate the psychological discomfort component of dissonance. However, they concluded that the distinct affect experienced by an individual in a given situation is closely related to the individual's cognitive appraisal of the situation and, hence, that the cognitive and affective components are not independent.

There are parallels in the conceptualization of dissonance and satisfaction. Satisfaction has been described as the "emotional response to

the judgmental disparity between product performance and a corresponding normative standard" (Westbrook & Oliver, 1991, p. 85). Hence satisfaction, while described as emotional in nature, is based on a response to a cognitive judgment, and the construct is said to comprise cognitive as well as affective, components (Dabholkar, 1995; Oliver, 1994). Dissonance similarly comprises cognitive and emotional components. As Festinger describes, it is a psychologically uncomfortable state, but generated by inconsistent cognitions. However, there are two important differences between the concepts. First, dissonance is recognized as immediately postdecisional (e.g., Festinger, 1957; Insko & Schopler, 1972). Satisfaction, in contrast, is assessed postpurchase and postuse, when performance is compared to expectations. Second, satisfaction is based on a comparison of known performance and expectations, whereas dissonance concerns unknown outcomes, generating apprehension that may continue after use of the product or service, when satisfaction judgments are made (Oliver, 1997).

Oliver (1997) takes a wider view of cognitive dissonance, examining the concept over the entire purchase decision process. Originating in a prepurchase phase, the construct is labeled *apprehension* and increases over the decision process. These same cognitions and feelings mutate into true dissonance after the decision is made, when consideration of foregone alternatives becomes relevant. With use and experience, dissonance dissipates and yields to dissatisfaction.

The concept of dissonance addressed in the present research best fits the period that immediately follows the purchase decision but precedes use or experience with the result of the purchase decision. At this stage, labeled the "gamma" stage by Oliver (1997), dissonance is maximized and precedes satisfaction formation.

It is important to note that dissonance is not aroused in every purchase. Three main conditions for such arousal have been suggested (Cummings & Venkatesan, 1976; Korgaonkar & Moschis, 1982; Mowen, 1995; Oliver, 1997). First, the decision must be important to the consumer. That is, the consumer must have invested a substantial amount of money or psychological cost in the decision and the outcome must matter personally to the consumer. Second, the consumer must feel free in making the choice. That is, the decision must be made voluntarily. Third, the consumer must display irrevocable commitment to the decision once made. That is, the decision must be irreversible. Major purchase decisions, including those with long-term consequences, are most likely to create dissonance conditions (Korgaonkar & Moschis, 1982; Oliver, 1997).

Based on these definitions and distinctions, the present research sought to develop a scale that can be used to measure both the emotional and cognitive aspects of dissonance in the postpurchase, pre-use phase of consumption. Within the present study, the cognitive aspect was defined as a person's recognition that beliefs are inconsistent with a de-

cision after the purchase has been made, while the emotional aspect was defined as a person's psychological discomfort subsequent to the purchase decision.

DEVELOPMENT OF THE SCALE

The evidence discussed suggests there are distinct cognitive and emotional aspects of cognitive dissonance. The present section describes the process used to establish the content of dissonance and to validate the scale psychometrically and theoretically. The process follows Churchill's (1979) approach for developing measures of multiple-item constructs. After the development of an initial set of items, two stages of scale purification were undertaken. Although the first stage used two student samples, the second stage used two more diverse samples of consumers.

Scale Item Generation

A total pool of over 100 dissonance items was generated from exploratory research involving four focus groups with consumers. The procedure used is described at length in Hausknecht, Sweeney, Soutar, and Johnson (1998). The content validity of the items was assessed by 12 consumer behavior experts, who were provided with the cognitive and emotional definitions of dissonance used in the study. A similar procedure was used by Zaichowsky (1985). Items with a significantly higher mean on one dimension compared to the other were retained for further scale development. In all, 36 cognitive and 36 emotional items were retained after this second stage.

