ATTRIBUTING PERFORMANCE DISCREPANCY: DIMENSIONS, CAUSES, AND EFFECTS

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ABSTRACT

This paper investigates the underlying causal dimensions of how consumers attribute product performance discrepancies and the effect of the causal dimensions on their post-experience behavior. The study employed a real-life product in a laboratory setting and included positively disconfirmed, confirming, and negatively disconfirmed experiences. It was found that subjects used four causal dimensions to attribute their product experience discrepancy. Each dimension captured distinct message and product treatment effects. The dimensions interacted with the nature of product experience to influence subjects' satisfaction evaluation, product attitude and buying intentions.

INTRODUCTION

When a consumer finds a product performs very differently from what was expected, what would he or she immediately do? Feel (dis)satisfied? Revise future expectations? Complain to (or compliment) the firm? The answer is none of the above, at least not yet. Rather, the consumer would take up the role of an intuitive scientist (Ross 1971) trying to explain the performance discrepancy: he or she would set up hypotheses to explain why his or her expectations were disconfirmed and engage in activities trying to confirm or disconfirm these hypotheses before he or she would take a particular cause of action.

This study follows an interesting direction pioneered by Jolibert and Robertson (1976) and enriched by Folkes and her colleagues (e.g., Folkes 1984, 1988; Folkes, Koletsky, and Graham 1987) and other researchers (e.g., Krishnan and Valle 1979; Oliver and DeSarbo 1988; Valle and Wallendorf 1977). It studies the nature of attribution of product performance discrepancy, including its dimensions and the causes and impacts of these dimensions. The study uses a 2 (favorable or unfavorable message) by 2 (good or bad product performance) controlled experiment in which randomly assigned subjects were first exposed to a message about a real-life product and then used the product themselves. It differs from existing studies in two ways.

First, the design in the study contrasts with previous ones in which subjects were asked to respond to hypothetical consumption experiences (e.g., Folkes 1984; Oliver and DeSarbo 1988) or to retrospectively recall their previous consumption experiences (e.g., Folkes, Koletsky and Graham 1988; Valle and Wallendorf 1977). Results from the hypothetical consumption approach may not extend to real-life consumption situations and biases may be present in the retrospective approach because it lacks control over the environment where the consumption experiences occurred.

Second, the study includes a wider spectrum of consumption experiences. Subjects with positively disconfirmed (performance is better than expected), confirming (performance matches expectation) and negatively disconfirmed (performance is worse than expected) experiences were included. As a result, the nature of the causal dimensions in real-life product experience which have not been studied can be investigated. This paper also assesses how these causal dimensions were affected by the message and product treatments. The effects of these causal dimensions on satisfaction evaluation, product attitude, and future buying intention are also studied.

Causal Dimensions in Consumption Contexts

Existing attribution studies in consumer post-experience behavior generally adapt from psychology three underlying dimensions of causal attribution (e.g., Folkes 1984; Folkes, Koletsky and Graham 1988). These dimensions include Stability, Controllability and Locus (see Winer 1985 for a detail discussion). Stability refers to whether the causes are temporary (i.e., fluctuate over time) or permanent (i.e., remain constant over time). Controllability refers to whether the actor can influence the outcome. A cause can range from being totally controllable (i.e., the consumer controls the outcome) to totally uncontrollable (i.e., beyond the consumer's ability to affect the outcome). Locus refers to the "location" of the cause. It ranges from an internal (the consumer is totally responsible) to an external (someone or something else is responsible) cause. Though these dimensions have been applied in consumption contexts, they are developed from other behavioral contexts.

Hence some fundamental questions exist. Do these three dimensions represent all causal dimensions in typical consumption experiences? How would elements in a typical consumption experience, such as product, consumption situation etc. relate to these three dimensions. As suggested earlier by Valle and Wallendorf (1977) there is a need to see if attribution in consumption experience has the same underlying structure as attribution in other contexts. The following discussion explores four consumption specific causal dimensions. How they relate to the stability, controllability, and locus of control are also discussed.

Product as a Causal Dimension. When a product performs differently from what is being expected it is most natural to attribute the performance discrepancy to the product itself. Product as a causal dimension in fact represents the oldest causal dimension investigated (e.g., Jolibert and Peterson 1976). Product is also likely to be the most common locus for attributing one's consumption discrepancy.

Theoretical support for this dimension exists. For example, according to the cognitive dissonance orientation (see Festinger 1957; Holloway 1967) consumers adjust their cognitions to reduce dissonance according to the psychological costs involved. When there is a

disconfirming product experience, the consumer can either adjust the performance cognition or the pre-experience anchor to avoid any dissonance. If the psychological costs of adjusting the product performance cognition in line of pre-experience anchor (i.e., expectation) exceed the costs of not adjusting, the performance cognition would not be adjusted. In this case any performance discrepancy would likely be attributed to the product.

