PERCEIVED PERFORMANCE IN SATISFACTION RESEARCH

Richard A. Spreng, Michigan State University

ABSTRACT

A great deal of satisfaction research has included the concept of perceived performance, yet a number of questions about this construct remain. While some argue that measures of perceived performance are confounded with other constructs, others claim that it is all that managers may need to measure. We examine the conceptual definition of perceived performance, and review various measures of it. Finally, we test two alternative measures of perceived performance and find that measures that have a strong "evaluative" component are essentially measures of attribute satisfaction. Implications for satisfaction research and practice are discussed.

INTRODUCTION

Most research in consumer satisfaction has included, at least conceptually, the concept of "perceived performance." Perceived performance is usually modeled as an antecedent of disconfirmation of some standard, and sometimes is included as a direct antecedent of satisfaction. Yet this concept is still unclear in satisfaction research. Many studies have not defined perceived performance, and measures of this construct are quite varied. In addition, some authors argue that performance measures are all that are needed in satisfaction research, while others argue that performance measures at best give a partial picture. For example, Oliver (1989, p. 2) suggested that a focus on the specific attributes that drive satisfaction is not sufficient: "While this 'attribute basis' of satisfaction/dissatisfaction is intriguing, it says little, however, about the specific thought processes triggered by the product features. In particular, it fails to identify the mechanism by which performance is converted into a psychological reaction by the consumer." Given its widespread use in academic research, and its frequent use by firms to identify the key drivers of satisfaction and dissatisfaction (Oliver 1997), a greater understanding of the conceptual nature of perceived performance is needed.

The purposes of this research are to examine the conceptual definition of perceived performance and assess two measures of it. We believe that the construct of perceived performance can be separated into two distinct constructs. The first will be called *perceptual performance*, which is defined as the evaluationless cognitive registering of the product attributes, levels of attributes, or outcomes. The second construct will be called *evaluative performance*, which is an evaluative judgment of product attributes or the product outcomes that is made by assessing the ability of the product to meet one's needs or desires. Past research has operationalized perceived performance in both ways. An empirical study will be used to test the discriminant validity of these two types of performance measures. Implications for research in satisfaction will be discussed.

Perceived Performance in Satisfaction Research

Conceptual nature of perceived performance. As important as the "perceived performance" concept appears to be, it is puzzling that the nature of this perception is usually not clearly defined. For example, in an important article on consumer satisfaction, Churchill and Surprenant (1982) provided conceptual definitions that have been widely adopted in subsequent research, yet did not provide a definition of "perceived performance." Likewise, Tse and Wilton (1988) argued for the importance of perceived performance in explaining satisfaction, but did not define this term. They did, however, attempt to specify the causal determinants of perceived performance.

Spreng, MacKenzie and Olshavsky (1996, p. 20) defined perceived performance as "beliefs regarding the product attributes, levels of attributes, or outcomes." Similarly, Oliver (1997, p. 28) defined performance as "The perceived amount of product or service attribute outcomes received." Note that both these definitions deal with perceptions or beliefs, not necessarily an evaluation of these beliefs. While many perceived performance measures include a "valence" or "evaluation" it is possible to define and measure perceived performance in an evaluationless manner.

The empirical effects of perceived performance on satisfaction. When perceived performance is included in satisfaction models, a strong relationship between perceived performance and satisfaction has often been found. For example, Churchill and Surprenant (1982) tested two products, and while perceived performance was a significant predictor of satisfaction for both products, for one of the products perceived product performance was the *only* variable related to satisfaction. They concluded that the only way to increase satisfaction for this product would be to increase product performance. Tse and Wilton (1988, p. 205) came to a similar conclusion, saying "...then whenever a product performs well a consumer is likely to be satisfied, regardless of the levels of the pre-existing comparison standard and disconfirmation." They found that a model that included perceived performance as the only antecedent of satisfaction outperformed any other single variable model, including a disconfirmation model. When estimating a multiple determinant model that included performance, disconfirmation, and expectations as direct antecedents of satisfaction, performance continued to dominate the formation of satisfaction (standardized coefficients of .55, .27, and .23 respectively). Spreng and Olshavsky (1993) found strong effects of performance on satisfaction, although this effect was largely mediated by desires congruency. Spreng, MacKenzie and Olshavsky (1996) also found a strong effect of performance, but in this case the effect was completely mediated by expectations disconfirmation and desires congruency.

