A Reexamination of the Determinants of Consumer Satisfaction

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A Reexamination of the Determinants of Consumer Satisfaction

Although the "disconfirmation of expectations" model continues to dominate research and managerial practice, several limitations indicate that it is not a complete picture of satisfaction formation. The authors propose a new model of the satisfaction formation process that builds on the disconfirmation paradigm by specifying a more comprehensive model that includes two standards in a single model and specifically incorporates the impact of marketing communication. An empirical test of the model provides support for the hypothesized relationships and a better understanding of the mechanisms that produce satisfaction.

Few things are as fundamental to the marketing concept as the notion of "satisfying the needs and *desires* of the consumer" (Keith 1960, p. 38, emphasis added). Yet, paradoxically, the dominant model of consumer satisfaction fails to adequately take this notion into account. Instead, satisfaction research has focused primarily on the disconfirmation of *expectations*, rather than of *desires*, as the key determinant of satisfaction. According to the "disconfirmation of expectations" model, feelings of satisfaction arise when consumers compare their perceptions of a product's performance to their expectations (e.g., Oliver 1980). If perceived performance exceeds a consumer's expectations (a positive disconfirmation), then the consumer is satisfied. But if perceived performance falls short of his or her expectations (a negative disconfirmation), then the consumer is dissatisfied. There is a considerable amount of empirical evidence that confirms the hypothesized impact of the disconfirmation of expectations on satisfaction (for a review, see Yi 1990). We believe, however, that the extent to which a product or service fulfills a person's desires also plays an important role in shaping his or her feelings of satisfaction—much as the marketing concept would predict and as has been acknowledged by some in the satisfaction literature (e.g., Olshavsky and Spreng 1989; Westbrook and Reilly 1983). Indeed, the failure to consider the extent to which a product or service fulfills a person's desires has led to logical inconsistencies, such as predicting that a consumer who expects and receives poor performance will be satisfied (LaTour and Peat 1979) and research that sometimes shows no relationship between disconfirmation of expectations and satisfaction (e.g., Churchill and Surprenant 1982).

Thus, our purpose is to describe and empirically test a more comprehensive model of the determinants of consumer satisfaction. The model proposes that feelings of satisfaction arise when consumers compare their perceptions of the performance of a product or service to both their desires and expectations. This comparison process produces not only feelings of satisfaction with the product or service, but also feelings of satisfaction with the information (often supplied by marketers in such forms as advertising, package information, and salesperson communications) on which their expectations are based. Both types of satisfaction are seen as having an important impact on overall feelings of satisfaction with the product or service experience.

We believe the proposed model makes several contributions to the satisfaction literature. First, it attempts to disentangle the separate, but important, roles of desires and expectations. This is a particularly important objective in view of the well-documented impact of desires on prepurchase choice processes. For example, benefit segmentation (Haley 1968) is founded on the notion that products are selected on the basis of the benefits desired by consumers; and existing models of judgment and choice (Payne, Bettman, and Johnson 1993) specify how consumers use various *choice criteria*—which are essentially desires—to select and evaluate products. Thus, though there is ample evidence of the impact of desires on prepurchase evaluation processes, it is peculiar that there has not been much research on the impact of desires on postpurchase evaluations or on its importance relative to expectations. This study begins to fill this gap in the literature.

Second, the model introduces the notion of *information satisfaction* to the field, conceptually distinguishes it from other forms of satisfaction, and examines its relative impact on overall feelings of satisfaction with a product or service experience. This is an important addition to current models of satisfaction, because marketers often provide consumers with a wealth of information about their products or services through advertising, personal selling, package information, and so on, which influences consumer expectations and about which consumers sometimes have strong feelings (especially when they feel they have been misled). For example, if an advertisement or salesperson falsely leads

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consumers to expect performance above the desired level of performance, and the product subsequently performs at the desired level but fails to meet their inflated expectations, it is likely that consumers will be less satisfied with their overall experiences with the product than if they had not been misled. More important, we believe that in this situation their overall feelings of satisfaction or dissatisfaction depend as much on their dissatisfaction with the information they received about the product as on their satisfaction with the product itself. Thus, the proposed model predicts that consumers evaluate the information provided, as well as the product outcome, in determining their overall level of satisfaction.

Third, we hope to advance satisfaction research by illustrating a method of operationalizing the discrepancy between a standard (e.g., expectations, desires) and perceived performance, which has several advantages over other combinatorial methods used in previous research. The method is based on Tversky's (1969) additive difference model, and its advantages include the following: (1) it is a more general form of such models as the ideal-point model or the value-percept disparity model (Westbrook and Reilly 1983); (2) it enables deviations from a standard to be evaluated either positively or negatively rather than assumes that any deviation is bad; (3) it allows consumer evaluations of the discrepancies to vary as a function of the magnitude of the difference between perceived performance and the standard; and (4) as operationalized here, it avoids some of the problems associated with the use of difference scores (Teas 1993).

We discuss the distinction between desires and expectations, provide an overview of the model, discuss how it was empirically tested, present the results, and explore the implications of the results for further research and managerial practice.

Expectations and Desires

Expectations

Virtually every model of the satisfaction formation process (including ours) posits that feelings of satisfaction arise when consumers compare their perceptions of a product's performance to their expectations. Therefore, it is surprising that there is not more agreement in the literature about the conceptual definition of the expectations construct. Some view expectations as primarily perceptions of the likelihood (or probability of occurrence) of some event (e.g., Bearden and Teel 1983; Westbrook 1987; Westbrook and Reilly 1983). Others argue that expectations consist of an estimate of the likelihood of an event plus an evaluation of the goodness or badness of the event (e.g., Churchill and Surprenant 1982; Oliver 1980; Tse and Wilton 1988). Oliver (1981, p. 33, emphasis added) provides a good example of the latter perspective:

> Expectations have two components: a probability of occurrence (e.g., the likelihood that a clerk will be available to wait on customers) and an evaluation of the occurrence (e.g., the degree to which the clerk's attention is desirable or undesirable, good or bad, etc.). Both are necessary because it is not at all clear that some attributes (clerks, in our example) are *desired* by all shoppers.

As Oliver's discussion makes clear, this broader, more evaluative definition of the expectations construct confounds a person's judgment of some event with his or her expectation of the likelihood of its occurrence. Thus, people with identical estimates of the likelihood that a clerk will be available to wait on them may rate differently this type of *evaluative expectations* measure, because some might want a clerk to wait on them or think a clerk should wait on customers as they enter a store, whereas others might *not* want a clerk to wait on them or think clerks should not approach customers until they are asked for help. To attribute the resulting differences in these scores to differences in what people expect is clearly misleading. If the likelihood estimates are the same, then the differences must be due to what they desire and/or what they think should happen (relative to retail industry norms).

Therefore, we believe that the only way to gain a clear understanding of the impact of expectations on satisfaction is to avoid confounding *predictive expectations* (what a person believes is likely to happen in the future) with judgments that implicitly require the use of several possible standards of comparison (e.g., desires, industry norms, equity, best brand). To do otherwise may result in biased estimates of the impact of expectations on satisfaction and may even help explain why the estimates of the impact of expectations on satisfaction found in the literature vary so widely. Therefore, we define *expectations* as beliefs about a product's attributes or performance at some time in the future (Olson and Dover 1979).

Desires

Although standards similar to desires have been acknowledged in prior satisfaction research (e.g., Barbeau 1985; Myers 1991; Olshavsky and Spreng 1989; Sirgy 1984; Swan and Trawick 1980; Swan, Trawick, and Carroll 1981; Westbrook and Reilly 1983; Woodruff, Cadotte, and Jenkins 1983) and there is some recent empirical evidence that how a product performs relative to a consumer's internal standards or desires may be related to satisfaction (Gardial et al. 1994; Spreng and Olshavsky 1993), a consensus about the conceptual definition of the desires construct has yet to emerge. In part, this is because desires can be conceptualized at various levels of abstraction: They can be defined abstractly in terms of the most basic and fundamental needs, life goals, or desired end-states or more concretely in terms of the means that a person believes will lead to the attainment of the desired end-states. Thus, higher- and lower-level desires can be thought of as connected in a means-end chain (Gutman 1982). That is, higher-level values and desires lead to desires for products that provide certain benefits, and these benefits in turn specify the attributes and the levels of attributes desired in the product. For example, a consumer might have as an abstract value the desire to protect his or her family from harm; and this may manifest itself in a desire to buy products that provide the benefit of safety. The desired benefit may, in turn, be specified in terms of certain attributes, such as antilock brakes in a car. Thus, desires can be abstract end-states (the desire to be protected), intermediate benefits (products that are safe), or the concrete means of achieving those benefits (antilock brakes in a car).

