AN EXTENDED PERSPECTIVE ON THE ANTECEDENTS OF SATISFACTION

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ABSTRACT

The authors use data from a large-scale field study to show that the interrelationships among expectations, disconfirmation, and satisfaction are different for satisfied and dissatisfied consumers, and different again between satisfied consumers who reported negative disconfirmation and satisfied consumers who reported positive disconfirmation. These findings suggest some reassessment of the traditional expectations-performance paradigm of consumer satisfaction.

INTRODUCTION

A very widely accepted model of the cognitive process of which satisfaction is a part is the one proposed by Oliver (1980). The model, as depicted in Figure 1, states that the antecedents of satisfaction are expectation and disconfirmation. Further, expectation and disconfirmation are postulated to be independent and additive, based both on a review of research in social and applied psychology, and on a series of studies that showed that expectations measured before product exposure were not correlated with subsequent expectation disconfirmation.

However, recent research reports have not supported this perspective, Swan and Trawick (1981) found a small but significant correlation between expectation and disconfirmation. Churchill and Surprenant (1982) found a negative significant relationship in one of their two experiments and a positive, although nonsignificant relationship in the other. Bearden and Teel (1983) found a positive and significant relationship in both halves of their split sample. In all these studies but one, there was support for the positive relationship between expectations and satisfaction, and between disconfirmation and satisfaction. However, for the one study where these relationships did not hold, the Churchill and Surprenant VDR experiment, there is reason to believe that the results were affected by the methodology employed. (Kennedy and Thirkell 1983).

The independence between expectation and disconfirmation was developed in Oliver (1977). He states that "A defense of the notion of expectation-disconfirmation independence would require that the likelihood of either a positive, zero, or negative disconfirmation be the same at all expectation levels (i.e., that disconfirmation be randomly distributed about expectation). It is argued here that the context of many overall product performance evaluations is sufficiently subjective so that this condition is satisfied from a perceptual standpoint." In effect, Oliver is arguing that disconfirmation is a form of error term resulting from a situation in which performance cannot be assessed objectively and/or because of attrition in the expectations cognitive structure. However, neither alternative may hold in a given situation. In addition, such a position does not appear to give adequate consideration to the possibility that expectations can lead to behaviour that affects actual and/or perceived outcomes, or that expectation levels per se might be related to how an individual perceives performance. It may well be that the independence of expectations and disconfirmation applies to only a subset of consumer expectation/outcome/disconfirmation processes.

Further, there is a measurement issue that is not addressed by Oliver in his discussion of the relationship between expectations and disconfirmation. It arises from the fact that expectations measures are perceived as being bounded on the lower side at 0, whereas the 0 point in disconfirmation has an area of positive disconfirmation on one side and negative disconfirmation on the other. Any model which posits a linear relationship between disconfirmation and expectation assumes that the relationship is the same throughout a scale that goes from negative to neutral to positive. This assumption is the one that has been used in the research referred to earlier in this paper.

However, an alternative approach is to consider the evaluative scale as having two regions, each bounded by 0 at the lower end. This approach has support in empirical research by Amstutz (1967), who found that amount of material recalled was related to either positive or negative attitude, i.e., high recall correlated with highly positive or highly negative attitudes.

This article is based on field research on new automobile purchases and use. The research was designed and carried out in 1979-80. The purpose of this article is to provide the reader with information in four areas:

1. Replication, with aggregated data, of earlier reported studies on the interrelationships among expectations, disconfirmation, and satisfaction.

2. Demonstration that some of these interrelationships change when the data are disaggregated.

3. Exploration of evidence for consumer tolerance towards disconfirmed expectations.

4. Assessment of four models of disconfirmation.

FIGURE 1
Cognitive Model of the Antecedents
and Consequences of Satisfaction Decisions
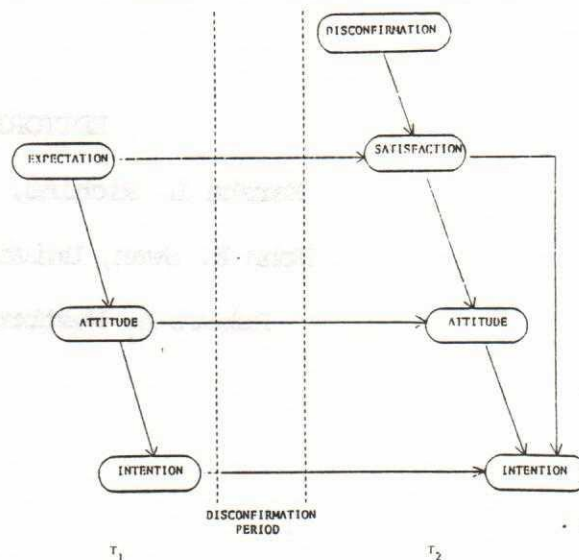
Adapted from Oliver (1980)