One of the prime considerations in scale development is the adequacy with which a specified domain of content is sampled. The focus-group approach used to generate items, followed by the use of judges to assess the items, support the scale's content validity.

Data Collection and Scale Purification, Stage 1

An initial quantitative procedure was used to reduce the number of items and to examine the initial scale's psychometric properties. A total of 645 final-year students at four Australian universities participated in this phase of the research by responding to a questionnaire containing the total set of 72 items. Each student was asked to think of an important purchase decision that involved a difficult choice between two or more close alternatives. Responses from the 455 students who had made such a purchase within the last 3 months were used in the analysis.

Because cognitive dissonance theory does not suggest the dimensionality of the construct, this was investigated next. An exploratory factor analysis suggested six dimensions, three emotional and three cognitive.

However, factor analysis has a tendency to produce too many dimensions for clear conceptual definition (Churchill, 1979). Coefficient beta was therefore used to clarify the existence of distinct subdimensions. Coefficient beta is a measure of reliability that considers the possible existence of subscales. In effect, coefficient beta is the worst split-half reliability of a scale. Although coefficient alpha represents the average of all split-half reliabilities (Cronbach, 1951) it does not reveal a low split-half reliability that can indicate the presence of a subscale (John & Roedder, 1981). The approach for estimating coefficient beta is discussed by John and Roedder (1981) and Revelle (1979).

The results of the coefficient beta analysis for the 72-item scale suggested a single emotional dimension and three cognitive dimensions. Many emotional items (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 the Bush and Russell arousal dimensions (excited, angry, annoyed). Interestingly, if one considers Plutchik's (1980) circumplex of emotions, in which eight basic emotions ranging from joy to anger are arranged in a ring, the emotional items in this study can be found in a specific segment representing a third of the circumplex area. This suggests some restrictions to the negative emotions that relate to dissonance.

Cognitive items, in contrast, relate to thoughts about the wisdom of the purchase decision that took place. The majority relate to self-attribution (e.g., "I thought I shouldn't have done it," "I wondered if I could have made a better buy"), although a few concerned the favorability of the deal obtained in the store (e.g., "I wondered if they were spinning me a line"). The three dimensions that emerged related to whether the right choice was made, whether the product was really needed at all, and concern over the deal, particularly in regard to the salesperson. Coefficient beta values were .81 or above for the four scales, and associated conditions recommended by John and Roedder (1981) were satisfied, suggesting that they represent unidimensional aspects.

Scale content and reliability were examined and, as recommended by Churchill (1979), the scale was further reduced by plotting item to the total scale correlations for each factor. Items that produced a sharp drop in the plotted pattern were eliminated. Coefficient alpha was then recalculated for the remaining items and the procedure repeated until there were no significant drops in the correlations. Scales were severely trimmed at this stage, since the intention was to develop a parsimonious scale that could be used in large-scale consumer research studies, of which dissonance is only a part. Seventeen emotional items, four items related to concern as to whether the product was the right choice, five items related to concern as to whether the product was needed, and five items related to concern over the deal obtained were retained. The val-

Table 1. Confirmatory Factor Analysis of Models of Various Dimensionalities.

Model	R^2	df	RMR	RNI
Stage 1				
Null	6597.04	136	.46	
One factor	2197.60	119	.15	.68
Two factors (cognitive and emotional)	1259.16	118	.11	.82
Four factors (as proposed in Stage 1)	453.53	113	.03	.95
Three factors (solution after Stage 2 on reduced set of Stage 1 items)	288.36	51	.09	.95
Stage 2				
Future store				
Null	2928.33	66	.52	
One factor	2133.77	51	.24	.73
Three factors (as proposed in Stage 2)	316.82	51	.05	.91
Car stores store				
Null	3502.83	66	.50	
One factor	850.35	51	.14	.77
Three factors (as proposed in Stage 2)	368.17	51	.07	.91