Although there is some precedent in the satisfaction literature for defining desires at an abstract level (e.g., Westbrook and Reilly 1983), we believe it is more useful to define *desires* concretely as the levels of attributes and benefits that a consumer believes will lead to or are associated with higher-level values. Only at this concrete level are desires directly comparable to perceived performance. Implicitly or explicitly, people judge the extent to which a product contributes to the attainment of their desired end-states by examining the extent to which the product produces consequences or outcomes or provides attributes or benefits that they believe will be instrumental in leading to the attainment of their higher-level desires.

Thus, we believe that it is possible to distinguish clearly between desires and predictive expectations at the conceptual level. Expectations are beliefs about the likelihood that a product is associated with certain attributes, benefits, or outcomes, whereas desires are evaluations of the extent to which those attributes, benefits, or outcomes lead to the attainment of a person's values. Expectations are future-oriented and relatively malleable, whereas desires are present-oriented and relatively stable. We examine the extent to which these constructs are empirically distinguishable by evaluating the discriminant validity of the measures of desires and expectations and determining whether these two constructs have differential effects on satisfaction.

Overview of the Model

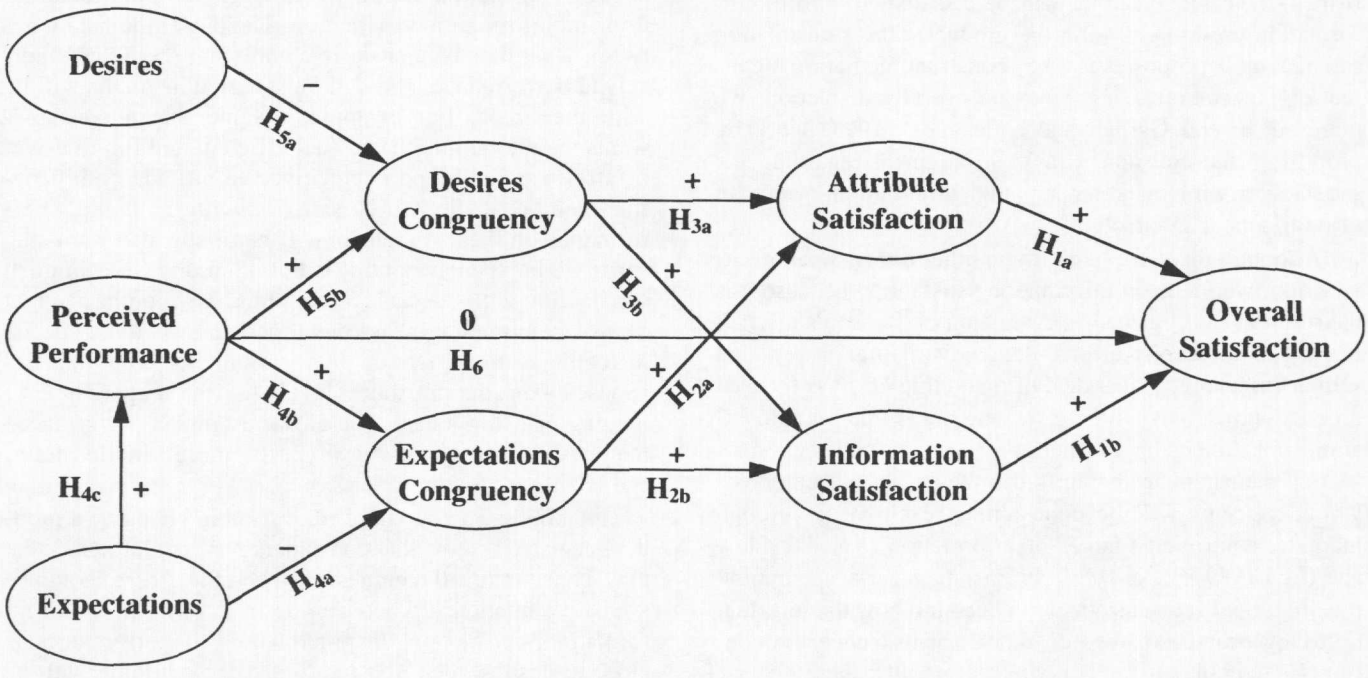
In Figure 1, we present the proposed conceptual model. In brief, we posit that *overall satisfaction,* which is defined here as an affective state that is the emotional reaction to a product or service experience (Cadotte, Woodruff, and Jenkins 1987; Oliver 1980), is influenced by a consumer's satisfaction with the product itself (attribute satisfaction) and with the information used in choosing the product (information satisfaction). Attribute satisfaction and information satisfaction are themselves produced by a consumer's assessment of the degree to which a product's performance is perceived to have met or exceeded his or her desires (desires congruency) and expectations (expectations congruency).[1] We discuss each of the major linkages in the proposed model.

The Effects of Attribute Satisfaction and Information Satisfaction

We propose that overall satisfaction with the individual transaction has two direct antecedents: satisfaction with the product outcome itself (attribute satisfaction) and satisfaction with the information. Oliver (1993, p. 421) defines *attribute satisfaction* as "the consumer's subjective satisfaction judgment resulting from observations of attribute performance." Consumer satisfaction often has been operationalized at both the global and attribute level. We believe it is important to maintain the distinction between overall satisfaction and satisfaction with the individual attributes, because attribute-specific satisfaction is not the only antecedent of overall satisfaction. Overall satisfaction is based on the overall experience, not just the individual attributes. Thus, our position is consistent with the recent work of Oliver (1993), who argues

[1]It is probable that there are other antecedents of satisfaction, such as affect (Westbrook 1987) or equity (Oliver and DeSarbo 1988), but for simplicity these are not included here.

FIGURE 1
Conceptual Model of the Satisfaction Formation Process



that overall satisfaction and attribute satisfaction are distinct, though related, constructs.

Information satisfaction is defined as a subjective satisfaction judgment of the information used in choosing a product (for related comments regarding satisfaction with prepurchase information, see Westbrook, Newman, and Taylor 1978). Recently, several authors have suggested that expectations developed through marketer-controlled sources (i.e., advertising or personal selling) should be described as marketer supplied, persuasion-based expectations or promises (Gardial et al. 1994; Spreng and Dixon 1992; Woodruff et al. 1991). Although expectations can be formed from several sources, of particular interest are those based on information provided by firms, because these expectations are in some measure controllable by the firm. Gardial and colleagues (1994, p. 559) describe these as "marketer supplied" standards, which they define as "[s]tandards that are suggested by corporate/marketing communications (e.g., promotions, salespeople, or manufacturer)." They found that when their respondents were asked about product experiences that were satisfying or dissatisfying, 18% of the thoughts (the third highest percentage) were related to marketer supplied information (e.g., "The shoes did not hold up like they were advertised."). Thus, there is some evidence from consumer protocols that marketer supplied information is compared to product performance.

When these expectations are disconfirmed, a person can be satisfied or dissatisfied with the information given, as well as with the product itself. When using information from a salesperson or an advertisement in choosing a product, the consumer may have several feelings about the information that in turn affect overall satisfaction. For example, if sellers promise more than they can deliver (see Gardial et al. 1994) and if these persuasion-based expectations are disconfirmed, then the consumer will be dissatisfied with the information used in choosing the product. Thus, information satisfaction is proposed as a key construct mediating the effect of expectations congruency on overall satisfaction. We therefore extend Gardial and colleagues' (1994) work by proposing that consumers make a judgment regarding the satisfaction with marketer supplied information, which in turn influences satisfaction.

Although there are likely to be other dimensions of satisfaction, we focus on information satisfaction because it is the result of the consumer's evaluation of the firm's marketing communications efforts (i.e., advertising or personal selling). Because a great deal of marketing effort is focused on communications with the customer, it is important to examine this dimension. Furthermore, based on satisfaction research, managers are being told to "manage expectations," which it seems will be done almost exclusively through marketer-controlled sources of information (e.g., Davidow and Uttal 1989; Peters 1987). From a managerial standpoint, it is important for managers to understand how the information they provide to the consumer can influence the consumer's overall satisfaction with the product; therefore, we propose the following hypotheses:

H_{1a}: Attribute satisfaction is positively related to overall satisfaction.

H_{1b}: Information satisfaction is positively related to overall satisfaction.

The Effects of Expectations Congruency and Desires Congruency

Expectations congruency. A great deal of previous research has established the effect of expectations congruency (disconfirmation) on satisfaction (for a review, see Yi 1990). *Expectations congruency* is defined as the consumer's subjective assessment of the comparison between his or her expectations and the performance received. In Figure 1, we propose that expectations congruency has this traditional direct effect on attribute satisfaction, because consumers assess on an attribute level whether the product performed as anticipated. We also propose, however, that expectations congruency influences information satisfaction. If a consumer is told that a product will perform in a certain way (e.g., a car will get 35 miles per gallon) and this attribute is negatively disconfirmed (i.e., it gets 25 miles per gallon), then the consumer is likely to be dissatisfied with the information that was given. Thus, the proposed model shows that expectations congruency at the attribute level influences attribute satisfaction and information satisfaction, both of which are measured at the attribute level. Thus,

H_{2a}: Expectations congruency is positively related to attribute satisfaction.