Previous studies (see Churchill and Surprenant 1982; Tse and Wilton 1988) has found product performance to be a dominant cognition in post-experience evaluation. These findings suggest that subjects might indeed attribute their product experience discrepancy to the products they tried. Accordingly, the product dimension can be regarded as a stable and external source. As for controllability, it depends on the product's complexity and the consumer's role in the product performance.

Consumption Situation as a Causal Dimension. Consumption situation is another important dimension for attributing performance discrepancy. Consumers are known to be affected by situational influences in their behavior from earlier studies (e.g., Belk 1975; Kakkar and Lutz 1981). For example, whether a visit to Disneyland occurs on a sunny or a rainy day will likely affect how a consumer enjoys the park. In return, the consumer may attribute some consumption experience discrepancy to the weather.

In terms of its characteristics consumption situation is likely to be an unstable (because consumption situations may change), uncontrollable and external source.

Consumer as a Causal Dimension. How products perform can also be traced to the consumers themselves. Product failures, for example, can result from consumers' inexperience and/or not following the usage instructions carefully. Product liability law suits provide many real-life examples in which lawyers from both sides try to reassign the cause of the accident either to the product or to the user. Another daily example can be seen when a consumer tries to return his or her purchases. Sometimes the staff in the customer service centers in retail stores unconsciously imply an attribution outcome in the very first words they say. Instead of "May I help you?", (that is, I do not know what happens and who is to blame) they may say "What is your problem?" (the customer is to blame). The consumer is then left to prove that he or she is not to blame and hence deserves either an exchange or refund.

Literature on self attribution bias provide an additional complication. People are known to attribute success to themselves and deny responsibility when things fail (see for example, Nisbett and Ross 1980 and discussion by Folkes 1988). It is hence possible to regard this dimension as something similar to a personality trait. Conceptually consumer is an internal and may be a stable (because of the self attribution bias) source. As for controllability, it will depend on the product's complexity and the consumer's role in product performance.

Prior Belief as a Causal Dimension. A consumer's prior belief has been known to bias his or her product perception. For example, satisfaction studies (e.g., Oliver 1980; Churchill and Surprenant 1982; Sirgy 1984; Tse and Wilton 1988) found pre-experience anchors exert significant influence in product experience evaluations.

Assimilation and contrast effects (e.g., Oliver 1977) offer some explanations as to how prior beliefs affect a consumer's post-experience psychological process. Prior beliefs can sometimes be strong pre-experience anchors so that when the performance is perceived to be close to the anchor, the performance will be assimilated to the anchor and the performance is perceived as the same as the anchor. When product performance is perceived to be far from the anchor,the contrast effect suggests that the consumer may further exaggerate the difference between the pre-experience anchor and the performance.

When either effect happens the consumer may attribute the performance to his or her prior belief. A consumer's feelings of "disappointment" and/or "surprise" in daily consumption experiences to a certain extent suggest the use of prior beliefs as a causal dimension.

Prior belief is likely to be an uncontrollable and internal dimension of performance discrepancy attribution. However it is likely to be affected by consumption and non-consumption exposures and hence tends to be unstable.

In this study subjects were asked to respond to a set of nine scales designed to capture the various causal dimensions after they experienced the product. Being the first study on this topic, there is no a priori hypothesis regarding the number of causal dimensions that would be obtained. Nevertheless, each of the four causal dimensions discussed earlier has some theoretical support. Hence it is expected that when the nine scales are analyzed there should at least be four independent factors, each corresponding to one of the causal dimensions described above (H1).

Causes Underlying the Causal Dimensions

The current study adopts a two (message) by two (product experience) factorial design. It is likely that each above causal dimension may be associated with a distinct combination of treatment effects in the following way. In particular, the product dimension should be associated with significant message and product effects (H2) since both treatments are directly related to the performance of the product. The situation dimension should only have significant product treatment but insignificant message treatment (H3) because the latter is not related to the consumption situation. The consumer dimension, which is likely to relate to the subject's personal characteristic, should not be affected by the two treatments (H4). Finally, the prior belief dimension should have significant message and insignificant product effect because prior belief is manipulated in the message treatment but not in the product treatment (H5).