*The root mean-square residual is denoted by RMR and the relative noncentrality index by RNI. $RNI = ((\chi^2_n - df_n) - (\chi^2 - df)) / (\chi^2_n - df_n)$, where n is the null model.

ues of coefficient alpha for the four subscales following this process ranged from .85 to .96. An exploratory factor analysis of these items supported the four-factor structure. Confirmatory factor analysis, through structural equation modeling, indicated that the four-factor model was superior to a null model, a single-factor model in which all items represented a single dissonance factor and a two-factor model, in which emotional and cognitive elements represented two separate dimensions (Table 1). This supports the dimensionality and the discriminant validity of the suggested scale dimensions.

The discriminant validity of the four-dimensional scale was also investigated in two further ways. First, the test that the correlation between constructs is significantly less than one was used (Bagozzi & Heatherton, 1994). As can be seen in Table 2, the highest correlation between dimensions was .62 and the associated confidence interval was .56 to .68. This test supported the discriminant validity for all pairs of dimensions. Second, the Fornell and Larcker (1981) discriminant validity tests were conducted. These tests require that the average variance extracted be greater than .50 and, when taking any pair of constructs, that the average variance extracted for each construct is greater than the squared structural path coefficient between the two constructs. In the present case these requirements were met for all pairs of constructs, with the average variance extracted ranging from .53 to .86. This exceeded the squared path coefficient in all cases, because the maximum value of the squared path was .41. All the tests supported the discrim-

Table 2. Correlations Between Constructs following Confirmatory Factor Analysis.

	Emotional	Made Right Choice?	Did I Need It?	Concern Over Deal
Stage 1				
Emotional	.97			
Made right choice?	.50 (.04)	.91		
Did I need it?	.65 (.03)	.53 (.04)	.82	
Concern over deal	.62 (.03)	.62 (.03)	.54 (.04)	.86
Stage 2				
	Emotional	Wisdom of Purchase		Concern Over Deal
Furniture store				
Emotional	.98			
Wisdom of purchase	.52 (.05)	.81		
Concern over deal	.69 (.03)	.43 (.03)		.86
Car stereo store				
Emotional	.96			
Wisdom of purchase	.47 (.05)	.83		
Concern over deal	.74 (.03)	.53 (.05)		.80

Note: Reliability of linear composite of scale Stage 1 (28 items) = 0.98.

Reliability of linear composite of scale Stage 2 (22 items) furniture store = .86, car stereo store .97. Standard errors appear in brackets, while composite reliabilities appear on the diagonal.

inant validity of the four dimensions, even when measurement error was considered.

The entire analysis was repeated on a smaller but similar student sample ($n = 183$). The analysis (not shown) revealed similar results. However, the 31-item scale was further reduced to 28 items. Two of the three items deleted were found to have lower item to total correlations than other items representing that dimension and one showed overlap across the dissonance dimensions. The meaning of these subscales was unaffected by the omission of these items and, hence, for the sake of parsimony, the three items were deleted.

Although these results provided evidence of construct validity, they were based on a student sample. The 28-item instrument was therefore reexamined with the use of an independent and more diverse second data set, as recommended by Churchill (1979).

Data Collection and Scale Purification, Stage 2

The main objective of the second stage was to evaluate the robustness of the 28-item scale used to measure cognitive dissonance. The procedure involved several steps, similar to those used in stage 1.

Data were collected from customers of two different types of stores

selling durable goods. These were a furniture store (two outlets) and a car stereo center (three outlets). Customers were invited to participate in the survey immediately after committing themselves to the purchase. Only customers making a major purchase (defined as those spending over \$400 on the purchase) were included in the sample. Such customers were asked to take a self-completion questionnaire and return it in the reply paid envelope within 10 days. An opportunity of participating in a draw for a voucher redeemable at the store was used as an incentive to boost response. The survey was conducted over a 6-month time period and all qualified customers were asked to participate. Usable responses represented 44% of furniture store customers and 31% of car stereo center customers.