VARIABLES OF INTEREST

Expectations

Consumers were viewed as holding specific expectations, at the time of purchase, about benefits and costs associated with future product usage. The four major dimensions of benefits and costs described were drawn from the conceptual developments of Day (1977), except that 'support costs and efforts' were substituted for his original 'prepurchase costs and efforts', and a fourth category of 'system response' expectations was added. The inclusion of support costs and efforts takes account of monetary, time and psychic investments which are made continually over time by consumers. The inclusion of 'system response' expectations recognizes that consumer satisfaction is likely to be a function not only of the effort and money expended by the consumer, but also a function of how quickly and how well problems which do occur are rectified. Table 1 provides a summary representation of the way the four consumer expectation sets are conceptualized, and the attributes included in each set.

TABLE 1
Automobile Attribute Sets

Major Dimensions	Specific Attributes
PERFORMANCE BENEFITS	pickup, acceleration ride and handling fuel economy interior comfort convenience of seat belt operation noise level of operation quality of materials quality of workmanship
SOCIAL BENEFITS AND COSTS	popularity with family popularity with friends
SUPPORT COSTS AND EFFORTS	maintenance costs repair costs not covered by warranty number of warranty repair visits number of non-warranty repair visits number of days without vehicle
SYSTEMS RESPONSE	warranty repairs correct first time service personnel have good attitude service personnel understand my problem job is done when promised availability of needed parts

Five point semantic differential scales were employed to measure the array of attribute expectations (Miller 1977), in conjunction with similar scales measuring the importance of each attribute. Examples of the scale items used are illustrated in Table 2.

To generate a single summary expectation measure for each consumer, the following accumulation procedure was employed:

$$E = \sum_{i=1}^{j} (E_i \cdot I_i)/j \qquad (1)$$

where: E = expectation measure

E_i = expectation about attribute i

I_i = importance of E_i

j = number of attributes considered

Disconfirmation

The second variable of interest in this study was disconfirmation, or the extent to which perceived performance exceeded, equalled or fell short of expectations held at the time of purchase. Since the precise manner in which consumers evaluate product performance in relation to the expectations which they held at the time of purchase is still not uniformly agreed upon, four models of disconfirmation were evaluated:

a compensatory model, a compensatory (importance) weighted model, a negative model and a negative (importance) weighted model.

The compensatory model assumes that perceived performance falling short of expectations on some attributes is offset totally or in part by perceived performance exceeding expectations on other attributes. The weighted variant uses importance ratings to weight individual item evaluations. The negative model assumes that performance exceeding expectations on some attributes will not compensate for poor performance on other attributes, and represents simply the proportion of all attributes which are perceived as being negatively disconfirmed over time by the consumer. The negative weighted model again takes account only of negatively disconfirmed attributes, but also incorporates the magnitude of the attribute disconfirmation and its associated importance weight.

Five-point Likert scales were used to assess the extent of disconfirmation on an attribute-by-attribute basis, in conjunction with semantic differential scales measuring the current importance of each attribute. Examples of the scale items used are illustrated in Table 2.

To generate the four summary disconfirmation measures for each consumer, the following accumulation procedures were employed:

COMPENSATORY

$$D_x = \sum_{i=1}^{j} (D_i)/j \qquad (2)$$

COMPENSATORY WEIGHTED

$$D_x = \sum_{i=1}^{j} (D_i I_i)/j$$

NEGATIVE

$$D_x = \sum_{i=1}^{j} A_i/j$$

NEGATIVE WEIGHTED

$$D_x = \sum_{i=1}^{j} (D_i \cdot I_i \cdot A_i)/j$$

where: D_x = disconfirmation measure x

D_i = disconfirmation of attribute i

I_i = importance of D_i

A_i = (0 if $D_i \geqq 0$)

    (1 if $D_i < 0$)

j = number of attributes considered

Satisfaction

The third variable of interest was overall satisfaction with the purchased product. A series of eleven Likert scale measures of satisfaction was taken, and used to construct the overall satisfaction scale used in this study. The specific scale items are summarized in Table 3 below. Each item was used with a five point scale ranging from 'very satisfied' to 'very dissatisfied'.

