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Chapter Three

Cognitive Dissonance, Brand Preference and Product Familiarity*

Jagdish N. Sheth

A DECADE HAS PASSED since Festinger (10) gave the theory of cognitive dissonance. During this period, the theory has been applied to many diverse fields (4). Its greatest impact has been in social psychology where it has lodged itself as one of the important cognitive consistency theories which explain the phenomenon of attitude formation and attitude change (9, 12).

The theory of cognitive dissonance has been recently extended to the understanding of consumer behavior (17) especially in regard to the post-decision restructuring of cognitions related to the choice of alternatives involved in the decision. Essentially two broad research designs have been used by researchers in applying dissonance theory to consumer decision process. First, dissonance reduction after the decision is considered an *internal process* of restructuring cognitions which result in enhancement of the attractiveness of the chosen alternative and reduction in the attractiveness of the rejected alternative (2,3,5,11,13,14). Recently, choice has been extended to more than two alternatives with the hypothesis that the greater the number of attractive alternatives, the more the dissonance after choosing one (1). The second research design utilizes some *external environmental stimuli* as facilitating devices in the reduction of post-decision dissonance. Most studies in consumer behavior have used ad readership or interest in advertisements of alternatives shortly after making the choice (6,7,8,16,18). The theory predicts greater readership or interest in ads of the chosen alternative (it is consonant information) and avoidance of readership or less interest in ads of the rejected alternatives (it is dissonant information).

*I am indebted to Professor Abe Shuchman for pointing out the problem of using the average rank difference (D) and the t test used in most dissonance studies. A simpler test of significance (sign test) is used instead in this paper.

The rapid and successful application of the theory of cognitive dissonance in many areas of social science, including marketing, can be attributed to its simplicity and potential for immediate practical implications at least in marketing. The basic notion is that when two relevant cognitions (bits of knowledge) are dissonant (inconsistent) because one follows from the *obverse* of the other, a motivational tension is created which results in psychological discomfort. The aroused motivation impels the individual to reduce dissonance by making the relevant cognitions consonant. Several mechanisms, both internal and external, are available to the individual which enable him to make the dissonant cognitions consonant. Understanding these mechanisms, particularly the external, in a given product situation enables the marketing practitioner to create marketing strategies which will make available these mechanisms to the consumer with the least effort and cost.

Despite its potential and popularity, cognitive dissonance theory has not been extended to *repetitive buying situations*. All the studies have been limited to one choice decision in which also past familiarity or preference of the consumer toward one of the alternatives is ignored. Most buying behavior, however, is a repetitive decision process, and except for some high ticket items, the repetitive purchase decisions are quite frequent. In any repetitive situation, there exists a tendency on the part of the individual decision-maker to routinize decision process in order to minimize unnecessary duplication of search effort. Several perceptual and cognitive mechanisms are provided to facilitate this routinization. Furthermore, the process of routinization is a dynamic over-time phenomenon which entails learning of relevant cognitions and structuring them. Howard and Sheth (15) call it a psychology of simplification.

Given the fact that buying behavior is a repetitive decision process and that the consumer adapts to the situation by routinization, it follows that cognitive dissonance arising after each decision must be reduced over-time. Such reduction may then result in no dissonance at all after the buyer has purchased a product several times and probably has a strong brand preference. In reviewing buyer's behavior, Sheth (17) argues that one of the major problems of dissonance theory is that it is 'static' and does not provide any theory about dynamics of dissonance in repetitive decisions.

If we extend the dissonance theory to repetitive decision-making which normally creates a preference hierarchy of alternative brands in a product class, we should expect that cognitive dissonance should be less if the choice is among brands which the consumer prefers more than if the choice is among brands he prefers less. The latter is analogous to a vacillatory choice between the devil and the deep sea which increases the burden of rationalization after the choice.

Repetitive buying also creates greater familiarity with the buying situation. The greater the familiarity, the less the dissonance since the cognitions are more structured and consistent with greater experience. Then, if we compare two groups of consumers who differ in their magnitude of buying of a product class, such that one group is more experienced than the other, we should expect that post-decision dissonance should be less in the former than in the latter group. For example, buying and consumption of lipstick is exclusively done by women whereas men purchase it only occasionally if at all, for gift purposes. We should then expect that women will manifest less dissonance than men in their choice among several brands of lipstick.