To check for non-response bias, the sample profiles in terms of basic variables, such as suburb of residence and expenditure levels, were compared with company records of all such customers over the same time period. A chi-square test found no significant differences. It was concluded that the sample was representative of major purchasers during this time period.

Because it was dissonance in the postpurchase-pre-use stage that was of interest in the present study, furniture store customers who had not yet taken delivery of their purchases were selected for analysis. Most respondents were in this category, because furniture would typically take between 1 and 6 weeks to deliver. However, in the car stereo center, equipment was typically installed immediately. Almost 70% of respondents completed their survey after installation and experience with the equipment. The car stereo sample was therefore restricted to those who completed the questionnaire within 10 days of installation. Final sample sizes for analysis were 224 for the furniture store and 313 for the car stereo center. The furniture store sample was taken as the primary sample for analysis due to the more rigorous nature of the sample (the longer time period and hence ability to complete the questionnaire before delivery of the product). The analytical section that follows, therefore, is based largely on the furniture store sample.

Analyses

As in the first stage, items that created a sudden drop in the plotted item to total scale correlation patterns were dropped. Three items were deleted as a result of this process. Alpha coefficients as a result of this ranged from .80 to .97 (furniture) and from .78 to .95 (car stereo).

An exploratory factor analysis of the remaining 25 items with no restriction as to the number of factors suggested three dimensions. The two cognitive dimensions, "concern about the right choice" and "concern over whether the product was really needed," showed some overlap. On theoretical grounds it was decided that these dimensions shared com-

monality, because both concerned internal attributions, in contrast to the other cognitive dimension "concern over the deal," which supposes some degree of external attribution in the role of the salesperson. These two dimensions were therefore combined to form a "wisdom of purchase" subscale. Based on this three-factor model, three items in the exploratory factor analysis that had split loadings were dropped.

A further exploratory factor analysis supported the three-dimensional solution. Once again confirmatory factor analysis and reliability estimates were used to evaluate the validity and reliability of the reduced scale. Confirmatory factor analysis supported the three-dimensional solution (Table 1), compared to the null, one-, and two-factor models for both samples. Correlations between the dimensions were significantly less than one (Table 2), further supporting the discriminant validity of the dimensions. Additionally, the variance extracted for each dimension was .52 or greater which, in each case, exceeded the square of the path between any pair of constructs, which had a maximum of .49.

Due to the different natures of the samples in Stages 1 and 2 and the change in the dimensional structure adopted at the beginning of the second stage (the single factor "wisdom of purchase" replacing the two previous factors "whether the right choice was made" and "whether the product was really needed at all"), the confirmatory analysis and tests of discriminant validity for the three-factor model were also conducted on the original student sample. The fit was extremely good, being superior to the original fit of the 31 items on four dimensions and also to the final fit on both second stage data sets (Table 1).

In summary, there was strong support for the discriminant validity of the suggested three cognitive dissonance dimensions. The dimensions were defined as follows:

Emotional	A person's psychological discomfort subsequent to the purchase decision
Wisdom of purchase	A person's recognition after the purchase has been made that they may not have needed the product or may not have selected the appropriate one
Concern over deal	A person's recognition after the purchase has been made that they may have been influenced against their own beliefs by sales staff

Specific details of the final 22 items used in the scale are shown in Table 3. The criterion-related validity of the scale (i.e., whether the measure behaves as expected with measures of other constructs external to the measure itself) was assessed by examining its relationship with other conceptually related variables (perceptions of value of the product, satisfaction with the product, and difficulty in evaluating the quality of the product). It would be expected that, if a consumer has high levels of dissonance, they would be less likely to perceive value and less likely to

Table 3. Final Scale (22 Items).