TABLE 2
Description of Measures

Construct	Variable	Items Type	Items Number	Typical Statement
Expectations	Y1	Attribute-specific	21	When I Bought My New Car I Expected: Excellent ⟶ Poor fuel economy:_:_:_:_:_fuel economy
		Importance weights	21	When I Bought My New Car: Fuel economy was Important:_:_:_:_:_Unimportant
Disconfirmation	Y2 Y4 Y3 Y5	Attribute-specific	21	Compared to What I Expected My Car to be Like: Fuel economy has been: Much Worse / Worse / As / Better / Much Better Than Expected / Than Expected / Expected / Than Expected / Than Expected -2 / -1 / 0 / 1 / 2
		Importance weights	21	and is now Important:_:_:_:_:_Unimportant
	Y6	Global	1	Overall, taking everything into consideration, this car has been: Much Worse / Worse / As / Better / Much Better Than Expected / Than Expected / Expected / Than Expected / Than Expected -2 / -1 / 0 / 1 / 2
Satisfaction	Y7	Attribute-specific	11	Time and effort required to run this car: Very Satisfied / Somewhat Satisfied / Neither Satisfied Nor Dissatisfied / Somewhat Dissatisfied / Very Dissatisfied 1 / 2 / 3 / 4 / 5
	Y8	Global	1	Overall, taking everything into consideration, how satisfied have you been with the total experience of owning and operating your new automobile? Extremely Satisfied / Somewhat Satisfied / Neither Satisfied Nor Dissatisfied / Somewhat Dissatisfied / Extremely Dissatisfied 1 / 2 / 3 / 4 / 5
	Y9	Propensity to Recommend	4	Would you recommend this particular model to a friend? Yes / Uncertain / No 1 / 2 / 3

TABLE 3
Satisfaction Scale Items

The way delivery of new car was handled

Mechanical (engine, drive train, suspension and brakes) performance

Options and accessories performance

Bodywork

Interior finishing

Running costs (excluding finance, registration and insurance charges)

Time and effort required to run this car

Need for and speed/quality of warranty repairs

Need for and speed/quality of non-warranty repairs

Popularity with your family

Popularity with friends

RESEARCH DESIGN AND METHODOLOGY

Design

A cross-sectional research design was used, although the variables of interest are related to a process. The use of such a design means that there is the potential for the past expectation data to be biased by subsequent product performance. However, the authors concluded that the dollar value of a new automobile purchase, together with the large role the automobile plays in the life of most Canadians, would result in very stable and complex consumer cognitive structures for the automobile purchase process, thus minimizing the bias potential for this product class. Tests to examine the data for bias were built into the design, and the results reported in a later section of this paper.

Method

The sampling frame utilized was a regional subset of Canadian residents who had purchased a new General

Motors passenger car within the previous two years, and who still owned the car. To ensure adequate cell sizes of at least five respondents for the more detailed data analysis, and based upon anticipated response rates, the size of the sample was set at 3,000 consumers. General Motors of Canada Limited then randomly selected these consumers from their 1979 and 1980 customer records, within the contraints of the quota sampling parameters summarized below.

Type of automobile	*Compact (Chevette)
	*Intermediate (Malibu)
	*Full size (Impala)
	*Sports-car (Camaro)
Time since purchase	*0 - 6 months
	*6 - 12 months
	*12 - 20 months
Location	*British Columbia
	*Manitoba
	*Ontario
	*Nova Scotia
Urban/rural	*(Within each province)

The research instrument employed was a nine-page questionnaire in booklet form which was mailed out in two waves with personalized covering letters and reply-paid envelopes to all 3,000 new car owners. The covering letter accompanying the questionnaires described briefly the intent of the study, requested that the questionnaire be completed by the principal driver when a new car had been purchased within the preceding two years, and promised to donate one dollar to the charity of a person's choice for completing the enclosed questionnaire.