Consequences of Performance Discrepancy Attribution

Attribution results are known to offer directions (or a mental map) for future post-experience behavior (Folkes 1984). Previous studies confirmed that attribution results are salient to a consumer's subsequent mental and behavioral activities. In particular they were found to affect satisfaction evaluation (e.g., Folkes 1984; Oliver and DeSarbo 1988), emotional responses (e.g., Folkes 1984; Folkes, Koletsky and Graham 1987; Winer 1985),

subsequent behavioral intentions including hurting the company's business (Folkes 1984), future buying intentions and complaining behavior (Folkes, Koletsky and Graham 1987) when the products failed.

In this study subjects' satisfaction evaluation, product attitude and buying intentions are measured. The causal dimensions are expected to affect these measures. However this study differs from previous ones because subjects with all type of experiences are included. It is hence likely that the subjects' post-experience responses would be affected by the nature of the experience and what causal dimension they attribute their product experiences to. Therefore rather than exerting significant effects by themselves, the causal dimensions are expected to interact with product treatment in affecting the post-experience response. There is, however, no strong theoretical framework or empirical evidence to develop more specific hypotheses that would prescribe in detail which interaction among those between product treatment and each causal dimension may affect subjects' satisfaction evaluation, product attitude and buying intention. Hence there is only a general hypothesis that the causal dimensions will interact with product treatment to significantly affect the post-experience responses (H6).

RESEARCH DESIGN

One hundred and forty-four undergraduate students from introductory marketing classes at a West Coast public university volunteered for the experiment. They were informed that it was a new product testing experiment in which they would first read an evaluation of the new product and then try a new product sample.

A new product under an unknown brand name was chosen to minimize influences from prior product experiences and corporate image (Churchill and Surprenant 1982). For the message treatment, two fictitious reports about the product were developed. Subjects were told that the information in the report was provided by an independent consumer testing laboratory. The report first described the product and then presented a detailed evaluation of its performance along various attributes. One report portrayed the product as high quality, while the other report portrayed it as low quality. These two reports represented the favorable and the unfavorable message treatments.

The product used was a miniature record player available only in Europe. The company produced two models. The earlier model, which was difficult to operate, had poor sound quality. The model was modified to worsen its sound quality and used as the bad product treatment. The later model had good sound quality and was relatively easier to operate was used as the good product treatment. Results from two pretests supported that these two treatments were effective.

Research Procedure

Four subjects at a time participated in the experiment. They were randomized into one of the four cells. Each subject was led to a sound proof cubicle where he or she would not be disturbed throughout the experiment. Each subject was then given one of the two evaluation reports about the miniature record player (message treatment). Each subject was given a player to see, touch, and feel but the records were withheld until the second stage in the experiment.

A first questionnaire accompanied the message treatment. Subjects were asked to answer the questionnaire after they finished reading the report and examining the product. The questionnaire measured subjects' expectations (I expect the product to perform "1" very poorly to "5" very well) and some socio-demographic characteristics.

Upon finishing the questionnaire, a set of miniature records and the second questionnaire were given. Each subject was asked to try the product as long as he or she liked and then fill out the second questionnaire. The second questionnaire measured satisfaction evaluation (1 "very dissatisfied" to 5 "very satisfied"), product performance (1 "very inferior product quality" to 5 "very superior product quality"), attitude (1 "strongly dislike" to 5 "strongly like"), behavioral intentions (a dollarmetric scale, 1 "definitely the cash" to 6 "definitely the product") and a question on discrepancy attribution.

This attribution question read "For each reason shown, please indicate (to the best of your ability) how directly responsible the reason is for your satisfaction with the experience ?" The scales range from 1 ("Not at all responsible for my experience") to 5 ("Very directly responsible for my experience"). The attribution scales included the record player, the records, the battery, the product report, my (the subject's) own inexperience, the experimenter, the manufacturer, the product instructions and the product model tried is not a typical model. The scales had been pretested in earlier studies.

Manipulation Checks

The effectiveness of the two experimental treatments was assessed by comparing the group mean scores of the manipulation checks, which included subjests' post-message expectation scores (for message treatment), and their perceived product performance score (for product treatment). The two f-scores were 21.65 and 265.40, all significant beyond the .001 level and the order of the means reflects appropriate treatment levels. This suggests the two treatments were effective.

FINDINGS AND DISCUSSION

Causal Dimensions in Consumption Contexts

To investigate the causal dimensions used by subjects to attribute their product experience, the nine attribution scales were factor analyzed using principal component analysis with varimax rotation. Table 1 reports the factor loadings for each scale. Four factors with eigen values greater than one were obtained. Cumulatively these four factors explained 64.3% of the total variance.