The measurement of perceived performance. In terms of operationalization of the construct of perceived performance, most past research has used measures similar to attitude measures. That is, scales have been evaluative in nature, whereby the scales measure how good/bad the performance was. Oliver (1997) refers to this as including a "valence" in the measurement of performance. For example, the performance of the video disk player in Churchill and Surprenant (1982) was assessed by scales such as "The quality of the color reproduction was: terrible...excellent."

The Conceptual Definition of Perceived Performance

There are two ways in which the term "perceived" has been used, either in a perceptual, or alternatively, in an evaluative sense. The perceptual meaning deals with the gathering and interpreting of stimuli that are registered by one's senses, and involves sensory memory, pattern recognition, and attention (Matlin 1989). Holbrook (1981, p. 14) discussed a similar idea when he proposed "subjective attribute perceptions that intervene between objective product features and ultimate brand evaluations." For example, consumers may be able to distinguish the amount of bass in stereo systems, and can estimate the level of this attribute. This use of the term will be referred to here as "perceptual performance," which means the "evaluationless" assessment of the product, subject to the limitations of one's sensory memory, pattern recognition, and attention. Therefore, perceptual performance is defined as *the evaluationless cognitive registering of the product attributes, levels of attributes, or outcomes; these are beliefs, which are the subjective probabilities that the aspect in question is associated with the product* (Fishbein and Ajzen 1975). Note that this definition is quite compatible with those of Spreng, MacKenzie, and Olshavsky (1996) and Oliver (1997) discussed above.

This definition is similar to the belief component of multiattribute attitude models, and Fishbein and Ajzen (1975) called these beliefs "descriptive beliefs":

> This definition implies that belief formation involves the establishment of a link between any two aspects of an individual's world. One obvious source of information about such a relationship is direct observation; that is, a person may perceive (via any of his sense modalities) that a given object has a certain attribute. For example, he may see or feel that a given table is round, he may taste or smell that a given glass of milk is sour, or he may see that a given person has dark skin. These direct experiences with a given object result in the formation of descriptive beliefs about that object. Since the validity of one's own senses is rarely questioned, the

> descriptive beliefs are, at least initially, held with maximal certainty. (p. 131-132).

The only limitation to Fishbein and Ajzen's discussion is that in the realm of product perceptions one may not be able to perceive the attribute (e.g., unless the milk is very sour, one may not be quite sure whether or not it is). Thus, it is important to remember that as used here, the perception of performance is still limited by the individual consumer's ability to sense variation in product performance, and may therefore be different from the "actual performance," as technically measured.

Alternatively, "perceived performance" can refer to the different *evaluations* various consumers might make while processing the same stimulus. An example here might be that one consumer prefers a lot of bass in stereo reproduction, while another does not. Assuming that these two subjects can detect the presence and level of this attribute, if they are asked "How well does this product perform with regard to the sound quality," with the question anchored with evaluative terms (such as "terrible/excellent") their answers will differ not because they are *hearing* different things, but because what they hear is being *evaluated* differently. Here the term "evaluative performance" will be used to refer to this evaluative construct, defined as *an evaluative judgment of product attributes or the product outcomes that is made by assessing the ability of the product to meet one's needs or desires.*

Most measures of "perceived performance" in the satisfaction literature deal with this second type since the scales have a strongly evaluative component. (e.g., Churchill and Surprenant 1982; Tse and Wilton 1988; for an exception, see service quality research in which performance measures are often less evaluative [e.g., Parasuraman, Zeithaml and Berry 1988]). Cadotte, et al. (1987, p. 313) criticized these types of evaluative scales:

> Standard Scaling approaches, such as the semantic differential or Likert-type scales, commonly are used, but these scales all too easily include anchor words that connote evaluation--good/bad, fast/slow, friendly/ unfriendly. Because a standard is implied by such words, such scales can confound the measures of norms/expectations, brand performance beliefs, and disconfirmation. Thus, scales that measure true beliefs rather than evaluations should be used.