The study presented in this paper is an attempt to test several hypotheses on the interrelationship of dissonance reduction and product familiarity as well as brand preference. The hypotheses are derived from the above theoretical considerations.

HYPOTHESES

The following hypotheses were formulated and tested in this study:

1. Choosing between two equal alternatives entails post-decision dissonance and a consequent motivation to reduce it. Post-decisions dissonance is reduced by enhancing the attractiveness of the chosen alternative and/or decreasing the attractiveness of the rejected alternative.
2. The magnitude of post-decision dissonance and its consequent reduction is inversely related to the desirability or preference of the alternatives.
3. The less the familiarity with a product class in terms of buying, the more is the magnitude of post-decision dissonance and the consequent pressure to reduce it.

EXPERIMENTAL DESIGN

The experimental design was modified in two significant ways from the standard procedures used in studying post-

decision dissonance in order to establish interaction between dissonance and past experience, the latter manifesting in preference of, and familiarity with the alternatives.

First, the choice alternatives were *brands* of a product class instead of an assortment of products. It was felt that brand choice within a product class would narrow the specificity of motives satisfied from consumption and also would more accurately reflect preference since consumer does in fact consider several brands as alternatives in buying of a product. In the past, studies have only used broad product classes as alternatives. For example, several varieties of playthings (toys) or recreation items (games) have been often used. The motives of the consumers, therefore, are kept at a highly general level, e.g. playing. This generality of motives is likely to ignore individual differences among respondents. By narrowing the choice to several brands within a product class, we are a priori creating greater homogeneity among respondents since all of them will be consumers of that product class.

Secondly, three products were used on which subgroups of the sample would have different degrees of past experience and familiarity because of differential purchase and consumption patterns. The three products used were toothpaste, hair shampoo, and cigars. The subjects consisted of equal number of male and female students. It was felt that familiarity and experience will be the same among men and women for toothpaste, but cigars will be more familiar to male subjects and hair shampoo will be more familiar to female subjects. By comparing dissonance reduction between toothpaste and shampoo in the case of male subjects and toothpaste and cigars in the case of female subjects, we could infer the effect of past familiarity. There are several other ways to infer the same thing which are described more fully later.

SAMPLE SIZE AND PROCEDURE

Subjects consisted of 50 male and 50 female students living in Cambridge, Massachusetts. Four groups were created out of 100 subjects each consisting of 25 male or female subjects.

Each group was told that as a part of marketing research the experimenter was interested in obtaining their brand preferences for two products. Each respondent was then asked to rank order the brands in each of the two product classes in terms of his preference of the brands.

The brands in each product class were physically displayed

in each subject. Also, the quantity and size of all the brands was approximately the same in each product class to avoid choice on these grounds.

The first group consisting of 25 male subjects was asked to rank 11 national brands of toothpaste and 12 national brands of cigars separately for each product class.

The second group consisting of 25 female subjects was asked to rank order the same brands for the same two products (toothpaste and cigars) as the first group. As you can see, group one and two are different only in sex so as to reflect different amounts of experience and familiarity with cigars.

The third group consisting of 25 male subjects was asked to rank order the same 11 brands of toothpaste. It was then asked to rank order 11 national brands of hair shampoo again according to preference for the brands.

The fourth group consisting of 25 female subjects was asked to rank order the same brands of toothpaste and hair shampoo as the third group. Again, the group three and the group four differed in their experience and familiarity with hair shampoo because of different sex.

Each subject was then given a choice between two brands in each of the two products after he rank ordered brands separately for each product class. The two brands between which he had to choose were either ranks 2 and 3, 5 and 6 or 10 and 11 randomly determined for him. Thus, the choice was between two alternatives equal in preference but located at different positions on the total preference continuum. This was necessary to test the interaction between post-decision dissonance and brand preference.