Emotional	After I bought this product: I was in despair I felt sad I felt disappointed with myself I felt scared I felt hollow I felt angry I felt uneasy I felt I'd let myself down I felt annoyed I felt frustrated I was in pain I felt depressed I felt furious with myself I felt sick I was in agony
Wisdom of purchase	I wonder if I really need this product I wonder whether I should have bought anything at all I wonder if I have made the right choice I wonder if I have done the right thing in buying this product
Concern over deal	After I bought this product I wondered if I'd been fooled After I bought this product I wondered if they had shown me a line After I bought this product I wondered whether there was something wrong with the deal I got

experience satisfaction, and would have experienced more difficulty in assessing the quality of the product. For the present purposes, the samples were restricted to respondents who had not received their furniture purchase or not had their car stereo equipment installed (i.e., those who were in the gamma phase of the purchase decision process). The relevant correlations are shown in Table 4.

The expectation that high-dissonance consumers would have had greater difficulty in judging the quality of the product and that dissonance would result in lower levels of satisfaction and value were supported in both samples. The relationship was strongest with quality judgment difficulty, although the association of dissonance with satisfaction was substantial. The relationship was weakest, but still significant, with perceived value. As might have been expected, quality judgment difficulty was most related to people's "concern over the deal," because difficulty in judging quality could be allayed by salespeople's assurances. However, the difficulty in making a quality judgment was also related to the emotional aspect of dissonance, particularly in the case of the furniture store. Concern over the deal also had a greater impact on perceived value and satisfaction than other dissonance di-

Table 4. Relationship of Dissonance Dimensions and Related Constructs, Correlational Analysis, Product Not Yet Delivered or Installed (Gamma Phase).

Related Construct	Dimension	(n = 224)
Furniture store I will value this product	Concern over deal	-.30**
	Emotional	-.17*
	Wisdom of purchase	-.14*
I feel satisfied with my decision to buy this product.	Concern over deal	-.35**
	Emotional	-.31**
	Wisdom of purchase	-.17*
I had considerable difficulty in judging the quality of the product	Concern over deal	.51**
	Emotional	.42**
	Wisdom of purchase	.27**
	Dimension.	(n = 94)
Car stereo store I will value this product	Concern over deal	-.48**
	Emotional	-.33**
	Wisdom of purchase	-.12
I feel satisfied with my decision to buy this product	Concern over deal	-.49**
	Emotional	-.45**
	Wisdom of purchase	-.15
I had considerable difficulty in judging the quality of the product	Concern over deal	.64**
	Emotional	.37**
	Wisdom of purchase	.23*

*p < .01.

**p < .005.

mensions, although the emotional component of dissonance also played a significant role here. The cognitive component, "wisdom of purchase" had a weaker relationship with the three related constructs, but was most strongly related to difficulty in judging the quality of the good. Overall, the criterion-related validity of the scale was supported.

DISCUSSION

Despite considerable interest in the concept of cognitive dissonance, there has only been one attempt at developing a scale for the construct (Montgomery & Barnes, 1993). This scale has its drawbacks, however, including tapping aspects other than dissonance induction. The purpose of the present study was to add to the research on cognitive dissonance by developing a measure that is both reliable and valid. The focus of the present research was to measure dissonance at the postpurchase, pre-

use stage of the decision process, dubbed by Oliver (1997) as 'the gamma phase. The study suggests that dissonance includes both cognitive aspects, as the title *cognitive dissonance* implies, as well as an emotional dimension, as many definitions, including Festinger's original definition, imply. The 22-item scale that was developed tapped three dimensions of dissonance, including one emotional and two cognitive dimensions.