H_{2b}: Expectations congruency is positively related to information satisfaction.

Desires congruency. We define *desires congruency* as the consumer's subjective assessment of the comparison between his or her desires and the performance received. We propose that desires congruency positively influences overall satisfaction indirectly through attribute satisfaction and information satisfaction. The closer the match between what a consumer desires and what the brand's perceived performance is, the more satisfied he or she will be with the brand. For example, assume that a consumer wants an automobile that is fuel efficient and fun to drive; if, after use, the brand is perceived to provide both benefits, then he or she will be satisfied with the brand's performance on these dimensions. If he or she also wants the car to be inexpensive and it is not, then this will diminish satisfaction with the car's price. Thus, we hypothesize that desires congruency influences a person's attribute-specific feelings of satisfaction (e.g., his or her emotional responses—on the attribute level—to the experience of owning or using a car). The closer a brand's performance matches the consumer's desires, the more satisfied he or she is with its features.

In addition, prepurchase rules used in choosing a product generally assume that consumers purchase products that they expect to fulfill their desires. Therefore, there should be a positive relationship between desires congruency and information satisfaction. In other words, if performance is close to desires, then it is likely that the consumer will be satisfied with the information used in making the choice. If

the performance is worse than desired, then it is likely that the consumer will be dissatisfied with the information used in making the choice. Thus,

H_{3a}: Desires congruency is positively related to attribute satisfaction.

H_{3b}: Desires congruency is positively related to information satisfaction.

Previous research using desires congruency and expectations congruency. Only a few empirical studies have examined the relative effect of expectations and desires on overall satisfaction. In a previous study, Locke (1967, p. 133), finding evidence that desires, not expectations, determined affect, concluded that "it was success in relation to aspiration, rather than success in relation to expectation that determined affect." Westbrook and Reilly (1983) found that expectations congruency had a stronger effect on satisfaction than did desires congruency but, they conceded, measurement problems probably influenced their results. Barbeau (1985) examined student satisfaction with a marketing course and found that desires congruency had a significant effect on overall satisfaction, whereas expectations congruency did not. Spreng and Olshavsky (1993) contrasted desires congruency and expectations congruency; they also found that the former had a significant effect on overall satisfaction, but the latter did not.[2] Note that all four of these studies used students as subjects. Finally, Myers (1991) tested expected versus wanted disconfirmation with car buyers and found that though both had a significant effect on satisfaction, the impact of wanted disconfirmation was stronger.

Operationalization of desires congruency and expectations congruency. Disconfirmation (expectations congruency) has been operationalized in prior research in several ways—as the algebraic difference between expectations measures and perceived performance measures for each attribute or as an independently measured, distinct cognitive state that is subjectively perceived by the consumer. The most common way of measuring subjective disconfirmation is the method advocated by Oliver (1980), in which the measures are anchored by "worse than expected/better than expected." When subjective disconfirmation is measured this way, it is likely that consumers will report both the discrepancy between expectations and performance and an evaluation of the product itself. Because we propose that the evaluation of the product (attribute satisfaction) is also the result of desires congruency, the traditional measures of disconfirmation are likely to confound expectations congruency and desires congruency. Thus, we here propose the use of the additive difference model (Tversky 1969) as a way of operationalizing both congruency constructs (for more details, see Appendix A). This model has the advantage of being more general than other operationalizations used in prior research; models such as the ideal-point model and the value-percept disparity model (Westbrook and Reilly 1983) are simply special cases of the additive difference model. Another advantage is that it decomposes the assessment of congruency into two components: the difference between the standard and the performance and an evaluation of this difference. Thus, we believe that this operationalization is more consistent with the conceptual definitions of both congruency constructs.

[2]However, this lack of significance may be due to their procedure: They did not manipulate expectations, and the product used was an innovation. Thus, consumers had no real expectations from previous use, and the expectations manipulation was a single advertisement (i.e., one treatment of an expectations manipulation). This probably reduced the effect of expectations disconfirmation.

Antecedents of Desires Congruency and Expectations Congruency

The effects of expectations. Despite its central place in the disconfirmation of expectations model, the effect of expectations is not at all clear. One issue deals with the relationship between expectations and disconfirmation: Some researchers claim that the two are unrelated (e.g., Oliver 1980), whereas others suggest that there is a negative relationship—high expectations are more likely to be negatively disconfirmed and low expectations are more likely to be positively disconfirmed (Churchill and Surprenant 1982; Yi 1990). Thus, because disconfirmation is positively related to satisfaction, the overall indirect effect of expectations on satisfaction should be negative. It is this relationship that has led some to argue that firms should lower consumer expectations to produce positive disconfirmation and thus higher satisfaction (e.g., Davidow and Uttal 1989; Peters 1987).

It is well known, however, that expectations can influence perceptions of an event, because perceptions are assimilated toward expectations (e.g., Olshavsky and Miller 1972; Olson and Dover 1979; for a review, see Yi 1990, pp. 83–84). This process can be explained by social judgment theory (Sherif and Hovland 1961), which suggests that beliefs can systematically distort a person's perceptions and that the effect is likely to be strongest when the outcome is ambiguous. For example, Hoch and Ha (1986) found that perceptions of product performance moved in the direction of expectations only when the product experience was ambiguous. Because perceived performance has a positive influence on satisfaction, the effect of expectations on satisfaction through perceived performance is positive. This positive effect has led Boulding and colleagues (1993) to recommend, in the related domain of service quality, that firms *raise* predictive expectations, rather than lower them as the disconfirmation model would prescribe. Thus, it appears that the two effects of expectations produce opposite effects; as Yi (1990, p. 78) points out, "While raising expectations about a product may enhance perceived product performance, it may also increase the magnitude of disconfirmation." Thus, a fundamental issue regarding the disconfirmation model deals with the total effects of expectations on satisfaction. The net influence could be positive (through a positive relationship with perceived performance, which then has a positive relationship with satisfaction) and/or negative (through a negative relationship with disconfirmation, which then has a positive relationship with satisfaction). Although some researchers have hypothesized a positive *direct* effect of expectations on overall satisfaction (Oliver 1980) and argue that expectations act as an adaptation level, this effect is more theoretically interpretable as an

assimilation effect that influences satisfaction indirectly through perceived performance. Most studies in satisfaction have not disentangled these competing effects, though looking at the simple correlations in studies reveals that the net effect of expectations on satisfaction is usually positive (e.g., Bearden and Teel 1983; Cadotte, Woodruff, and Jenkins 1987; Churchill and Surprenant 1982; Tse and Wilton 1988). The body of research showing a net positive relationship between expectations and satisfaction is contrary to the basic formulation of the disconfirmation of expectations model, because higher expectations should lead to lower scores on a disconfirmation measure, which in turn should lead to lower satisfaction.

The previous discussion leads to the following hypotheses:

H_{4a}: Expectations are negatively related to expectations congruency.

H_{4b}: Perceived performance is positively related to expectations congruency.

H_{4c}: Expectations have a positive effect on perceived performance.

H_{4d}: The total effect of expectations on overall satisfaction is positive.

The effect of desires. We hypothesize that the relationship between desires and desires congruency is similar to the basic disconfirmation formulation, because the more stringent a person's desires, the less likely that the product will meet those desires. Conversely, the higher the product performance, the more likely that desires will be met. Therefore,

H_{5a}: Desires are negatively related to desires congruency.

H_{5b}: Perceived performance is positively related to desires congruency.

The effect of perceived performance on satisfaction. We define *perceived performance* as beliefs regarding the product attributes, levels of attributes, or outcomes (see related discussion in Cadotte, Woodruff, and Jenkins 1987, p. 313). Perceived performance generally has been included in the disconfirmation of expectations model as only the referent against which expectations are compared. Most prior research in satisfaction, however, has not included performance as a direct antecedent of satisfaction (e.g., Bearden and Teel 1983; Cadotte, Woodruff, and Jenkins 1987; Oliver 1980; Oliver and DeSarbo 1988; Swan and Trawick 1980; Westbrook 1987; Westbrook and Reilly 1983). When perceived performance has been included in the model, a strong direct relationship between perceived performance and satisfaction often has been found (Anderson, Fornell, and Lehmann 1994; Anderson and Sullivan 1993; Churchill and Surprenant 1982; Tse and Wilton 1988), and this effect is not completely mediated by the disconfirmation of expectations.

Not all satisfaction researchers agree that an examination of the direct effect of performance is likely to be a fruitful theoretical approach. Oliver (1989, p. 2) states, "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." To provide such a mechanism, we propose that any direct effect of perceived performance on satisfaction is mediated by both expectations congruency and desires congruency. Previous research generally has not included desires congruency, and we believe that its inclusion accounts for much of the effect of performance on overall satisfaction.

H_6: The effect of perceived performance on overall satisfaction is mediated by desires congruency, expectations congruency, attribute satisfaction, and information satisfaction.

