

THE CONTRIBUTION OF EMOTION TO CONSUMER SATISFACTION IN THE SERVICE SETTING

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Although the disconfirmation of expectations model continues to exert a major influence in research and managerial practice, many studies have shown that disconfirmation does not offer a complete explanation of the variance in customer satisfaction. Customer responses to service encounters can not be fully accounted for without adding an affective dimension as well.

This research investigates the contributions of emotion and disconfirmation to the explanation of customer satisfaction. A significant contribution of the study (N=359) is that a 2x2 experimental design is used to manipulate and control expectations and performance so that the influence of emotion and disconfirmation can be studied on a cell by cell basis using regression analysis. Findings indicate that in situations where perceived performance is high, emotion contributes more to the explanation of customer satisfaction than does disconfirmation. Izard's DESII scale is then factor analyzed to investigate which emotions are statistically significant in various types of service encounters. Managerial implications are offered.

INTRODUCTION

Customer satisfaction is key to a firm's survival in today's marketplace. It influences future purchase behavior (Mittal and Kamakura 2001; Voss, Parasuraman and Grewal, 1998; Hurley and Estelami 1998; Zeithaml 1996; Taylor and Baker 1994 and Anderson, Fornell and Lehman 1994) and has been embraced by practitioners and academics alike as "the highest-order goal of a company" (Peterson and Wilson 1992). Indeed, if "the ultimate aim of marketing is human happiness" (Bagozzi and Natarajan 2000, p. 6), then marketers must constantly seek insights into what constitutes the multifaceted needs of consumers and how to satisfy those needs, which will contribute to the "emotional well-being" of the consumer (Holbrook 2001).

The concept of consumer satisfaction is viewed as the core of the post purchase period and it is thought that

satisfaction mediates consumer learning from prior experience and explains key post purchase activities (Westbrook and Oliver 1991). Traditionally customer satisfaction has been conceptualized and measured as a cognitive disconfirmation involving some comparison standard (Liljander and Strandvik 1997). The majority of the literature has focused on the relationships among expectations, perceived performance, disconfirmation and satisfaction as modeled in the disconfirmation paradigm. Consumers are viewed as bringing certain expectations to the exchange encounter and then comparing those expectations with perceived performance (Alford and Sherrell 1996). As a result of this comparison, a disconfirmation judgment occurs, with increased satisfaction accruing as a consequence of positive disconfirmation, while negative disconfirmation leads to a decline in customer satisfaction (Yi 1993; Oliver 1980). This disconfirmation model has been utilized in both product-based analyses as well as in research done in the service sector.

Recent literature has demonstrated that consumers' assessments of goods and services are often based on more than their evaluation of the attributes the

alternative offers. Indeed, it is becoming increasingly clear that a brand's attributes are not the only elements, and perhaps not the most important elements in determining consumers' attitudes (Garbarino and Edell 1997). Parasuraman, Zeithaml and Berry (1985) observed that many marketers have tended not to conceptualize satisfaction as just a cognitively based evaluation of attributes, but rather as an emotional response to a product or service. Satisfaction is characterized by the surprise (Oliver 1981), the contentment, the pleasure and/or relief (Woodruff, Cadotte and Jenkins 1983) that a customer feels following a purchase or service encounter. Satisfaction is now believed to have an affective dimension also, without which consumers' responses cannot be fully explained (Liljander and Strandvik 1997). Hence, consumers' affective reports have been highly predictive of the level of satisfaction expressed and may even be superior to cognitive evaluations of the same product/service in predicting satisfaction (Dubé-Rioux 1990). Westbrook (1987) and Oliver (1993a) have extended the disconfirmation model to include affective and attribution responses arising from the consumption experience.

The inclusion of an affective dimension is certainly a step forward in the explanation of consumer satisfaction, particularly in a service situation. "Although many streams of research have characterized the process of evaluation as a cold, reasoned assessment and weighting of the component qualities of the target, there is increasing evidence that people also perform evaluations by monitoring their subjective affective responses (feelings and emotions) to the target" (Pham, Cohen, Pracejus and Hughes 2001, p. 167). In fact, affect monitoring has been shown to be an excellent diagnostic pathway to evaluation in judgment and decision making, especially in the area of services. Dubé-Rioux (1990) found that consumers' affective reports were highly predictive of the level of satisfaction and that the role of affective reports in determining customer satisfaction is more important for services than for most products because of the experiential nature of consumption. While the comparison process in a disconfirmation judgment is indeed a deliberate processing of information, the affective processes are believed to be outside the consumer's conscious

control (Liljander and Strandvik 1997). Thus, cognitive and affective responses can be viewed as separate and distinct, each exerting their own influence on consumer satisfaction (Westbrook and Oliver 1991; Oliver 1993b). Alford and Sherrell (1996) found that in a dental service setting the affective extension model (Oliver 1993a) used was a significant improvement over the traditional disconfirmation model without affect. The importance of the affective component can be seen when Oliver (1996, p. 14) defines satisfaction as "the consumer's fulfilment response."