The 1,104 questionnaires returned by the cut-off-date were reduced to a total data-base sample of 985, after eliminating questionnaires which were usable but referred to another car type (59), were incomplete (47), or where the respondent claimed not to have purchased a new car (13). The objective of having respondents spread equally across the time since purchase continuum was achieved. Allowing for the two-month delay between sample generation and data collection, 35% of respondents were in the zero to eight months bracket, 34% were in the eight to fourteen months bracket, and 31% were in the fourteen months and greater bracket.

A follow-up telephone survey was made among all forty potential respondents in one urban/rural geographic area to obtain verbal responses for six preselected criterion variables. These variables were: overall satisfaction, global disconfirmation, whether or not respondents would recommend their dealership to a friend, principal driver, sex, and time since purchase. Comparison of these responses to questionnaire responses produced no significant differences. Further, inspection of the response distributions revealed no indication that significant differences would have been found with a larger telephone survey sample. Therefore, it was concluded that the data contained no significant non-response bias.

RESULTS

Scale Distributions

The existing body of CS/D literature provided only limited empirical precedent as to how attribute-specific expectations and disconfirmations should be accumulated into overall aggregate measures. Therefore, some attention was devoted to exploring the nature of the dependent variable distributions, prior to consider-

ations of validity and an examination of the variable inter-relationships. Kolmogorov - Smirnov one-sample tests were conducted to test the normality of the obtained distributions, by type of car. In each instance the obtained expectations, compensatory disconfirmation and satisfaction scales did not depart significantly from normality, and were appropriate for use in parametric analyses. Only non-parametric tests were used on the negative disconfirmation model measures.

Reliability and Validity of Scales

Cronbach's alpha was selected for all tests of reliability. All scales produced a reliability coefficient of 0.83 or better, well above the 0.70 generally regarded as sufficient for research purposes (Nunnally 1978). This also compares favourably with the scale reliabilities obtained by Churchill and Surprenant (1982) in their study using similar item measures.

Content validity depends upon the extent to which an empirical measurement reflects a specific domain of content. In this study, content validity was assessed after reference to earlier similar studies of automobile buyers, in consultation with two industry executives from General Motors, and after a questionnaire pretest among forty consumers from a local dealership in London, Ontario. The low incidence of use of the open-ended expectation and disconfirmation items in the questionnaire further strengthened the authors' view that no attributes of major concern had been omitted.

Construct validity, in its broadest sense, encompasses the entire formulation and empirical analysis of the theoretical relationships being explored. To this extent, replicating previously identified relationships provides, at least in part, ipso facto support for the construct validity of the major constructs. Other aspects of construct validity, however, are addressed prior to a discussion of the formal empirical analyses.

Time-of-Purchase Expectations

Two tests were made on the expectation measures to see if the data collection methodology had produced biased data. First, the measures were correlated, by car type, with time since purchase. None of the four correlations were significant, and it was concluded that consumer expectations did not drift in any systematic fashion over time.

The second test of expectations validity was to examine the pattern of average expectation levels across the four car types, as reported in Table 4. Nine of the ten performance benefit and social cost and benefit expectations differed significantly, and in a manner consistent with what was intuitively expected from the different car models. Support costs and efforts and system response expectations, on the other hand, were relatively independent of the type of car, again as had been expected.

Postpurchase Disconfirmation and Satisfaction

There was less concern about the disconfirmation and satisfaction scales used, in that consumers were asked to rate current perceptions of performance relative to what they had expected. Nevertheless two validity checks were made on the disconfirmation items used. In the first test, ten of the twenty attributes differed significantly across car models, and in a meaningful way. For example, Impala drivers on average rated seat belt performance somewhat positively (mean 0.19), whereas Chevette drivers perceived performance