Table 1
Factor Analysis Results
(Principal Components with Varimax Rotation)
on Attribution Scales

	Factor Loadings			
	Factor 1 (Situation)	Factor 2 (Product)	Factor 3 (Consumer)	Factor 4 (Prior Belief)
Eigen Value	2.06	1.47	1.14	1.06
% of Variance Explained	22.90	16.90	12.70	11.80
This Unit Only[1]	.71	.03	.29	.06
Experimenter	.72	-.26	-.22	.01
Battery	.53	-.14	.17	.41
Product Instruction	.57	.22	.02	-.19
Manufacturer	.63	.16	-.42	.06
Record Player	.09	.79	.14	.22
Records	- .05	.80	-.08	-.14
My Inexperience	.03	.07	.89	-.03
The Product Report I Read Earlier	-.05	.08	-.07	.90

[1] The subjects responded to the question, "For each reason shown, please indicate (to the best of your ability) how directly responsible the reason is for your satisfaction with the experience ?" The scales range from 1 "Not at all responsible for my experience" to 5 "Very directly responsible for my experience".

Factor 1 had high loadings in experimenter (.72), this unit only (.71), battery (.53), product instruction (.57) and manufacturer (.63, this variable also loaded quite highly in Factor 3 : -.42). The high loadings on these variables suggest that this factor may represent the Consumption Situation dimension. Factor 2 received high loadings in the record player (.79) and records (.80), strongly suggesting the factor represents the Product dimension. Factor 3 had high loadings in myself (.89) and moderately high but negative loading in manufacturer (-.42), suggesting that the Consumer is likely the underlying dimension. Finally Factor 4 had a high loading in the product report subjects read earlier (.90), hence the factor may likely represent the Prior Belief dimension.

These findings confirm (H1) : Consumption Situation, Product, Consumer and Prior Belief were the four underlying causal dimensions subjects used in attributing their product experience.

Treatment Effects of the Causal Dimensions

The next question is how these causal dimensions capture the two treatments? As discussed if these causal dimensions indeed capture distinct dimensions in the consumption context, they may have different combination of message and product treatments.

Table 2
ANOVA (F-values) of the Causal Dimensions by Treatment

Dependent Variables (Factor Scores)	Message Treatment	Product Treatment	Message x Product
Product	5.32*	5.47*	.16
Situation	3.05	13.59**	.99
Consumer	.64	.11	.02
Prior Belief	3.84*	.14	.20

* $p < .05$
** $p < .01$

The factor scores for each subject were hence used as dependent variables in a series of ANOVAs with both message and product treatments as independent variables. The results are reported in Table 2. All two-way interactions were insignificant and the significance of the main effects confirmed the proposed hypotheses.

The Product dimension had significant message and product effects as hypothesized (H2). The mean scores suggested that subjects in the bad product treatment group attributed more responsibility to the Product (mean = .19) than those in the good product treatment group (mean = -.19). Subjects in the favorable message group assigned less responsibility in the Product dimension (mean = -.19) than those in the unfavorable message treatment group (mean = .19).

The Consumption Situation dimension registered significant product treatment effects but insignificant message treatment (Table 2, row 2) confirming H3. Examination of the mean scores suggests that subjects with bad product experience tended to attribute the product performance more to the consumption situation (mean = .32) compared to those with good product treatment (mean = .06).

As suggested in H4 the Consumer dimension was expected not to be influenced by the two treatments. The F-values reported in Table 2 (row 3) confirms this hypothesis, they are far from being significant.

In contrast the Prior Belief dimension had only significant message effect (Table 2, row 4) with subjects in the favorable message group attributing more responsibility to the Prior Belief (mean = .03) compared to those in the unfavorable message group (mean = -.03). H5 is confirmed.

Consequences of the Causal Dimensions

In assessing how the causal dimensions affect consumers' post-experience behavior, a series of regressions were run using subjects' satisfaction evaluation, product attitude, and behavioral intentions as dependent variables. The independent variables included message and product treatments, and factor scores of the four

Table 3
Mean Scores of Variables in Different Treatments

	Favorable Message		Unfavorable Message	
	Good Pdt (FavGd)	Bad Pdt (FavBd)	Good Pdt (UfavGd)	Bad Pdt (UfavBd)
Variables[1]	(n=35)	(n=37)	(n=33)	(n=34)
Satisfaction	3.14	1.54	2.92	1.26
Attitude	3.19	1.11	2.87	1.46
Behavioral Intentions	2.67	1.43	1.92	1.14
Factor Scores[2]				
Situation	-.22	.54	-.35	.09
Consumer	-.11	.05	-.03	.09
Product	-.35	-.03	-.03	.42
Prior Belief	.24	-.17	.10	-.16

* - p <.05 ; ** - p <.01

[1] These mean scores range from 1 to 5, the higher the mean the more favorable the score.