They suggest developing scales that "cue the respondent to an object's objective level of an attribute," which is what we referred to above as perceptual performance.

Thus, the construct of "perceived performance" that has often been used in past research is comparable to measuring an attitude, but not differentiating between belief elements (b_i) and evaluation elements (e_i). That is, as we define them, "perceptual performance" is the belief component, while "evaluative performance" includes both belief and evaluation components.

Other researchers have suggested similar ideas. Oliver (1989, p. 4) suggested that "events are first judged as positive, negative or neutral vis-a-vis one's desires...In the context of product satisfaction, a product outcome might be judged as 'good for me-bad for me,' 'fulfilling my need-not fulfilling my needs,' etc." Westbrook and Reilly (1983) stated that the process of evaluation "consists of estimating the relationship of an object, action, or condition to an individual's values" (P. 256), and this cognitive-evaluative process leads to the emotional response of satisfaction/dissatisfaction. Sirgy (1984, p. 28) termed this process "evaluative congruency," which is "a cognitive process in which a perception is compared to an evoked referent cognition for the purpose of evaluating a stimulus object/action." In developing their desires-based model of satisfaction Spreng and Olshavsky (1993) argued that desires are compared with perceived performance to produce desires congruency. Similarly, we argue that the only way to assess performance on a scale anchored (for example) "Terrible/ Excellent" is for the consumer to compare the performance outcome with his/her desires.

Perkins and Reynolds (1988, p. 122) make a similar argument from a means-end analysis perspective:

> Means-end theory argues that preference and perception stem from different processes. Physical attributes serve as a basis for

perceptual distinctions between products, but preferential differences develop from within the consumer. Preference is based on how the product is personally meaningful to the consumer.

While it is clear that the two "perceived performance" constructs described here are *conceptually* distinct, it is important to also show that they are *empirically* distinct from each other, and from other postpurchase constructs such as satisfaction. Oliver (1997, p. 13) defines satisfaction as the consumer's fulfillment response, which is a judgement that the product provides a pleasurable level of fulfillment, and that fulfillment "implies that a goal exists, something to be filled. Thus, fulfillment (and satisfaction, as explained later) can only be judged with reference to a standard." Oliver goes on to say that "A fulfillment, and hence a satisfaction judgment, involves at the minimum two stimuli – an outcome and a comparison referent."

Our "perceptual performance" construct would be comparable to Oliver's "outcome" and "evaluative performance" would be the same as his "fulfillment response." Thus, the problem with operationalizing perceived performance in evaluative terms is that these evaluations are produced by the same cognitive mechanism as judgments of satisfaction. Attribute perceptions will be good when the attribute is perceived to be instrumental to the attainment of higher level values/desires, and poor when it does not. Indeed, this is probably what accounts for the generally strong relationship between "evaluative performance" measures and satisfaction that has been observed in the literature (e.g., Churchill and Surprenant 1982; Tse and Wilton 1988). When perceived performance is measured in evaluative terms like this it is essentially just a measure of attribute level satisfaction.

Finally, note that perceptual performance is distinct from "actual performance," which is product outcome that can be measured in some technical way. Here, "actual performance" refers to aspects of the product that can be measured and described, such as the frequency response of a speaker or the time it takes a particular car to go from zero to 60 mph. This "actual performance" can then be perceived by the consumer, and evaluated as "good" or "bad" by a comparison with his/her desires. In some cases, "actual performance" and "perceptual performance" may be the same, as when the consumer uses a stop watch to measure the speed of a car, or reads and accepts the "zero to 60" time in a product brochure. In other cases the consumer may need to rely on more imperfect measures to make the assessment, as when he/she watches a car accelerate and decides that the car is fast. This "perceptual performance" (e.g., "this car is fast") can then be compared to one's desires (e.g., "I want a car with lots of speed") to determine the "evaluative performance" of the product ("the speed of this car is excellent").