TABLE 4
Mean Expectation Levels by Performance Attribute and Car Type*

	CHEVETTE	MALIBU	IMPALA	CAMARO	F TEST SIG.
Pickup and acceleration	2.73	3.32	3.10	3.88	.001
Ride and handling	3.63	4.30	4.34	4.36	.001
Fuel economy	4.54	3.84	3.44	3.22	.001
Interior comfort	3.37	3.87	3.97	4.09	.001
Seat belt operation	3.28	3.44	3.45	3.47	.470
Noise level of operation	3.48	4.20	4.23	3.94	.001
Quality of materials	3.56	3.79	3.98	3.88	.001
Quality of workmanship	3.62	3.90	3.92	3.95	.002
Popularity with family	3.06	3.85	3.95	3.31	.002
Popularity with friends	2.46	2.91	2.90	3.75	.001
Maintenance costs	4.03	4.05	4.01	3.83	.067
Repair costs not covered by warranty	3.99	3.93	4.09	3.79	.054
Warranty repair visits	3.96	3.99	4.02	4.02	.929
Non-warranty repair visits	4.03	4.02	4.12	4.04	.837
Days without vehicle	4.30	4.36	4.42	4.41	.566
Warranty repairs correct first time	4.25	4.10	4.22	4.16	.404
Service people attitude	4.28	4.22	4.17	4.25	.739
Service people understand problems	4.22	4.27	4.17	4.22	.802
Service and repairs done when promised	4.43	4.29	4.25	4.28	.199
Needed parts available	4.40	4.40	4.38	4.23	.184
	N=320	N=213	N=208	N=240	

*1 through 5 equals low through high expectations

on this attribute significantly more negatively (mean -0.25). This observation was consistent with the fact that Chevettes had been recalled to correct a seatbelt-related problem, which was reflected in overall levels of disconfirmation.

The second test of disconfirmation validity was to correlate each of the four disconfirmation scale scores with the single item five-point scale used to capture overall feelings of disconfirmation. Both Pearson correlations (0.68, 0.67, 0.57, 0.58) and Spearman rank correlations (0.66, 0.66, 0.52, 0.53) between the compensatory and negative measures, and the single item disconfirmation measure, were significant at the .001 level. Hence all four of the disconfirmation scales appear to have captured the overall feelings of disconfirmation reported by consumers, although the compensatory scales provided the best fit.

Finally, the satisfaction scale was examined for construct validity. Four items which did not directly measure satisfaction, but which a priori should correlate positively with satisfaction, were used to construct a 'propensity to recommend' scale. (Cronbach's alpha = 0.80). The Spearman correlation between this scale and the eleven-item satisfaction scale was 0.53, which is significant at the 0.001 level and provides good support for the validity of the satisfaction scale.

VARIABLE INTERRELATIONSHIPS

The Spearman rank correlations between each of the variables of interest are summarized in Table 5. Reported disconfirmation was strongly correlated with satisfaction. Time of purchase expectations were also significantly correlated with satisfaction, although the power of the relationship was not as strong as that between disconfirmation and satisfaction. These findings confirm the relationships typically reported in the CS/D literature.

The alternative disconfirmation measures were, as would be expected, highly intercorrelated. The strength of the correlation between the compensatory model and its importance-weighted counterpart (.989), and similarly between the negative model and its importance-weighted variant (.978), strongly suggests that the importance weights transform the respective disconfirmation scales monotonically.

TABLE 5
Spearman Correlations showing Variable Inter-Relationships

	SATIS-FACTION	EXPECT-ATIONS	COMPENS. DISCONF.	COMPENS. WT. DIS.	NEGATIVE DISCONF.	NEGATIV WT. DIS
SATISFACTION						
EXPECTATIONS	17 (01)					
COMPENSATORY DISCONFIRMATION	53 (01)	-05 (09)				
COMPENSATORY WEIGHTED DIS-CONFIRMATION	55 (01)	-03 (20)	99 (01)			
NEGATIVE DISCONFIRMATION	59 (01)	03 (20)	80 (01)	80 (01)		
NEGATIVE WEIGHTED DIS-CONFIRMATION	61 (01)	-01 (45)	79 (01)	81 (01)	98 (01)	

All decimals are omitted

Levels of significance shown in parentheses

The correlations between time of purchase expectations and reported disconfirmation were not found to be significant, irrespective of the particular formulation being used. These tests appear to confirm Oliver's view that expectation and disconfirmation are independent. However, a plot of consumer expectations and disconfirmation suggested that there was a systematic relationship between the level of expectations and the magnitude of absolute disconfirmation. The expectation measures were aggregated into 15 groups of differing magnitudes. A Barlett-Box F test across the fifteen expectation groups was highly significant (p = .006), and confirmed that the variance in disconfirmation scores increased with expectation.

This result suggested that there might be subgroups within the total data base that had fundamentally different variable interrelationships which were masked in the aggregation process. The first disaggregation for analysis was the split into satisfied and dissatisfied groups of consumers.