[2] These are factor scores. They range from -1 to 1. The higher the score the more responsible the causal dimension is perceived to be.

causal dimensions. As discussed earlier the interactions between the message and product treatments and the four causal dimensions were also included. These interaction terms, especially those between the product treatment and the four causal dimensions may be important to a consumer's post-experience behavior. For example, a subject would likely develop a more positive attitude towards the product if the product experience is good and the subject attributes the Product dimension responsible for the experience.

Table 4 reports the results of the regression analysis. In general some of the results were in line with findings in previous studies. In particular, previous post-choice studies suggested both message and product treatments exerted significant influence on post-experience attitude (e.g., Wilton and Tse 1983). On the other hand satisfaction evaluation, because it is more experience specific (see Tse 1988), it is only affected by the product treatment (e.g., Churchill and Surprenant 1982; Tse and Wilton 1988).

It is interesting to know that by themselves the causal dimensions do not register significant effect on the three post-experience responses (except Prior Belief, which is marginally significant on behavioral intentions). This result does not contradict reported findings by Folkes and her colleagues (Folkes 1984; Folkes, Koletsky and Graham 1987) who found causal dimensions exerted significant influence on satisfaction and/or emotional response, because in both studies they limited their investigation to subjects with only unfavorable product experiences.

It is also reasonable to find none of the four interactions between message treatment and the causal dimensions exerted any significant influence on post-experience responses. In order words, a subject's post-experience behavior does not depend on whether the product report is favorable or unfavorable nor on which causal dimension the subject attributes the experience.

Table 4
Regression Results of Causal Dimension on Post-Experience Measures

	Dependent Variables		
Independent Variables	Satisfaction	Attitude	Behavioral Intentions
Treatments :			
Message Treatment (M)[1]	--	.28*	--
Product Treatment (T)[1]	1.72**	1.49**	1.19**
Causal Dimensions:			
Product (P)	--	--	--
Situation (S)	--	--	--
Consumer (C)	--	--	--
Prior Belief (B)	--	--	.32*
Interaction between Treatments and Causal Dimensions:			
M x P	--	--	--
M x S	--	--	--
M x C	--	--	--
M x B	--	--	--
T x P	--	--	--
T x S	.32**	.26**	.81**
T x C	--	--	--
T x B	.21**	.22**	--
Adjusted R^2	.56	.48	.29

-- insignificant regression coefficients
* regression coefficient significant at .05
** regression coefficient significant at .01

[1] The treatments are treated as dummy variables in the regression analysis.

In contrast, it was expected that the interaction between the causal dimensions and the product treatment would be more salient to satisfaction evaluation, product attitude and behavioral intention. The last four rows in Table 4 reports the results.

Product treatment by Consumer Dimension (T x C) interaction is insignificant across all three measures suggesting that whether subjects consider themselves responsible or not given good or bad product performance does not affect their post-experience response. But the product treatment by Situation Dimension (T x S) is significant across all three dependent measures. While product treatment by Prior Belief is significant in satisfaction evaluation and product attitude.

Of the four interaction terms between causal dimension and product treatment one would expect product treatment by Product dimension and product treatment and Consumer dimension would be most likely to be significant. That is, a consumer will be more favorable (reflected in satisfaction evaluation, product attitude and buying intention) if the product treatment is positive and the Product (and Consumer) is perceived as responsible. However these expectations are not confirmed. Perhaps there are other explanations waiting to be explored.

CONCLUSION

This attempt to identify consumption specific causal dimensions seemed quite promising. The findings in this study suggested there are at least four meaningful causal dimensions including Product, Consumption Situation, Consumer and Prior Belief. Each dimension has some theoretical support.

Each dimension seemed to be distinct because each corresponded to a distinct factor and the factors were found to be orthogonal to one another. In addition, each dimension registered distinct but prescribed treatment patterns.

In terms of the effects of the dimensions on post-experience behavior the results are mixed. Situation and Prior Belief interacted with the product treatment to exert significant effects on satisfaction evaluation, post-experience attitude and behavioral intention while the Product dimension and the Consumer dimension failed to interact with the product treatment to significantly affect subjects' satisfaction evaluation, product attitude and buying intentions.

These findings seem to suggest researchers may be able to use a more consumption-specific dimensions in their future research. Researchers may hence be able to relate their findings more easily to the external environment.

One also needs to recognize that this study was exploratory. The findings need to be reconfirmed using different products and different subjects. The study has not exhaustively explored all possible consumption - specific dimensions. Other dimensions generated from different combinations of stability, controllability and locus need to be examined through subsequent efforts.

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