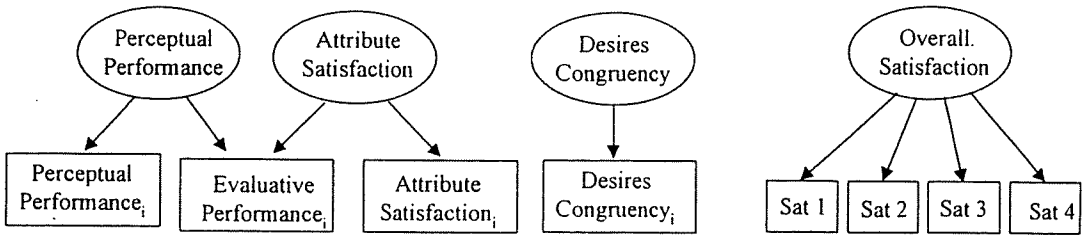
METHOD

This section examines empirically these two types of performance measures. The key issue is whether they are distinct from attribute level satisfaction. A confirmatory factor analysis is estimated for each of five attributes (see Figure 1). The CFA specifies a "perceived performance" construct as operationalized by both perceptual performance and evaluative performance, and attribute satisfaction as operationalized by both attribute satisfaction and evaluative performance. Thus, evaluative performance is specified as an indicator of both the perceived performance and the attribute satisfaction constructs. The factor loadings on these two constructs will indicate if evaluative performance is a measure of performance or satisfaction. Desires congruency (at the attribute level) and overall satisfaction are also included in the CFA to assess their discrimination with the two performance measures.

Subjects

Subjects were adults who were recruited from a local church, and each subject was processed individually. The church received compensation for each person who participated. A total of 219 subjects participated, with usable responses obtained from 209. Subjects had a median age category of 31 to 35 years (ranging from 18 to more than 65), and 56 percent were female.

Figure 1
Confirmatory Factor Analysis Models of Perceptual Performance and Evaluative Performance*



*For clarity of presentation factor intercorrelations are not shown. See Tables 3a-e for all factor intercorrelations.

Procedure and Measures

Subjects were given manipulations of desires and expectations (which are not relevant for the current study), completed a pre-experience questionnaire that measured expectations and desires, then experienced the product (a camcorder) in which performance was also manipulated. Following the product experience subjects completed the post-experience questionnaire that contained measures of perceptual performance, evaluative performance, desires congruency, and attribute-level satisfaction. Each of these constructs was measured on five attributes (ease of use, versatility, picture quality, picture sharpness, and picture colors). Finally, overall satisfaction was measured with four indicators.

The perceptual performance measures asked "How did you think the camera actually performed?" using an 11-point scale for each attribute. The scale to measure the attribute "ease-of-use" was anchored "Not very easy to use" (1), "Moderately easy to use" (6) and "Very easy to use" (11). The versatility scale was anchored "Moderately versatile, able to take video in typical situations" (1), "Good versatility, able to take video in most situations" (6), and "Extremely versatile, able to take video in all situations" (11). The picture quality measure was anchored "Average quality" (1), "Very good quality" (6), and "Extremely high quality" (11). The picture sharpness measure was anchored "Average Sharpness" (1), "Very good sharpness" (6), and "Extremely Sharp" (11). The picture colors measures was anchored "Average colors" (1), "Very good colors" (6), and "Extremely brilliant colors" (11). While it might be argued that these scales still have a valence to them, there is a limit to how "evaluationless" perceptual measures such as these can be. In addition, two of the attributes (ease of use and versatility) are probably ideal point attributes, and the remaining three are vector attributes. That is, for the first two attributes some consumers would not want a product with scores at the high end of the scale (e.g., a camera that is extremely versatile might be too complicated to use). Thus, a camcorder that delivers "good versatility" might be more positively evaluated than one that delivers "extreme versatility." In fact, on questions that assessed subject's desires, only two-thirds of the respondents were above the midpoint on this attribute.