Variable Interrelationships within Satisfied and Dissatisfied Groups

The Spearman rank correlations between each of the variables of interest, reported separately for satisfied and dissatisfied consumers, are summarized in Table 6. The pattern of relationships is similar to that already described, the one notable exception being the correlation between expectations and satisfaction among dissatisfied consumers. For the satisfied group, expectations and satisfaction were positively correlated, as previously. For the dissatisfied group, however, an inverse relationship was observed between expectations and satisfaction (the somewhat low level of significance can be attributed to the much smaller size of this group). Apparently, when dissatisfaction does occur, consumers with very high expectations are going to feel more extreme about their sense of dissatisfaction than consumers with relatively lower initial expectations.

TABLE 6
Spearman Correlations for
Satisfied and Dissatisfied Groups***

	SATIS-FACTION	EXPECT-ATIONS	COMPENS DISCONF.	COMPENS WT. DIS	NEGATIVE DISCONF.	NEGATIV WT. DIS
SATISFACTION		18	42	44	53	53
EXPECTATIONS	-13*		-06**	-04**	02**	-01**
COMPENSATORY DISCONFIRMATION	35	-01**		99	74	73
COMPENSATORY WGTD. DISCONFIRMATION	41	-14**	99		75	75
NEGATIVE DISCONFIRMATION	27	07**	94	92		98
NEGATIVE WEIGHTED DISCONFIRMATION	35	-12**	96	97	93	

Entries above the diagonal are the correlations for satisfied consumers (N=814).

Entries below the diagonal are the correlations for dissatisfied consumers (N=88). Remaining consumers (N=26) were neither satisfied nor dissatisfied.

*** All correlations significant at .01 level unless otherwise stated, and all decimals are omitted.

* .p < .10

** Not significant

Consumer Tolerance Regions

Consumer tolerance can be said to exist when negative disconfirmation does not lead to dissatisfaction or, alternatively, positive disconfirmation does not result in satisfaction. The total absence of consumer tolerance would require that all disconfirmation scores for satisfied consumers fall in the positive range, and that all scores for dissatisfied consumers fall in the negative range.

Figure 2 summarizes the cumulative distributions of compensatory disconfirmation scores for satisfied and dissatisfied consumers (similar distributions were observed using compensatory weighted scores, and the remaining two disconfirmation formulations were unsuitable for this stage of the analysis). It can be seen that over 90% of dissatisfied consumer disconfirmation scores were in the expected negative range, with the remaining scores falling in the low end of the positive range. Within the satisfied group, however, almost half reported negative (and in some instances quite extreme negative) disconfirmation. Apart from measurement error, this observation can only be explained in terms of consumer tolerance. It can be seen from this figure that the total sample can be disaggregated into four groups:

- consumers experiencing positive disconfirmation and being satisfied.

- those experiencing positive disconfirmation and dissatisfied.

- those experiencing negative disconfirmation and satisfied.

- those experiencing negative disconfirmation and dissatisfied.

The small size of the positive disconfirmation/dissatisfaction group (9 consumers) precluded useful analysis. The final stage in the analysis was the examination of variable interrelationships within each of the other three groups.

FIGURE 2
Cumulative Disconfirmation Distributions
for Satisfied and Dissatisfied Consumers
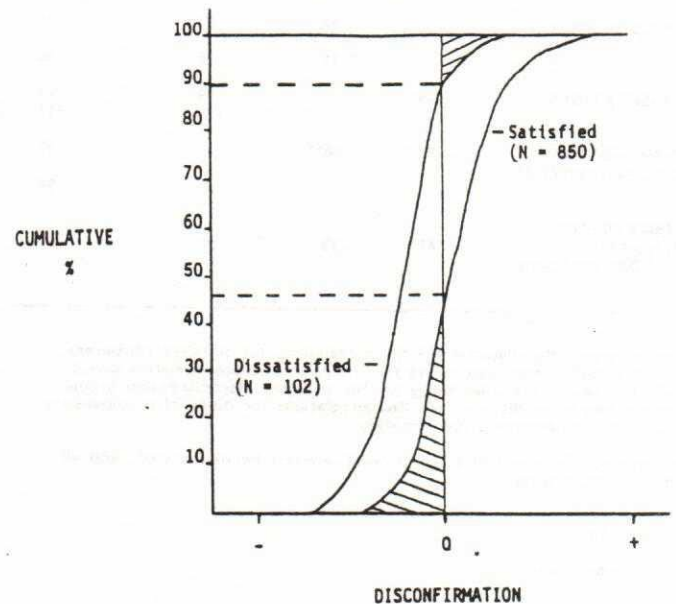
The three respective sets of Spearman correlations are reported in Table 7.