Method

Subjects

Subjects were recruited from a local church, which received a monetary amount per person and one of the camcorders used in the study. Subjects signed up for individual appointments. A total of 219 subjects participated, but 12 were dropped because of either a failure to complete the task or their response to the hypothesis-guessing question. The subjects ranged in age from 18 to more than 65, with a median age category of 31 to 35 years, and 56% were female. One percent had less than a high school education, 22% had a high school or technical education, 27% had some college, and 49% had at least a bachelor's degree.

Product

The goal was to select a product (1) that exhibits some variation in desires and expectations, (2) that engenders in a one-hour session feelings of satisfaction or dissatisfaction, and (3) whose performance could be easily manipulated. A camcorder met these requirements. Pretest interviews indicated variation in what people desired in a camcorder (e.g., easy to use but not very versatile, more difficult to use but could take better pictures under a wider range of situations). The product's average involvement score for our subjects was 95 on Zaichkowsky's (1985) Personal Involvement Scale (Zaichkowsky found an average of 89 across several product categories), and virtually everyone indicated some familiarity with the product class. Because only 25% of subjects owned a camcorder and most expected performance to vary across models and brands, expectations could be manipulated. In addition, the product could be used realistically enough in a laboratory setting to ensure that people could form feelings of satisfaction or dissatisfaction. Finally, it was easy to manipulate the performance of the product without arousing suspicion.

Procedure

Each subject was welcomed, was asked a general screening question regarding desires about cameras, read a brief study description, and signed a consent form. Next, each subject was asked to read some information about camcorders (ostensibly from *Consumer Reports*), which contained the desires manipulation. Each then answered some specific questions about what he or she desired in a camcorder. Finally, each subject read a brief description containing the expectations manipulation of the camcorder he or she was about to

use and then was asked about how he or she expected the camcorder to perform.

Subjects were then taken to one of two rooms depending on their assigned performance manipulation. In each room there was a television set and a camcorder (exactly the same model in both rooms). Subjects used the camcorder, after which they viewed a three-minute demonstration tape illustrating this particular camcorder's ability to handle special photographic situations (e.g., backlight, low light). Following the use experience, in which performance was manipulated, subjects returned to the first room and completed the following measures (in order): perceived performance, desires congruency, expectations congruency, attribute satisfaction, information satisfaction, and overall satisfaction. Demographic questions and Zaichkowsky's (1985) involvement scale followed. Finally, a hypothesis-guessing question was asked and a debriefing letter was given to all participants.

Manipulations

The experiment was a 2 (desires) × 2 (expectations) × 2 (performance) design.

Desires. The realistic manipulation of desires in a laboratory setting is difficult, because desires for attributes and benefits flow from a person's higher-level values. Rather than attempt to make subjects in different treatment conditions desire things they did not previously want, a manipulation was developed to systematically strengthen their existing desires. Subjects were asked, "If you were in the market for a new camera, would you be more likely to want an easy-to-use camera that takes moderate-quality pictures or a more difficult-to-use camera that takes high-quality pictures?" Responses to this screening question were used to assign subjects to the appropriate desires conditions. Subjects then read a mock *Consumer Reports* article that said choosing a camcorder required a trade-off between (1) cameras that are easy to use, but because they are not versatile, do not take great pictures in some situations and (2) cameras that are more difficult to use, but because they are versatile, produce excellent video under all conditions. This information was followed by detailed information explaining why most consumers prefer either the former or the latter type of camera. The subjects who initially said they desired an easy-to-use camera were given the version that advocated easy-to-use cameras; subjects who initially said they desired a more versatile camera were given the version advocating that type of camera. Thus, the goal of the desires manipulation was not to make subjects desire things they did not previously want but rather to systematically strengthen their already existing desires. Following this procedure, subjects were randomly assigned to the other conditions. Desires, therefore, can be thought of as a blocking factor that is independent of the expectations and performance manipulations.

Expectations. Subjects were randomly assigned to one of two expectations conditions, in which they were given information about the exact brand and model of camcorder they evaluated, purportedly from a camcorder salesperson. In the low-expectations condition (not versatile–average video), subjects were told that the camera is "easy to use but, like most automatic cameras, is not able to provide great pictures in all situations." Subjects in the high-expectations condition (versatile–great video) were told that the camera is "more difficult to use but, unlike easy-to-use cameras, will provide great pictures in all situations."

Performance. Two performance conditions were created by manipulating two attributes: the versatility of the camcorder and the video outcome. Subjects were randomly assigned to one of these conditions. In both conditions, subjects were given a camcorder with a set of operating instructions and asked to try using it. Following this, they viewed a three-minute demonstration tape that they were told "was taken with their camera to test its ability to handle special photographic situations" (such as a backlighted subject, a high-speed subject, and a zoom situation in a dimly lit room that required a manual focus setting).

Subjects in the low-performance condition (not versatile–average video) were given an automatic camcorder with the automatic features turned on and the manual override controls covered. This made the camcorder easy to use but not versatile. While using the camera, the subject was able to view the results on the television set, which was adjusted so that the picture quality was only adequate (i.e., somewhat grainy picture, colors not very bright). Finally, the subject viewed a demonstration tape showing that the camcorder had only limited versatility; it did not perform well in difficult photographic situations. Thus, subjects in this condition used a camcorder that was not versatile and produced only average-quality video.

Subjects in the high-performance condition (versatile–great video) received a camcorder with the manual controls turned on and adjusted so they needed to be manually reset. Instructions were provided for setting each of the manual controls, and the researcher was present to answer questions. The television monitor was adjusted to provide sharp pictures and vivid colors. Subjects then viewed the demonstration tape, which showed that the camcorder performed well in several difficult photographic situations. Thus, subjects in this group used a camcorder that was versatile and produced high-quality video.

Measures

The key product dimensions measured for each construct were versatility and picture outcome. These attributes were identified as important through discussions with several camcorder owners and the manager of a photography store, as well as through *Consumer Reports* information. Versatility was measured with a single-item scale for each construct (versatility), and picture outcome was measured with two scales for each construct (picture quality and picture sharpness).

Desires, expectations, and perceived performance measures. The desires measures stated, "Below are several questions regarding what you personally would desire from a

camcorder," followed by the three measures with 11-point scales.[3] Expectations regarding each attribute were measured as, "What performance do you anticipate or expect from this product?" Eleven-point scales were anchored in the same way as were the desires questions. Finally, the perceived performance measures asked, "How did you think the camera actually performed?" and used 11-point scales anchored in the same way as were the desires and expectations questions. These measures for desires, expectations, and perceived performance were used as manipulation checks, and to operationalize the three constructs.

Desires congruency and expectations congruency measures. To allow for comparability, desires congruency and expectations congruency were measured in a similar way. Desires congruency was measured for each attribute by 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. Thus, this question asked the subject to judge the discrepancy between desires and perceived performance. Immediately after each attribute question, the subject was asked, "How good or bad was this difference?" Responses were recorded on an 11-point scale (–5 to +5), with "very bad" and "very good" as endpoints and "neither bad nor good" as the midpoint. Congruency at the attribute level 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. Expectations congruency was operationalized in the same way, with measures for the difference between what was expected and what was received and measures of an evaluation of this difference. In Appendix A, we provide a more detailed justification of this operationalization of the congruency constructs.

Information satisfaction measures. The information satisfaction measures asked subjects about their satisfaction with the information for each aspect of the product (i.e., versatility, picture quality, and picture sharpness): "Thinking just about the information from the salesperson, how satisfied are you with this information?" Seven-point scales were used, anchored by "very dissatisfied" and "very satisfied," with "indifferent: neither satisfied nor dissatisfied" as the midpoint.

Attribute satisfaction measures. Attribute satisfaction was assessed by asking, "Thinking just about the product itself, how satisfied are you with this product?" To measure each attribute (i.e., versatility, picture quality, and picture sharpness) a seven-point scale was used, anchored by "very dissatisfied" and "very satisfied," with "indifferent: neither satisfied nor dissatisfied" as the midpoint.

Overall satisfaction measures. Overall satisfaction is a summary evaluation of the entire product use experience for this single experience (i.e., not the cumulative satisfaction construct discussed by Fornell 1992). Oliver (1989) argues that satisfaction involves two dimensions: valence (positive and negative) and intensity. Therefore, the measures for overall satisfaction were designed to measure both high- and low-intensity reactions. Overall satisfaction was measured with four seven-point scales, anchored as "very satisfied/very dissatisfied," "very pleased/very displeased," "contented/frustrated," and "delighted/terrible."

Results

First, we present the results of desires, expectations, and performance manipulation and confounding checks. Second, we present confirmatory factor analysis (CFA) results exploring the measurement model. Third, we report the results of the structural equation modeling used to test the relationships among the constructs. LISREL 8 (Jöreskog and Sörbom 1993) was used for the CFA and structural equations modeling (using the covariance matrix as input).