The experimental design is summarized in the scheme below:

	Toothpaste & Shampoo		*Toothpaste & Cigars*		*Total*
	Rank Choice	*Sample Size*	*Rank Choice*	*Sample Size*	
Male	2-3	9	2-3	9	
	5-6	9	5-6	8	50
	10-11	9	10-11	9	
	Rank Choice	*Sample Size*	*Rank Choice*	*Sample Size*	
Female	2-3	8	2-3	9	
	5-6	8	5-6	8	50
	10-11	9	10-11	8	
Total		50		50	100

There was some time lapse in the experiment between the rank ordering, and the choice of the brand by the subjects during which the experimenter kept aside the two brands of ranks 2 and 3, 5 and 6 or 10 and 11, and asked the respondent to choose between the two. This was felt necessary to avoid the automatic choice of the brand which was ranked higher than the alternative brand.

Three days after the first interview and choice, each subject was given the brand of his choice in each of the two products. Immediately after that, he was shown all the brands in each product class and was asked to rank order them in terms of his preference for the brands.

The experimental design thus provides all the measures which the hypotheses demand. Preference for a brand is obtained by rank ordering of the brands. Familiarity measure is obtained by splitting the sample into male and female subjects who are likely to differ in their experience and familiarity with respect to two products (shampoo and cigars) whereas their familiarity is likely to be about the same for the third product (toothpaste) which becomes the control product. Post-decision dissonance is measured by the standard procedure of obtaining change (positive or negative) in rank positions of the chosen and the rejected alternatives from before the choice to after the choice.

Owing to improper filling of the questionnaires, 3 male and 1 female subjects are discarded from the analysis. The final sample used in the study is then 96 subjects.

RESULTS

The manifestation of dissonance reduction is the change in rank position of the chosen brand and the rejected brand from before the choice to after the choice. Festinger (10) states that the brand chosen will become more attractive after the choice and, therefore, should be manifested in ranking the chosen brand higher after the choice. Similarly, the attractiveness of the rejected brand will be reduced, which could be manifested in ranking it lower after the choice. In other words, the difference in rank position should have a positive sign for the chosen brand and a negative sign for the rejected brand.

The results are given below separately for each of the three hypotheses. Tables 1 and 2 provide the frequency of respondents who showed positive, negative, or no change in the rank position of the chosen and the rejected brands respectively in each of the three product classes.

TABLE 1

Change in Rank Position of the Chosen Brand

Product	Male				Female				Total			
	+	−	No Change	p	+	−	No Change	p	+	−	No Change	p
Toothpaste	26	5	16	.005	22	[illegible]	21	.005	48	9	39	.005
Hair Shampoo	11	[illegible]	9	.005	14	[illegible]	11	.05	25	4	20	.005
Cigars	13	5	5	.05	18	[illegible]	5	.005	31	6	10	.005

The sign test is applied to the frequency of + and − changes in each of the nine classifications given in Table 1. The sign test permits one to test the null hypothesis that + and − changes are equally distributed in the sample. The alternative hypothesis is that there are more + than − changes in the data. In Table 1 the difference in rank position of the chosen brand are all significant at least at .05 level when one-tailed test is applied. Furthermore, except for cigars among male subjects and hair shampoo among female subjects, the differences, in the direction of the hypothesis, are significant beyond .005 level.

The hypothesis that the attractiveness of the rejected brand would be reduced after the choice is not fully supported as we see from Table 2. Except for toothpaste among male subjects and hair shampoo among the female subjects, the rank differences, in the direction of the hypothesis, are insignificant. It will be remembered that we must expect greater frequency of − change in the case of the rejected brand.

TABLE 2

Difference in Rank Position of the Rejected Brand

Product	Male				Female				Total			
	+	−	No Change	p	+	−	No Change	p	+	−	No Change	p
Toothpaste	6	17	24	.05	10	11	26	N.S.	16	28	50	.05
Hair Shampoo	1	11	9	N.S.	0	16	9	.005	4	27	18	.005
Cigars	6	12	5	N.S.	7	8	9	N.S.	13	20	12	N.S.

While the hypothesis related to the rejected brand is not statistically supported in Table 3, there is a definite tendency in the direction of the hypothesis in all the classifications. The − changes outnumber the + changes. It is possible that with a larger sample size in each classification we would have obtained significant results.