Consistent with the previous analyses, there is a positive correlation between disconfirmation and satisfaction for each of the three groups. However, when satisfied customers are separated into positive and negative disconfirmation groups, there are opposite and significant relationships between expectations and disconfirmation for the two groups.

In short, once the <u>direction</u> of disconfirmation is established, then its absolute magnitude can be seen to vary directly with the level of expectations previously held. A similar phenomenon was observed among dissatisfied consumers, although the significance of the relationship did vary for the weighted and unweighted models.

In the aggregate, it appears that any given level of positive disconfirmation had relatively more impact on reported satisfaction than did equivalent levels of disconfirmation on reported dissatisfaction. Customers apparently are quick to reflect favourable product evaluations in their overall levels of satisfaction, but are prepared to absorb some unfavourable evaluations before expressing them in terms of net dissatisfaction.

Undoubtedly, these tolerance regions vary from consumer to consumer, in that a given level of negative disconfirmation resulted in dissatisfaction for some consumers and satisfaction for others. On balance, however, the data support the existence of consumer tolerance towards negative disconfirmation. Finally, the size of this group is large, 37% of the sample in this study, and must be taken into account.

Construct Interrelationships Summarized

The key findings in this study are summarized in Figure 3. It can readily be seen that aspects of the expectations-performance paradigm, as generally understood within the field, are challenged by these findings.

TABLE 7
Spearman Correlations for Satisfied and Dissatisfied Groups, by Disconfirmation Experience

	SATIS-FACTION	EXPECT-TATIONS	COMPENS. DISCONF.	COMPENS WT. DIS.
SATISFACTION		26	22	25
		12	28	30
EXPECTATIONS	-14*		09	11
			-14	-17
COMPENSATORY DISCONFIRMATION	43	-08**		99
				98
COMPENSATORY WEIGHTED DISCONFIRMATION	45	-23	99	

Entries above the diagonal are the correlations for satisfied consumers, with the top in each pair being for the positive disconfirmation group and the lower correlation being for the negative disconfirmation group. Entries below the diagonal are the correlations for dissatisfied consumers experiencing negative disconfirmation.

All correlations significant at .01 level unless otherwise stated, and all decimals are omitted.

* $p < .10$

** Not significant

In the instance where expectations are exceeded (Case 1), then a uniformly positive set of effects is supported. The impact of expectations and disconfirmation upon satisfaction when expectations are not met is mediated by levels of consumer tolerance towards such shortfalls. If tolerance is not exceeded (Case 2), then the level of satisfaction will still rise directly with expectations and disconfirmation (although the magnitude of negative disconfirmation will in the first instance increase with rising expectations). Where tolerance is exceeded, however (Case 3), then higher expectations will in and of themselves also lead to greater reported dissatisfaction.

FIGURE 3
Summary of Construct Interrelationships
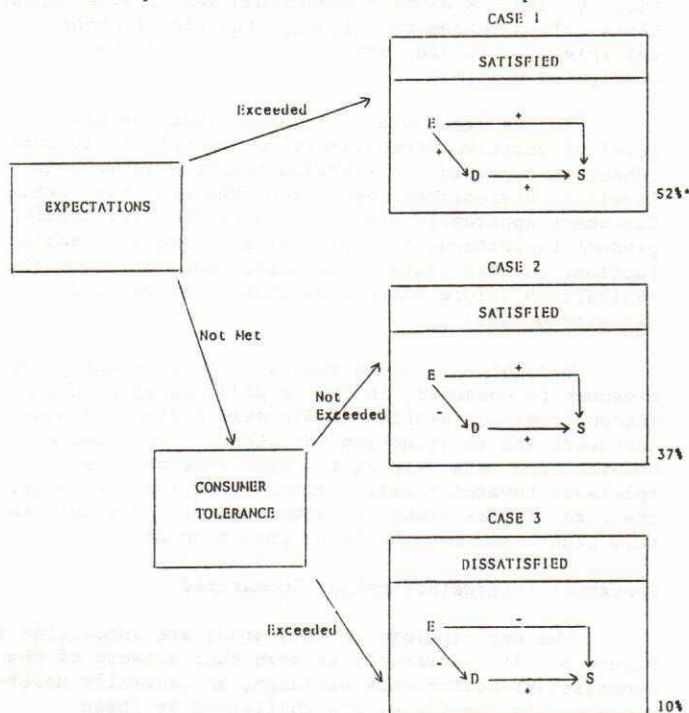
*Proportion of sample in given category (N = 911).