Manipulation and Confounding Checks

Separate ANOVAs were run on each desires measure to determine whether subjects in the two desires groups differed. In each case there was a significant difference ($p < .0001$ for all attributes). Those in the easy-to-use group desired less versatility (7.05 versus 9.03), lower picture quality (6.48 versus 9.29), and less picture sharpness (6.56 versus 9.34) than those in the versatile–great video group. Similarly, the expectation manipulation succeeded in creating the appropriate differences ($p < .0001$ for all attributes), with the not versatile–average video subjects expecting less versatility (4.51 versus 8.79), lower picture quality (3.88 versus 8.78), and less picture sharpness (3.93 versus 8.73) than the versatile–great video group. Finally, the performance manipulation also succeeded ($p < .0001$ for all attributes), with the not versatile–average video subjects perceiving less versatility (4.48 versus 8.48), lower picture quality (3.75 versus 7.83), and less picture sharpness (3.75 versus 7.85) than the versatile–great video group.

As confounding checks, ANOVAs were conducted for each attribute. The desires manipulation had no significant effect on any of the perceived performance or expectations measures. The expectations manipulation had the predicted effect on the perceptual performance ratings. Compared to the low-expectations group (not versatile–average video), subjects in the high-expectations group (versatile–great video) reported that the camcorder they used was more ver-

[3]Desires, expectations, and perceived performance were all measured on two product dimensions: versatility and the picture outcome. For each construct the versatility dimension was operationalized with single-item measures and was anchored "moderately versatile, able to take video in typical situations" and "extremely versatile, able to take video in all situations," with "good versatility, able to take video in most situations" as the midpoint. The picture outcome constructs were measured with two items: picture quality and picture sharpness. The picture quality measures were anchored "average quality" and "extremely high quality" ("very good quality" was the midpoint). The picture sharpness measures were anchored "average sharpness" and "extremely sharp" ("very good sharpness" was the midpoint).

satile (6.98 versus 5.99, $p = .02$) and had higher picture quality (6.45 versus 5.14, $p = .002$) and sharpness (6.32 versus 5.29, $p = .02$). The expectation manipulation occurred after the desires measures were taken and therefore could not have influenced the desires scores. Likewise, the performance manipulation occurred after both desires and expectations had been measured and could not have affected either set of measures.

Measurement Model

To assess the measurement model, we conducted a CFA. The picture quality and picture sharpness measures were used as multiple indicators for each picture outcome construct, and the versatility measures were used as single-item measures for each versatility construct. For example, there were two desires constructs: a picture outcome desires construct (two measures) and a versatility desires construct (single measure). Similarly, there were two constructs for perceived performance, expectations, desires congruency, expectations congruency, attribute satisfaction, and information satisfaction. Overall satisfaction was operationalized as a latent construct with four measures. The fit of the CFA model is acceptable, with a χ^2 of 224.47 (df 177, $p = .01$), a goodness-of-fit index of .92, an adjusted goodness-of-fit index of .86, and a comparative fit index (Bentler 1990) of .99. There were no standardized residuals greater than 3.00. The squared multiple correlations ranged from .75 to .98. The average variance extracted (AVE) could be calculated for the picture outcome constructs (because they have multiple measures), and all exceeded the minimum of .50 suggested by Fornell and Larcker (1981). The factor intercorrelations from this model and the AVE for the constructs with multiple indicators are presented in Table 1.

As a test of discriminant validity, we used the procedure recommended by Anderson and Gerbing (1988), in which the correlation between each pair of constructs was constrained, one at a time, to be equal to 1. In each case the test confirmed that all the constructs were empirically distinct. As a stronger test of discriminant validity, Fornell and Larcker (1981) suggest that the average variance extracted for each construct should be higher than the squared correlation between that construct and any other construct. This test held, because the largest squared correlation between any two constructs is .74, whereas the AVE ranges from .84 to .97.

Finally, the correlations between desires and expectations for both attributes were low (.15 for the picture outcome attribute and .16 for the versatility attribute). Thus, these two constructs appear to be empirically distinct. Also, the correlation between attribute satisfaction and information satisfaction is moderate (.56 for the picture outcome attribute and .40 for the versatility attribute); because the average variance extracted (picture outcome attribute) for these two constructs are .93 and .84, respectively, it is clear that they are distinct.

Having established the measurement properties at the attribute level, we combined the attributes into an index for each construct. This was done because versatility and picture outcome are formative, not reflective, indicators of constructs just as b_ie_i attribute ratings are formative indicators of attitude in multiattribute attitude research (cf. Fornell and Bookstein 1982). The indices were created by averaging the versatility score and an average of the two picture outcome measures, and these indices were used to represent each construct in the structural modeling. In contrast, the overall satisfaction construct was operationalized in the structural equations with the four individual measures. In Table 2, we report the correlations among these constructs. The covariances were used in the structural equations modeling.

Tests of the Hypotheses

In Figure 2, we show the standardized estimates of the relationships among the constructs and their t-values.[4] The χ^2 for the model is 137.76 (40 df, $p < .01$), the goodness-of-fit index is .89, the adjusted goodness-of-fit index is .81, and the comparative fit index is .95. This indicates that the hypothesized model fits the data well in an absolute sense.

The effect of attribute and information satisfaction. Attribute satisfaction and information satisfaction had significant, positive effects on overall satisfaction, thereby supporting H_{1a} and H_{1b}. The two constructs explain 56% of the variation in overall satisfaction. Thus, it appears that overall satisfaction is formed through an assessment of both satisfaction with the product and satisfaction with the information provided by the marketer.

The impact of expectations congruency and desires congruency. Consistent with the traditional model, expectations congruency had a significant effect on attribute satisfaction, but it also affected information satisfaction, showing that at least some of its influence on overall satisfaction is mediated by satisfaction with the information. Thus, H_{2a} and H_{2b} are supported. The proposed model implies that expectations congruency does not directly affect overall satisfaction. To test whether attribute and information satisfaction completely mediate the effects of expectations congruency, a direct path between expectations congruency and overall satisfaction was estimated. There was a nonsignificant increase in the fit of the model (change in $\chi^2 = .01$, $p > .90$), and the path was nonsignificant (standardized path of .01, t = .13). Furthermore, the variance explained in overall satisfaction did not increase. Thus, the effects of expectations congruency were completely mediated.

[4]The error terms for the constructs were set to $(1 - \alpha)$ times the variance of the construct. In describing this procedure, Jöreskog and Sörbom (1993, p. 153) state (regarding a model using a construct with a single item), "Although no replicate measure is available for ξ_3, it is argued that x_5 is a fallible measure. We therefore assume that the reliability is .85. It is argued that an arbitrary value of .85 is a better assumption than an equally arbitrary value of 1.00." Here the reliability was estimated for each index by taking an average of the squared multiple correlations for the picture outcome measures from the CFA. Thus, we go one step further in choosing a reliability estimate that is less arbitrary, because each estimate is based on the reliabilities (1) found for the items that have multiple measures, (2) for the given construct, and (3) in the same study. The reliabilities used were .90 for desires, .95 for perceived performance, .97 for expectations, .89 for desires congruency, .86 for expectations congruency, .93 for attribute satisfaction, and .84 for information satisfaction.