The second hypothesis states that the more the preference for the brands between which the choice is made, the less will be post-decision dissonance. The hypothesis is tested by comparing post-decision dissonance reduction at different choice points on the preference continuum which is assumed to underlie the rank ordering of the brands in a product-class. In other words, we must compare the changes in rank positions of brands which were placed as ranks 2 and 3, 5 and 6 or 10 and 11 between which the subject chose one and rejected the other.

The change in rank positions of the chosen and the rejected brands at the three choice points are given below in Table 3.

TABLE 3

Change in Rank Position of Chosen and Rejected Brands

Preference Position (Ranks)	*Chosen Brand*				*Rejected Brand*			
	+	−	*No Change*	*P*	+	−	*No Change*	*P*
2-3	13	4	46	< .05	2	28	33	< .005
5-6	30	9	12	< .005	15	33	14	< .05
10-11	51	6	10	< .005	15	14	37	N.S.

Let us first look at the data related to the chosen brand. All the differences are significant at .05 or less level of significance. However, the changes in rank positions of the chosen brand are not equal for the three choice points. First, more subjects did not change the rank position one way or the other if the brand chosen was ranked either 2 or 3 when compared to the 10 or 11 ranking of the chosen brand. This tells us that the greater the preference for the brand involved in choice decision, the less is the change in the rank after the brand is chosen. Second, the number of subjects who changed the rank of the chosen brand in the positive direction, increases as we go from most preferred (ranks 2 and 3) to less preferred (ranks 10 and 11) brands which is another indication of the support of the hypothesis.

However, if we look at the change in rank positions of the rejected brands, the results contradict the hypothesis. According to the hypothesis, we must expect less change if the rejected brand was ranked 2 or 3 than if it was ranked 10 and 11. The data in Table 3 regarding the rejected brand do not support this. There are, however, two explanations for the contradictory findings. First, there exists a ceiling effect for the brands which are placed at the extremes of the preference continuum. For example, the further downward movement for the rejected brand is curtailed if it was ranked 10 or 11. If we look at the frequency of − changes in the rank of the rejected brand, we see that it does increase from ranks 2 and 3 to ranks 5 and 6, and thereafter it sharply drops in the case of ranks 10 and 11. In fact, the ceiling effect is also likely the cause for getting more + changes in the last category which is clearly contrary to the first hypothesis. The same ceiling effect seems to influence the frequency of subjects who did not change. It is much greater at *both* the extremes of the preference continuum.

Another explanation is that possibly there exist two separate types of consumers, one which reduces dissonance by enhancing the attractiveness of the chosen brand, and another which reduces dissonance by reducing the attractiveness of the rejected brand. Some indication of this can be found in Tables 1 and 2 when we compare the number of 'no change' subjects in each of the classifications.

The final hypothesis states that the greater the familiarity with the product class (possibly due to more purchase and consumption), the less will be the post-decision dissonance. In the experiment, three products were chosen such that familiarity with one product (toothpaste) will be the same in both the sexes, whereas familiarity will be greater among males with the second product (cigars), and it will be greater among females with the third product (hair shampoo). We should, therefore, expect (i) about the same extent of change between male and female subjects in the chosen and the rejected brands of toothpaste, (ii) greater change in hair shampoo among male subjects as compared to female subjects, and (iii) greater change in cigars among female subjects as compared to the male subjects.

Table 4 provides the between group comparison of changes in rank positions of the chosen and the rejected brands. A Chi-square analysis is performed to see whether the differences between sexes are statistically significant.

TABLE 4

Comparison of Changes in Rank Positions Between Sexes

Product	Chosen Brand		Rejected Brand	
	Male	Female	Male	Female
Toothpaste	+ 26	+ 22	6	10
	− 5	− 4	− 17	− 11
	χ^2 = .17	N.S.	χ^2 = 1.90	N.S.
Hair Shampoo	+ 14	+ 11	+ 5	0
	− 1	− 3	− 11	− 16
	χ^2 = 1.2	N.S.	χ^2 = 4.6	$P < .05$
Cigars	+ 13	10	+ 6	+ 7
	− 5	1	− 12	− 8
	χ^2 = 3.2	$P < .08$	χ^2 = .50	N.S.