The evaluative performance measures used a seven-point scale for each of the five attributes, anchored by "Terrible" (1) and "Excellent" (7). This matches or is similar to many evaluative operationalizations of perceived performance in previous satisfaction studies (e.g., Churchill and Surprenant 1982 ("Terrible/Excellent"); Tse and Wilton 1988 ("Very poor/Very good").

Desires congruency was operationalized with the "additive difference model" method described by Spreng, MacKenzie, and Olshavsky (1996). For each attribute the subject responded to a measure asking "In comparison to the level of each aspect that you desired, how big was the difference between what you wanted and what the camcorder actually provided?" Seven-point scales anchored by "Exactly as I desired" and "Extremely different from what I desired," with a midpoint of "Somewhat different from what I desired" were used. Immediately following each attribute question, the subject was asked: "How good or

bad was this difference?" with an 11-point scale (-5 to +5), with "Very bad" and "Very good" as endpoints and "Neither bad nor good" as the midpoint. Desires congruency for each attribute was operationalized by multiplying the "how different" measure by the evaluation of the difference. Therefore, these measures represent a belief regarding the degree to which the attribute matched the subject's desires and an evaluation of this belief. These measures are included here to further assess the empirical nature of evaluative performance. In particular, the results will show whether evaluative performance measures are more closely related to perceptual performance, desires congruency, or attribute satisfaction.

Attribute satisfaction was measured by asking: "Thinking just about the product itself, how satisfied are you with this product?" A seven-point scale was used to measure each attribute, anchored by "Very dissatisfied" and "Very satisfied," with "Indifferent: neither satisfied nor dissatisfied" as the midpoint.

Finally, overall satisfaction was operationalized by four seven-point scales anchored by "Very satisfied/Very dissatisfied," "Very pleased/Very displeased," "Contented/ Frustrated," and "Delighted/Terrible." These four measures were used as multiple indicators of the latent construct of overall satisfaction.

RESULTS

CFA Model Results

Table 1 shows model fit results for each of the five attributes and indicates very good fit for each attribute. Table 2 shows the measurement parameters for each attribute and indicates that in each case the factor loading for evaluative performance on the perceived performance construct is non-significant, while in each case the factor loading for evaluative performance on the attribute satisfaction construct was significant and strong. This indicates that evaluative performance is an alternative measure of attribute satisfaction, and not perceived performance.

Given the conceptual definition of evaluative performance (evaluative judgment of product attributes or the product outcome that is made by assessing the ability of the product to meet one's needs or desires), it is possible that there could be a lack of distinction between evaluative performance and desires congruency. Examination of modification indices did not indicate that evaluative performance should be modeled as an indicator of desires congruency for any of the attributes. In addition, Tables 3a-e report the factor intercorrelations and there appears to be discrimination among the constructs. In particular, while the correlation between attribute satisfaction (with evaluative performance as one measure) and desires congruency is generally high, they are distinct. Fornell and Larcker (1981) suggest that for discriminant validity to be shown, the squared correlation between any two constructs must be lower than either of the constructs' average variance extracted. This shows that the variation accounted for by the construct (the AVE) is higher than the shared variance for the two constructs (the squared correlation between the constructs). The average variance extracted cannot be computed for the desires congruency constructs since they are operationalized with a single item, but Table 2 shows that the AVE for the attribute satisfaction construct for each attribute ranges from .68 to .86. Examination of Tables 3a-e show that in each case this test holds, since for each attribute the AVE is higher than the squared factor correlation between attribute satisfaction and desires congruency.

DISCUSSION

The results explain why a strong effect of performance on satisfaction is often found. When evaluative performance measures of performance are used, they are not distinct from attribute measures of satisfaction. Therefore, the relationship between perceived performance and satisfaction is inflated due to this lack of discrimination.