TABLE 1
Measurement Model Factor Intercorrelations

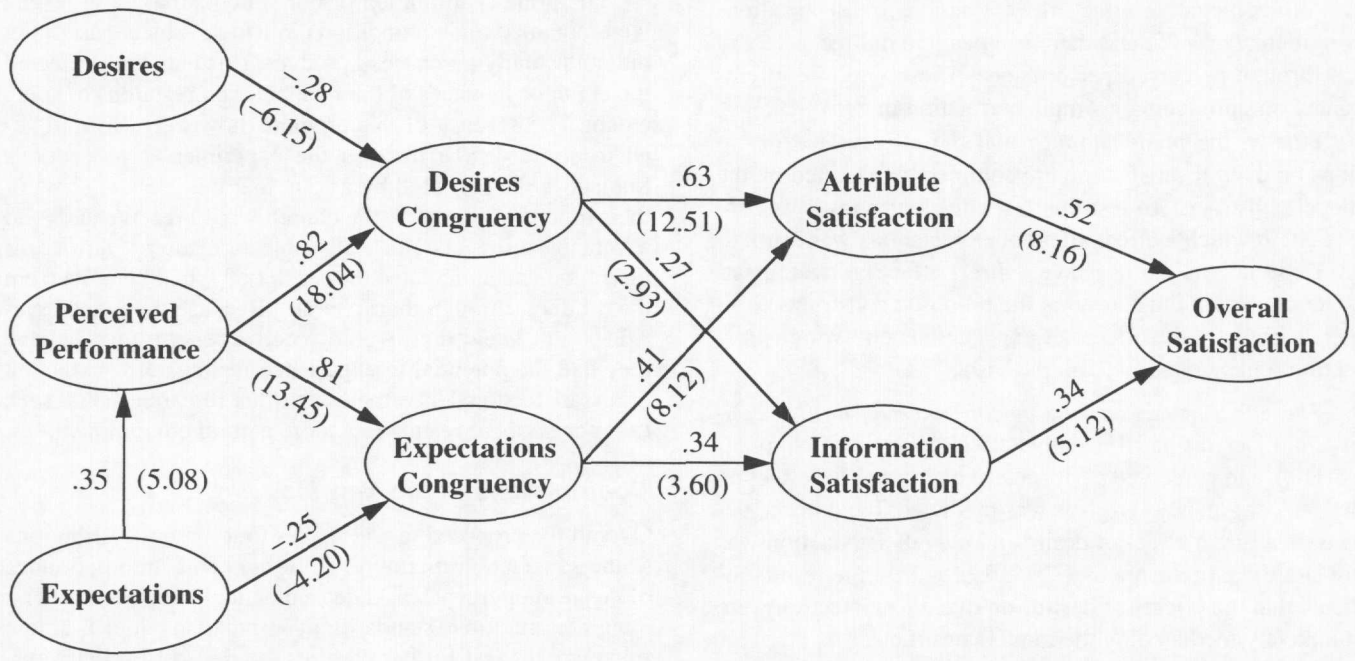
FACTORS	AVE[a]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Desires Versatility	–	1.00														
2. Desires Picture	.89	.64	1.00													
3. Perceived Performance Versatility	–	.04	.14	1.00												
4. Perceived Performance Picture	.95	.06	.11	.86	1.00											
5. Expectations Versatility	–	.16	.09	.25	.28	1.00										
6. Expectations Picture	.97	.08	.15	.34	.38	.86	1.00									
7. Desires Congruency Versatility	—	−.22	−.18	.64	.58	.11	.15	1.00								
8. Desires Congruency Picture	.88	−.18	−.21	.66	.71	.16	.22	.78	1.00							
9. Expectations Congruency Versatility	—	−.08	.01	.49	.49	−.05	−.01	.62	.58	1.00						
10. Expectations Congruency Picture	.86	−.04	.00	.57	.64	−.02	.05	.59	.82	.72	1.00					
11. Attribute Satisfaction Versatility	—	−.04	.08	.72	.63	.22	.24	.75	.68	.67	.57	1.00				
12. Attribute Satisfaction Picture	.93	.01	−.02	.74	.80	.19	.26	.65	.84	.61	.81	.74	1.00			
13. Information Satisfaction Versatility	–	.03	.04	.32	.33	.12	.12	.36	.34	.30	.33	.40	.40	1.00		
14. Information Satisfaction Picture	.84	−.05	−.14	.30	.39	.00	.00	.33	.44	.35	.51	.37	.56	.57	1.00	
15. Overall Satisfaction	.85	−.03	−.05	.51	.59	.15	.18	.54	.66	.48	.61	.58	.69	.41	.62	1.00

[a]AVE =The average variance extracted for the constructs with multiple measures.

TABLE 2
Structural Model Factor Intercorrelations

Factors	1	2	3	4	5	6	7	8
1. Desires	1.00							
2. Perceived Performance	.10	1.00						
3. Expectations	.14	.34	1.00					
4. Desires Congruency	−.22	.70	.17	1.00				
5. Expectations Congruency	−.03	.60	−.01	.73	1.00			
6. Attribute Satisfaction	.01	.79	.26	.81	.76	1.00		
7. Information Satisfaction	−.02	.39	.08	.43	.44	.51	1.00	
8. Overall Satisfaction	−.03	.58	.18	.63	.58	.67	.57	1.00

FIGURE 2
Model Tested With Completely Standardized Parameters[a]



[a]T-values are in parentheses.

Desires congruency also had significant effects on both attribute and information satisfaction, thereby providing support for H_{3a} and H_{3b}. Again, the proposed model implies that desires congruency does not have a direct effect on overall satisfaction. The influence of desires congruency on overall satisfaction was again completely mediated by information satisfaction and attribute satisfaction. The change in χ^2 was not significant (1.76, $p > .10$), the path was not significant (standardized path = .20, t = 1.59), and the variance explained in overall satisfaction did not change. Thus, the mediation of expectations congruency and desires congruency was complete. Desires congruency and expectations congruency explained 88% of the variation in attribute satisfaction and 30% of the variation in information satisfaction.

Examination of the relative effect. The total effect of desires congruency on overall satisfaction (standardized effect of .42, t = 7.95) was greater than the total effect of expectations congruency (.33, t = 6.84). The direct effects on attribute satisfaction showed a similar pattern (.63 versus .41). A test of the relative effects was conducted and showed that the two were not significantly different (change in χ^2 = 1.46, $p > .20$). Thus, it is clear that the impact of desires congruency was at least as great as the impact of expectations congruency.

Tests of the positive and negative effects of expectations. We hypothesized that expectations would have a negative effect on expectations congruency (H_{4a}) and a positive effect on perceived performance (H_{4c}), whereas perceived performance would have a positive effect on expectations congruency (H_{4b}). All three hypotheses were supported; the variation explained in performance was .12 and in expectations congruency was .58. We also expected the positive effect of expectations through perceived performance to be stronger than the negative effect of expectations through disconfirmation. When the standardized indirect effects of

expectations on overall satisfaction *through expectations congruency* are calculated, this effect is –.08. The standardized effect of expectations on overall satisfaction *through perceived performance* is .21. The total standardized effect of expectations on overall satisfaction (both through expectations congruency and through perceived performance) is .13 (t = 2.78), which supports H_{4d}. Thus, though expectations have both a positive and negative effect on overall satisfaction, the former effect is stronger and overwhelms the effect of the latter.

Furthermore, in Table 2, we show that the zero-order correlation between expectations and expectations congruency is essentially zero. Although this lack of relationship has been found in prior research (see Yi 1990, p. 96), the structural parameters show that they are *not* unrelated. There is a direct, negative effect of expectations on expectations congruency of –.25, and there is a positive indirect effect of .28 through perceived performance. These opposite effects cancel out, producing a simple correlation of zero.

Finally, the model implies that the effects of expectations on overall satisfaction are completely mediated by the model constructs. To test this, a χ^2 difference test was conducted, in which a direct effect of expectations was estimated. Expectations did not have a *direct* effect on overall satisfaction, which indicates that the proposed constructs completely mediate the effects of expectations on overall satisfaction (change in $\chi^2 = .54$, $p > .40$).

The effect of desires and performance on desires congruency. Desires had a negative effect on desires congruency (H_{5a}), and perceived performance had a positive effect on desires congruency (H_{5b}), as was predicted. In addition, because the direct effect of desires on overall satisfaction was not significant (change in $\chi^2 = .01$, $p > .90$), the results indicate that the effects of desires on overall satisfaction were completely mediated by the model constructs.

Test of mediation of perceived performance. To test whether desires congruency, expectations congruency, attribute satisfaction, and information satisfaction completely mediated the impact of perceived performance on overall satisfaction (H_6), a direct effect of perceived performance on overall satisfaction was added to the model. This path was not significant (change in $\chi^2 = 1.12$, $p > .20$; standardized coefficient of .11, t = 1.09), and the percentage variation in overall satisfaction accounted for did not change. This indicates that the strong effect of perceived performance on overall satisfaction is completely mediated by the model constructs, providing support for H_6.[5] Thus, the combination of desires congruency and expectations congruency eliminates the residual effect of performance on overall satisfaction, which was observed in previous research based on the disconfirmation of expectations (e.g., Churchill and Surprenant 1982).

[5]In Table 3, we show that perceived performance and satisfaction have a strong relationship, with a zero-order correlation of .58.

Discussion

Summary of Results

Overall, the results provide strong support for the hypotheses and help clarify the roles of desires, expectations, and performance in the satisfaction formation process. Specifically, the findings indicate that (1) expectations congruency and desires congruency mediate the impact of expectations, desires, and performance on attribute, information, and overall satisfaction; (2) attribute satisfaction and information satisfaction mediate the impact of expectations congruency and desires congruency on overall satisfaction; and (3) the direct effect of performance on overall satisfaction observed in previous research is completely mediated by the model constructs.

The primary limitation of our study is that these results were obtained under conditions in which subjects used, but did not actually purchase, a product. This may have affected the depth or intensity of their satisfaction reactions to some extent. The severity of this problem, however, was mitigated to some degree through the experimental procedures. Subjects were recruited by asking that they donate some of their time, and in return, the church would receive cash and a valuable product. Thus, all subjects made a sacrifice of their time and anticipated the receipt of actual benefits from the product (through their church). Because they made sacrifices and knew they would receive benefits, we believe they had the potential to experience feelings of satisfaction or dissatisfaction. Nevertheless, further research should seek to replicate these results in a more natural environment.

Contributions of the New Model

Overall the proposed model makes four major contributions to the satisfaction literature: (1) it confirms the importance of desires congruency as a determinant of satisfaction, (2) it integrates multiple standards of comparison into a single framework, (3) it further clarifies the roles of expectations, desires, and performance, and (4) it identifies information satisfaction as a key determinant of satisfaction.