Except for rank change in the chosen brand of cigars and that in the rejected brand of hair shampoo, the differences are insignificant. Furthermore, the latter is a significant result but contrary to the hypothesis. However, it will be seen that there is a definite tendency in the data in the direction of the hypothesis. With larger samples for hair shampoo and cigars, it is very likely that we would have obtained significant differences between the groups, especially with respect to the change in rank position of the chosen brand.

Another approach to infer the influence of product familiarity on the post-decision dissonance is to compare differences in rank positions of the chosen and rejected brands between two products within each sex group separately. We should, for example, expect greater dissonance reduction in hair shampoo than in cigars among male subjects and greater reduction in cigars than in hair shampoo among female subjects.

Table 5 provides a comparison between two products for each sex group. The data reveal that shampoo and cigar products do show significant difference in the rank position of the chosen brand among male subjects whereas the same tendency among female subjects is in the direction of the hypothesis although it is not significant. Similarly, the difference between the two products in terms of the change in rank position of the rejected brand is significant among female subjects. However, it is contrary to the hypothesis. Among the male subjects the difference is in the direction of the hypothesis but it is not at all significant.

TABLE 5

Comparison of Change in Rank Position between Two Products in Each Sex Group

Male			Female		
Chosen Brand			Chosen Brand		
	+	−		+	−
Cigars	13	5	Cigars	10	1
Hair Shampoo	14	1	Hair Shampoo	11	3
χ^2 = 3.20 < .05			χ^2 = 1.82 N.S.		
Rejected Brand			Rejected Brand		
	+	−		+	−
Cigars	6	12	Cigars	7	8
Hair Shampoo	4	11	Hair Shampoo	0	15
χ^2 = .15 N.S.			χ^2 = 9.8 $P < .05$		

SUMMARY AND CONCLUSIONS

An experimental study was conducted to understand the effect of brand preference and past familiarity with the product on the magnitude of cognitive dissonance and its consequent reduction. It was hypothesized that the greater the preference for the two brands between which the consumer has to choose, the less the magnitude of dissonance. Similarly, the more familiar the product class to the consumer, the less the magnitude of dissonance.

A total of 100 subjects, half male and half female, were used to create four subgroups. The first two subgroups, one consisting of 25 males and another 25 females, were required to rank order 11 national brands of toothpaste and hair shampoo. The third and fourth groups, consisting of 25 male and 25 female subjects respectively, rank ordered 11 national brands of toothpaste and 12 brands of cigars. The rank ordering of brands was based on the subjects' preference for the brands. In each subgroup, each one third of the subjects were given a choice between two brands ranked as 2 and 3, 5 and 6 or 10 and 11 for each of the two products. The subjects were given

the chosen brands after three days or time lapse and they were asked to rank order all the brands again.

The three products (toothpaste, hair shampoo and cigars) were chosen to create different degrees of familiarity between the sexes. Toothpaste was assumed to be equally familiar to both males and females; however, shampoo was assumed to be more familiar than cigars to female subjects. Similarly, cigars were assumed to be more familiar than shampoo to the male subjects.

The choices between the ranks 2 and 3, 5 and 6 or 10 and 11 were provided in the experiment to create different degrees of brand preference. Brands ranked as 2 or 3 are more preferred than brands ranked as 5 or 6 which are in turn more preferred than brands ranked as 10 or 11.

Magnitude of post-decision dissonance reduction was calculated from the frequency of positive or negative changes in rank positions of the chosen and the rejected brand from before the choice to after the choice. A sign-test was performed on the changes in the rankposition of the chosen and the rejected brands to see whether the hypotheses were statistically significant.

The first two hypotheses related to the existence of post-decision dissonance and the influence of brand preference on the magnitude of dissonance were supported when the change in rank position of the chosen brand was the focal point. However, the changes in rank position of the rejected brand were not statistically significant in general. There did exist a strong tendency toward the support of the hypotheses. The third hypothesis related to the influence of product familiarity on the magnitude of dissonance was not supported by the data because the differences were small and the sample size of the subgroups was also small. Again, there was, in general, a tendency for the data to support the hypothesis.

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