IMPLICATIONS

The findings in this paper clearly challenge aspects of the expectations/performance paradigm in its presently accepted form. While it would be premature to suggest revision of this paradigm on the basis of this one study, it is hoped that sufficient case has been made for at least a reassessment of traditionally accepted relationships. In particular, given the almost universal phenomenon of the large majority of consumers being satisfied with most purchases, it is essential that CS/D researchers in the future ensure sufficiently detailed data analysis to avoid the possibility of swamping relationships within the dissatisfied group with the weight of satisfied group effects.

The present study is limited by the use of recalled expectations rather than expectation measures taken at the actual time of purchase and, despite careful controls, the possibility exists that the recalled expectations measures may be biased in some way. Nevertheless, the authors believe the findings warrant further investigation. The initial confirmation of findings from other studies, when replicating their methods of analysis adds to their confidence in the validity of the relationships uncovered in this paper.

The results further suggest that the expectation and disconfirmation effects must be stated in conditional form:

1. <u>Given</u> exceeded expectations, satisfaction will result and the magnitude of the satisfaction will vary directly with expectations and disconfirmation.

2. <u>Given</u> unmet expectations, and <u>given</u> that consumer tolerance is not exceeded, satisfaction will result and the magnitude of the satisfaction will vary directly with expectations and disconfirmation, although the favourability of disconfirmation outcomes will vary inversely with the level of expectations.

3. <u>Given</u> unmet expectations, and <u>given</u> that consumer tolerance is exceeded, dissatisfaction will result and the magnitude of the dissatisfaction will vary directly with expectations and negative disconfirmation.

These relationships pose some difficulty in predicting satisfaction/dissatisfaction outcomes from expectation/disconfirmation data, in that whether or not consumer tolerance had been exceeded was inferred, in the first instance, from whether a given consumer was satisfied or dissatisfied. This difficulty suggests that further research into understanding and defining the exact nature of consumer tolerance effects would be appropriate. That such effects exist, however, is not held in any doubt by the authors.

The expectation and compensatory disconfirmation (weighted and unweighted) scales generated were, by and large, encouraging. Each scale was found to be quite normal, reliable and, as far as could be determined, demonstrated reasonable construct validity. The exact nature of such scales is somewhat sensitive to the set of product attributes included, however, and future researchers should give careful consideration to content validity if the aggregated scales and indices are to be meaningful.

Of the four disconfirmation models tested, the two compensatory models generally performed the best. Not only were the resultant scales more normal than the negative models, but the compensatory conceptualization gave the richest insights into the underlying empirical relationships. The empirical results from using

weighted and unweighted variants of the compensatory formulation were almost identical.

For managers, the findings are a mixed blessing. Where expectations are exceeded, satisfaction will increase directly with the level of expectations held. Where expectations are not met, however, and the consumer is not prepared to tolerate the shortfall, then higher expectations will lead to relatively greater dissatisfaction. Such an outcome suggests that managers must carefully balance their product and service offerings with the claims they make about them. Improving product quality, for example, means that legitimately higher expectations can be fostered among prospective consumers which in turn will lead to higher satisfaction. The danger arises when marketers over-claim on the likely expected performance from a given product or service. In this instance, unmet expectations which exceed a given consumer's normal tolerance towards such shortfalls will lead to dissatisfaction. Moreover, the magnitude of the experienced dissatisfaction will increase directly with the level of expectations held.

In short, managers can and should legitimately endeavour to raise consumer expectations, provided such expectations can be reasonably met by adequate perceived performance levels. Pursuing such a strategy while not providing adequate performance will simply increase consumer illwill.

In summary, a major contribution of the present study is that it has simultaneously assessed the inter-relationships between expectations disconfirmation and satisfaction in a real life purchase setting. While some may consider the research limited by the use of recalled expectation measures, the findings nevertheless have demonstrated validity through the replication of previous studies using equivalent forms of analysis, and also have provided further insights into the funda-mental determinants of consumer satisfaction and dissatisfaction.

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