Confirmation of the importance of desires congruency. A key contribution of this research is that it provides a much needed empirical confirmation of the importance of desires as a standard of comparison. Specifically, the results indicate that desires congruency has a significant effect on attribute satisfaction, information satisfaction, and overall satisfaction—over and above the effect of expectations. Although others have discussed the importance of desires as a standard of comparison when forming satisfaction judgments (e.g., Westbrook and Reilly 1983), prior to this study, there was little empirical evidence to support this hypothesis.

This is an important addition to current models of the satisfaction formation process, because incorporating desires into current models of satisfaction eliminates one of the logical inconsistencies of the disconfirmation of expectations model identified by LaTour and Peat (1979). Namely, if a consumer's behavior is constrained to purchasing a product that the consumer expects to perform poorly, and it does, purely expectations-based models of satisfaction illogically

predict the consumer will be satisfied. However, when a consumer's desires are also taken into account, the prediction changes, because the absolute level of satisfaction would be low because the product did not perform as desired.

Recognition of the impact of desires on satisfaction is also important because it helps explain why a consumer's satisfaction with a product may change over time, even though the extent to which the product meets his or her expectations remains relatively constant. For example, if a person's desires change over time because of altered circumstances (e.g., the birth of a child causing the desire for a larger car), increased knowledge about the product category (e.g., more knowledge about nutrition and health leading to a desire for less cholesterol in food), or prior decisions made (e.g., the purchase of a new car triggering a desire for collision insurance), the proposed model predicts that satisfaction changes over time, even though there has been no change in the extent to which the product performed as expected. Thus, we believe that viewing desires as a major determinant of consumer satisfaction and consumer behavior in general has the potential to substantially enrich researchers' understanding of these important phenomena.

Integration of desires and expectations into a single framework. A second major contribution is that the proposed model integrates multiple standards of comparison into a single framework by showing how and why both expectations and desires influence satisfaction. Although the model proposes that both standards are important, it may reduce to simpler forms under some conditions. For example, when a product is new and a consumer has no expectations about it, desires congruency might be expected to dominate. This may be why Churchill and Surprenant (1982, video disk player) and Spreng and Olshavsky (1993, innovative new type of camera) did not find a significant effect of expectations disconfirmation on satisfaction—in both studies the products were innovations. Conversely, when a consumer has purchased and used a product many times (presumably it is meeting his or her desires), then expectations congruency might be more important because of the attention-getting effect of deviations from expectations. Further research should attempt to identify factors that influence the relative importance of desires and expectations as standards of comparison, such as consumer knowledge and experience, confidence in expectations and desires, novelty of the product, source of the information on which the expectations are based, and ease of judging performance.

Further clarification of the roles of desires, expectations, and performance. The proposed theoretical framework also helps clarify the sometimes confusing roles of desires, expectations, and performance. For example, it has been suggested that desires and expectations may simply be different levels of a single standard (e.g., Iacobucci, Grayson, and Ostrom 1994; Zeithaml, Berry, and Parasuraman 1993). Our research does not support this view for two reasons. First, the confirmatory factor analysis at the attribute level indicates that desires and expectations are empirically distinct. Second, the structural equations analysis indicates that desires and expectations have different effects on satisfaction. These findings indicate that expectations have both positive and negative indirect effects on satisfaction, whereas desires have only a negative effect.

Our research also helps explain the strong effect of performance on satisfaction that has been generally found even when disconfirmation of expectations is in the model. Here, the effect was completely mediated by the model constructs, which indicates that the model provides the cognitive "mechanism by which performance is converted into a psychological reaction by the consumer" (Oliver 1989, p. 2). That is, desires congruency and expectations congruency appear to account for the effect of performance on overall satisfaction. Recall that though Churchill and Surprenant (1982) found a strong effect of perceived performance on satisfaction, they did not include desires congruency. Our results also are largely consistent with those of Spreng and Olshavsky (1993), who found that most of the effect of performance on overall satisfaction was mediated by the combination of expectations congruency and desires congruency. They did find, however, that there was a small residual effect of performance even in the context of desires congruency, which suggests the need for further research to examine when the model does and does not account entirely for the effects of performance.

Finally, the model shows the complex, opposite effects of expectations. As Boulding and colleagues (1993) suggest, raising expectations increases perceptions of performance, but doing so can increase disconfirmation and decrease satisfaction with the information given. Conversely, promising less than can be delivered (i.e., reducing expectations) has the danger of reducing perceptions of performance. That is, if performance is difficult to judge, lowered expectations may cause consumers to perceive a lower level of performance than was actually delivered. Further research is needed to establish more clearly the appropriate managerial actions to take in certain situations. The best or safest route still may be to increase performance. Thus, managing expectations may be more difficult than was originally thought.

Identification of information satisfaction as a key mediator. The final major contribution of this research is the introduction of a new mediating variable that enhances an understanding of the effect of disconfirmation of expectations on satisfaction. An emerging perspective regarding antecedents of satisfaction is to distinguish between desires, which are based on a consumer's means-end linkages, and expectations, which are created by information from the seller (Gardial et al. 1994; Spreng and Dixon 1992; Spreng and Olshavsky 1993). We show that when persuasion-based expectations are disconfirmed, both satisfaction with the product (attribute satisfaction) and satisfaction with the seller-provided information are affected; and satisfaction with the information then affects overall satisfaction.

The observed independent influence of information satisfaction on overall satisfaction is an important enhancement of our understanding of the determinants of overall satisfaction, because it is not difficult to imagine situations in which attribute satisfaction and information satisfaction may be different. Any time consumers are given accurate information about how a product or service will perform, and its level of performance is lower than desired, they are likely to experi-

ence high levels of information satisfaction but low levels of attribute satisfaction. For example, owners of new Volvos who are honestly told that "repair parts may be hard to get (or expensive) in some areas," patients in a dentist's office who are truthfully told "now this is going to hurt a bit," and airline passengers who are told there is a chance that "some flights may be over booked," are all likely to be disappointed if this information turns out to be true. The opposite case of low information satisfaction but high attribute satisfaction is equally common. This situation occurs any time a good product (i.e., one that is better than the others on the market) is "oversold" in promotion. Not only is this a fairly common occurrence, but it is precisely the type of situation that LaTour and Peat (1979) said leads to "logical inconsistencies" of the disconfirmation of expectations model.

Recognition of the importance of information satisfaction also has several implications for theories of satisfaction. Previous research has found that disconfirmation of expectations does not always have a significant influence on satisfaction, and the new model provides insight as to when expectations congruency should have a stronger effect. Information satisfaction, and hence disconfirmation of marketer-created expectations, are more important in situations in which the consumer is dependent on someone else for information. This may occur when the product is characterized by experience attributes, rather than search attributes (Nelson 1970), or when the consumer does not have the ability or motivation to collect and/or process information. In both of these cases, the consumer may rely on marketer supplied information, and if this information is negatively disconfirmed, the consumer will be dissatisfied with the information. This in turn will influence overall satisfaction. Therefore, a high priority is to test the model in situations in which the consumer's need for information varies, such as comparing products with search versus experience attributes.

The concept of information satisfaction also may provide a means of linking satisfaction with the extensive theory and research in the area of persuasion. Work in social psychology, consumer behavior, and marketing related to source characteristics (e.g., source credibility) and message effects (e.g., number and nature of competitive brands in a comparative advertisement) can be incorporated into satisfaction models by their effect on a consumer's expectations, which then influences overall satisfaction through information satisfaction.

In terms of marketing practice, we believe there is some heuristic value in distinguishing between attribute satisfaction and information satisfaction, because they involve independent elements of the marketing mix (attribute satisfaction is related to the product, whereas information satisfaction is related to promotion). This is essentially no different than in the advertising literature in which beliefs about a product are distinguished from attitudes toward an advertisement of the product, feelings evoked by a product advertisement, beliefs about the credibility of the source of the advertisement, and so on.

Because attribute satisfaction and information satisfaction judgments are responses to two different elements of the marketing mix, they are influenced by different people in most organizations (e.g., new product development versus promotion). Hence, though both are controllable to some extent by managers, they are not necessarily controllable by the *same* managers; and there often may be tension between those responsible for creating the prepurchase beliefs that facilitate purchase and those responsible for making sure the postpurchase evaluation is positive.

In addition, the identification of information satisfaction as a key mediator of the impact of disconfirmation of expectations on overall satisfaction underscores how important it is for firms to accurately communicate with consumers in their advertising and personal selling. For example, a grocery store that claims, "You're next in line" can create expectations about the length of the wait. If consumers find that they are fifth in line, they are likely to be dissatisfied with the information they received about the store, as well as with the attribute (length of line) itself. Their overall satisfaction is likely to be lower than if the store had never made the claim.