Some have argued that performance measures are sufficient in measuring satisfaction, but if the measures are strongly evaluative, then they are simply measures of satisfaction at the attribute level. As pointed out by Oliver (1997), this type of measurement is likely to be inadequate since it doesn't provide information as to why an attribute is satisfying or dissatisfying. Taking the current research study as an example, some subjects desired a camcorder that was moderately versatile

Table 1
Model Fit

Attribute	χ^2	d.f.	p-value	GFI	AGFI	CFI
Ease of Use	15.26	15	.43	.98	.96	1.00
Versatility	17.48	15	.29	.98	.95	1.00
Picture Quality	11.94	15	.68	.99	.97	1.00
Picture Sharpness	13.18	15	.59	.98	.96	1.00
Picture Colors	13.31	15	.58	.98	.96	1.00

Table 2
Measurement Parameters
Completely Standardized Parameters (t-values)*

Attribute	$\lambda_{EP,\ Performance}$	$\lambda_{EP,\ Attribute\ Satisfaction}$	$\lambda_{Asat,\ Attribute\ Satisfaction}$	AVE
Ease-of-Use	-.09 (-.99)	.80 (7.96)	.85 (13.57)	.68
Versatility	-.03 (-.35)	.94 (10.47)	.91 (16.68)	.86
Picture Quality	.10 (1.34)	.85 (10.54)	.94 (17.62)	.80
Picture Sharpness	.10 (1.37)	.84 (10.52)	.95 (17.96)	.81
Picture Colors	.06 (.81)	.88 (11.42)	.93 (17.29)	.82

*The first subscript for each lambda is the indicator and the second subscript is the latent construct. For example $\lambda_{PP,\ Performance}$ is the factor loading of perceptual performance measure on the performance construct. PP = perceptual performance; EP = evaluative performance; Asat= attribute satisfaction; AVE = average variance extracted for the attribute satisfaction construct.

Table 3a
Factor Intercorrelations for Ease of Use Attribute

	1	2	3	4
1. Perceived Performance	1.00			
2. Attribute Satisfaction	.68	1.00		
3. Desires Congruency	.13	.46	1.00	
4. Overall Satisfaction	.06*	.26	.44	1.00

* Not significant at $p < .05$

Table 3b
Factor Intercorrelations for Versatility Attribute

	1	2	3	4
1. Perceived Performance	1.00			
2. Attribute Satisfaction	.78	1.00		
3. Desires Congruency	.62	.81	1.00	
4. Overall Satisfaction	.51	.67	.54	1.00

Table 3c
Factor Intercorrelations for Picture Quality Attribute

	1	2	3	4
1. Perceived Performance	1.00			
2. Attribute Satisfaction	.80	1.00		
3. Desires Congruency	.65	.82	1.00	
4. Overall Satisfaction	.58	.73	.63	1.00

Table 3d
Factor Intercorrelations for Picture Sharpness Attribute

	1	2	3	4
1. Perceived Performance	1.00			
2. Attribute Satisfaction	.79	1.00		
3. Desires Congruency	.66	.82	1.00	
4. Overall Satisfaction	.58	.67	.61	1.00

Table 3e
Factor Intercorrelations for Picture Color Attribute

	1	2	3	4
1. Perceived Performance	1.00			
2. Attribute Satisfaction	.77	1.00		
3. Desires Congruency	.64	.85	1.00	
4. Overall Satisfaction	.57	.68	.60	1.00

while others desired one that was very versatile. Just capturing an evaluation of the versatility (e.g., a 1 on an 11-point "terrible...excellent" scale) does not indicate whether the consumer desired a moderately versatile camcorder and received an extremely versatile one, or vice-versa. Oliver (1997, p. 39) describes other situations in which a poor (or good) performance (as ascertained by a performance measure) may be difficult to interpret, such as performance below expectations or inequity perceptions.

Performance measures that, as Cadotte, Woodruff and Jenkens (1987) suggested, "cue the respondent to an object's objective level of an attribute," were used here and were called perceptual performance. These measures indicated good discrimination from other constructs such as attribute satisfaction. Thus, in general, research should use evaluative performance measures only as measures of attribute level satisfaction. Perceptual performance measures are likely to be more valuable in research, particularly when asked in conjunction with a standard such as an ideal or desired level of performance.

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Send correspondence regarding this article to:
Richard A. Spreng
Department of Marketing and Supply Chain Management
Michigan State University
East Lansing, MI 48824 U.S.A.