The study was based on four samples. Two student samples were used in Stage 1 to test and initially reduce the developed set of items, while two customer samples were used in Stage 2 to test the reduced set on real consumers who were at the gamma phase of the decision process. The developed scale had strong content, discriminant, and criterion-related validity, as well as a high level of reliability, and should prove an asset in consumer behavior research. For example, Elliott and Devine (1994) have urged researchers to explore the inner workings of both affective and cognitive processes in the dissonance induction-reduction sequence. Further, Oliver (1997) has suggested that dissonance induction and dissonance reduction operate in a dynamic model in the beta and gamma stages of the decision-making process (postdecision but pre-use) and that, depending on their relative strengths, various outcomes, such as regret cognitions and disconfirmation, are initiated and affect customer satisfaction.

Dissonance is known to follow a personal decision but, as indicated, may continue over the entire decision-making process and may never completely disappear (Oliver, 1997). The presence, magnitude, and effects of dissonance need to be studied over all stages of the decision-making process, including at the time of repeating the purchase. The developed scale will assist in these explorations.

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COGNITIVE DISSONANCE

by: Alexandra Robertus

General Experimental Psychology Cognitive Dissonance Lab

The theory of cognitive dissonance

Cognitive Dissonance Theory, developed by Leon Festinger (1957), is concerned with the relationships among cognitions. A cognition, for the purpose of this theory, may be thought of as a piece of knowledge.² The knowledge may be about an attitude, an emotion, a behavior, a value, and so on. For example, the knowledge that you like the color red is a cognition; the knowledge that you caught a touchdown pass is a cognition; the knowledge that the Supreme Court outlawed school segregation is a cognition. People hold a multitude of cognitions simultaneously, and these cognitions form irrelevant, consonant or dissonant relationships with one another.

Cognitive Irrelevance probably describes the bulk of the relationships among a person's cognitions. Irrelevance simply means that the two cognitions have nothing to do with each other. Two cognitions are consonant if one cognition follows from, or fits with, the other. People like consonance among their cognitions. We do not know whether this stems from the nature of the human organism or whether it is learned during the process of socialization, but people appear to prefer cognitions that fit together to those that do not. It is this simple observation that gives the theory of cognitive dissonance its interesting form.

Two cognitions are said to be dissonant if one cognition follows from the opposite of another. What happens to people when they discover dissonant cognitions? The answer to this question forms the basic postulate of Festinger's theory. A person who has dissonant or discrepant cognitions is said to be in a state of psychological dissonance, which is experienced as unpleasant psychological tension. This tension state has driveline properties that are much like those of hunger and thirst. When a person has been deprived of food for several hours, he/she experiences unpleasant tension and is driven to reduce the unpleasant tension state that results. Reducing the psychological state of dissonance is not as simple as eating or drinking however.

To understand the alternatives open to an individual in a state of dissonance, we must first understand the factors that affect the magnitude of dissonance arousal. First, in its simplest form, dissonance increases as the degree of

discrepancy among cognitions increases. Second, dissonance increases as the number of discrepant cognitions increases. Third, dissonance is inversely proportional to the number of consonant cognitions held by an individual. Fourth, the relative weights given to the consonant and dissonant cognitions may be adjusted by their importance in the mind of the individual.

If dissonance is experienced as an unpleasant drive state, the individual is motivated to reduce it. Now that the factors that affect the magnitude of this unpleasantness have been identified, it should be possible to predict what we can do to reduce it:

- *Changing Cognitions*

If two cognitions are discrepant, we can simply change one to make it consistent with the other. Or we can change each cognition in the direction of the other.

- *Adding Cognitions*

If two cognitions cause a certain magnitude of dissonance, that magnitude can be reduced by adding one or more consonant cognitions.

- *Altering importance*

Since the discrepant and consonant cognitions must be weighed by importance, it may be advantageous to alter the importance of the various cognitions.

The material above is the background reading for the Cognitive Dissonance Lab. These are excerpts from Frederick M. Rudolph's page on Social Psychology. For a more detailed discussion on cognitive dissonance and related theories, visit <http://www.mindspring.com/~frudolph/lectuires/SOC/soc1.htm>

<http://www.ithaca.edu/faculty/stephens/cdback.html>