Also, the two types of satisfaction may have unique consequences or moderators that are not part of the conceptual system tested here. For instance, low information satisfaction may be more likely to stimulate negative word-of-mouth communications than low attribute satisfaction, because the consumer may feel cheated. Or, high attribute satisfaction may be more likely to result in repeat purchase than high information satisfaction, and the effects of one type of satisfaction judgment on overall satisfaction may be more enduring and/or more predictive of subsequent behavior. For example, one bad product experience may not have a major influence on repurchase intentions, but low attribute satisfaction in combination with low information satisfaction ("they lied to me just to make the sale") could have a lasting effect.

Furthermore, person, product, or situational moderators may affect one satisfaction judgment more than the other. For example, information satisfaction may be more important for products with lots of experience attributes, because the consumer is dependent on someone else (e.g., the marketer) for information. Other moderators might include attributions (e.g., "why was the information not correct—a simple mistake or they intentionally misled me"), consumer knowledge, or consumer involvement.

In summary, the introduction of the concept of information satisfaction makes several valuable contributions. First, it separates satisfaction judgments that are the result of different elements of the marketing mix. Second, it provides greater insight into various ways in which overall satisfaction can be formed. Third, additional research may find that it has different consequences than does attribute satisfaction. Fourth, it may be differentially influenced by various moderators. Fifth, it helps solve several logical inconsistencies of the disconfirmation of expectations model.

Appendix A

Conceptualization of the Congruency Constructs

The operationalization of both desires congruency and expectations congruency is based on the additive difference

model (Tversky 1969). Normally this model is utilized as a choice heuristic, in which real or imagined alternatives are evaluated two at a time. The model specifies that alternative x is preferred to alternative y on the basis of a comparison between the two alternatives on each attribute. The difference between the two alternatives (for each attribute) is then weighted and summed as the following formula specifies:

x is preferred to y if

$$\Sigma e_i (x_i - y_i) > 0$$

where

e_i = a weighting parameter of the contribution of the difference for that dimension in the overall preference,
x_i = subjective value of attribute i for alternative x, and
y_i = subjective value of attribute i for alternative y.

As applied here, the model decomposes the assessment of desires congruency into two components: (1) a subjective belief based on the comparison of the level desired and the level received and (2) an evaluation of the difference (e_i). Thus, the additive difference model as applied here suggests that the desires congruency construct can be conceptualized as

$$DC_x = \Sigma e_i (PP_i - D_i),$$

where

DC_x = desires congruency for alternative x,
e_i = a weighting parameter that is the consumer's evaluation of the goodness or badness of the difference between the desired and the actual performance,
PP_i = the consumer's perception of the product performance, and
D_i = the consumer's desires regarding aspect i.

Similarly, expectations congruency can be conceptualized in the same way—as a comparison between the level expected and the level received—and weighted by an evaluation of the difference.

Operationalization of the Congruency Constructs

Due to the problems associated with the use of difference scores, the difference component as operationalized here is a *subjective assessment* of the difference between the standard and performance and is not a difference score. Thus, the operationalization of the two congruency constructs is as follows:

$$DC = \Sigma e_i (SDC_i),$$

where

DC = desires congruency for the product,
e_i = a weighting parameter that is the consumer's evaluation of the goodness or badness of the difference between the desired and the actual performance, and
SDC_i = the consumer's subjective perception of the congruency between his or her desires (D) regarding attribute i and the performance of the product (PP) on attribute i.

Expectations congruency is operationalized in an analogous way.

Advantages of the Additive Difference Specification

The additive difference model has several advantages over other combinatorial models. The first is that the model is a more general form of such models as the ideal-point model or value-percept disparity model (Westbrook and Reilly 1983). For example, an ideal-point model specifies that the evaluation of alternative x is

$$A_x = \Sigma_i W_i |B_{ix} - I_i|$$

where

A_x = overall attitude toward alternative x,
W_i = the consumer's importance weight of attribute i,
I_i = the consumer's ideal regarding attribute i, and
B_{ix} = the consumer's perception of the performance of alternative x on attribute i.

Thus, the ideal-point model maintains that the evaluation of a product is a negative function of the difference between desires and perceptions of performance, which is weighted by the importance of the attribute. This model predicts that any discrepancy from what is desired will be evaluated negatively. That is, differences from the ideal cannot be positively evaluated. The ideal-point model is a special case of the additive difference model in which the e_i is constrained to be a constant (W_i) that varies only across attributes and not as a function of the magnitude or direction of the difference between B_{ix} and I_i, as is possible in the additive difference model.

Using a similar combinatorial model, Westbrook and Reilly (1983) and Myers (1988) examined the value-percept disparity model. This model is specified as

$$A_x = \Sigma_i |B_{ix} - V_i|,$$

where

A_x = overall attitude toward alternative x,
V_i = the consumer's desires or needs regarding attribute i, and
B_{ix} = the consumer's perception of the performance of alternative x on attribute i.

This model also is a special case of the additive difference model, because the e_i is assumed to be equal to 1.

The second advantage of the additive difference model is that both the ideal-point model and the value-percept disparity model suggest that congruency evaluation is a negative function of the comparison between desires and perceived performance (or between expectations and performance), because any discrepancy from what is desired (expected) will be negatively evaluated (Myers 1988; Westbrook and Reilly 1983). Although this is true for some attributes (e.g., more sweetness in a soft drink than desired), for other attributes it is not (e.g., better-quality photographs

TABLE A1
Comparison of Ideal-Point Model and Additive Difference Model

Model	Weight	Desire	Get	D-PP	Desires Congruency
Ideal-point					
	5	30	20	10	$5 \times 10 = 50$
	5	30	10	20	$5 \times 20 = 100$
Additive Difference					
	–1	30	20	10	$-1 \times 10 = -10$
	–3	30	10	20	$-3 \times 20 = -60$

than desired). In the latter case, both alternative computational formulas show lower evaluation when performance is different from that desired. Furthermore, performance that differs from expectations can certainly be evaluated positively. In contrast, if the evaluation of the difference (e_i) is scaled, for example, from –5 to +5, this model enables performance that differs from what is desired to have a positive effect on the evaluation of the product. Although it is probable that in the case at hand (as well as with most other cases) any deviation from desires will be evaluated negatively, the additive difference model does not need to be restricted in this way.

Third, the e_i in the additive difference model differs from the importance weighting of the ideal-point model. The e_i can vary over different size discrepancies (i.e., the e_i is nonlinear), whereas the weighting factor in the ideal-point model is the importance of the attribute and hence is the same for all discrepancies for a given attribute. For example, assume that a consumer wants a car that gets 30 miles per gallon and is evaluating a car that gets either 20 or 10 miles per gallon. The ideal-point model assumes that the weight is the same for all differences for this attribute, and here it is assumed that this weight is 5. The additive difference model does not assume that the evaluation of the difference is the same for differing levels of discrepancy. Thus, a doubling of the discrepancy no longer results in a doubling of incongruity but in an evaluation that is six times worse, because the evaluation is of a particular difference between what was desired and what was received, rather than of the attribute as a whole (see Table A1).

Fourth, this operationalization also addresses the problem that Teas (1993) notes with operationalizations of congruency constructs. He states (p. 19) that "the P-E [performance-expectations] measurement specification as expressed in equation 1 suggests that perceived quality (Q_i) increases as P increasingly exceeds the ideal point." He points out, however, that if an attribute is a finite ideal-point attribute, then the difference score operationalizations are not valid. For example, assume a subject desires a level of an attribute of 4—say, a moderate level of versatility in a camcorder. If the subject receives a level of performance of 1 (not at all versatile), the P-D formulation is $1 - 4 = -3$. If the subject receives a level of performance of 7 (an extremely versatile camcorder), the P-D formulation is $7 - 4 = 3$. Thus, both are evaluated negatively by the subject, but the P-D model gives opposite results. Some have argued for taking an absolute difference, which assumes that anything different from desires is negatively evaluated (e.g., Westbrook and Reilly 1983), but this does not allow for vector attributes. In fact, this may be one of the reasons that Westbrook and Reilly's (1983) results were not more supportive of the influence of values. This is where our model has an advantage. It enables the subject to assess the degree of discrepancy between his or her desires and the performance. The subject can then rate whether this difference is good or bad. This solves the problem of difference score formulations for vector versus finite ideal-point attributes. Using the previous example, in either case the subject might say that performance was different than desired—say, a 4 on our 1 = "exactly as desired" to 7 = "very different than desired" scale. Then the subject would rate how good or bad this was. In the case of a vector attribute, a difference could be rated either positively or negatively. In our example using a finite ideal-point attribute, either situation would be evaluated negatively. But again, the evaluation component is not like a weight in most ideal-point models, because discrepancies in one direction need not be evaluated the same way as discrepancies in the opposite direction. Continuing with this example, it is possible that a camcorder that is not versatile enough (below the finite ideal point) could be evaluated more negatively than one that is more versatile than desired (above the ideal point).

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