While interest and research in this area have increased, knowledge of the various emotional facets of the consumption experience remains limited, as well as their specific contributions to the explanation of customer satisfaction in the service situation. Thus, this article will investigate the relative contributions of emotion and disconfirmation in explaining customer satisfaction in a service setting utilizing an experimental design. It will also attempt to determine if certain aspects of emotion are more important than others in the explanation of customer satisfaction.

FUNCTION OF EMOTION

In order to adequately discuss the function of emotion, one must first define several related constructs. Bagozzi, Gopinath and Nyer (1999) describe affect as an umbrella for a set of more specific mental processes including emotions, moods and perhaps attitudes. Affect could be viewed as a general category for mental feeling processes. Cohen and Areni (1991) believe that affect is best defined as a general descriptor of a valenced feeling state. Emotion and mood then can be viewed as specific examples of affect.

Much of the current research in the area of emotion has its origin in the work of James (1890), who thought of emotional states as being experienced differently because each generates a specific pattern of arousal in the visceral system which the cognitive system is then able to interpret. However, according to Schacter's "nonspecific arousal" theory (Schacter and Singer 1962), an emotional state is a function of

a general state of arousal and a particularly important cognitive appraisal process. Bagozzi, Gopinath and Nyer (1999, p. 2) refer to emotion as "a mental state of readiness that arises from cognitive appraisals of events or thoughts, has a phenomenological tone, is accompanied by physiological processes, is often expressed physically and may result in specific actions to affirm or cope with the emotion, depending on its nature and the person having it"; this will be the definition of emotion employed in this study.

There is a fine line drawn between emotion and mood. Frijda (1993) believes that one distinction between the two is that emotion is typically intentional, has an object or referent, whereas moods are generally nonintentional, global or diffused. Emotions lead to focusing attention on an instigating stimulus, whereas moods may be elicited and maintained without conscious awareness of the feeling state, its cause or its influence (Gilligan and Bower 1984). Emotions are thought to be more intense and stimulus specific than moods (Clark and Isen 1982; Gardner 1985) and are generally associated with action tendencies.

Lastly, attitudes are also considered to be under the affect umbrella. Similar measures are often used to indicate both emotions and attitudes (e.g. happy-sad, pleasant-unpleasant using semantic differential scales). Some authors, including Cohen and Areni (1991) define attitudes as evaluative judgments. Others view attitudes as having two distinct, but usually highly correlated components: cognitive (or evaluative) and affective dimensions (Batra and Ahtola 1990; Mladinic and Otto 1994). Bagozzi, Gopinath and Nyer (1999) distinguish between attitudes and emotions in the following manner: arousal is a necessary part of emotions, but not of attitudes. Attitudes can be stored for long periods of time and then retrieved, whereas emotions are not experienced in that way. Lastly, the connection between emotions and action is stronger and more direct than it is for attitudes. In this study, emotions and their impact on customer satisfaction will be the focus.

EMOTIONS AND CUSTOMER SATISFACTION

Historically, research on satisfaction has been very cognitive in nature. Satisfaction has been viewed as a post-consumption cognitive process in which the customer compares the perceived performance of the service with an evaluative standard (Westbrook and Oliver 1991). Generally, the evaluative standard is the customer's expectation set, which is then compared to the level of perceived performance, yielding disconfirmation beliefs which in turn produce satisfaction judgments. Service satisfaction is assessed from a comparison of what service was expected (predicted) and what was actually perceived (Zeithaml, Berry and Parasuraman 1998). Levels of satisfaction have been assumed to be directly and positively related to the level of disconfirmation.

The experiential aspect of products and services in terms of the feelings and emotions elicited during consumption has been emphasized repeatedly with regard to consumer behavior (Chadhuri 1997; Havlena and Holbrook 1986; Holbrook 1986; and Holbrook and Hirschman 1982). Emotions and evaluations are intimately intertwined (Guimond, Kim and Laroche 2001) and it has been shown that emotional experiences can predict consumer behavior (Allen, Machleit and Kleine 1992). Thus, it is surprising that it is only in the last decade that research has begun to address the wide gaps in our knowledge of the role of the affective components in the overall judgment of customer satisfaction (Chadhuri 1997; Westbrook and Oliver 1991; Oliver 1994; Liljander and Strandvik 1997; Oliver, Rust and Varki 1997; Richins 1997; Fournier and Mick, 1999).

Fournier and Mick (1999) state that the comparison standards paradigm and its models have ignored or understated the role of emotion in satisfaction. Their study showed that it was not comparison standards matched against performance perceptions that mattered most in customer satisfaction, but rather meanings and emotions which carried more weight in the overall satisfaction judgment. Westbrook (1987) demonstrated that satisfaction incorporates an evaluation of the emotional aspects of the consumption experience and that separate and

independent dimensions of positive and negative affect underlie discrete emotional responses elicited during consumption. These affective dimensions contributed significantly to satisfaction above and beyond expectancy-disconfirmation beliefs. Roest and Pieters (1997) also viewed satisfaction as containing an affective dimension and stated that it was an important construct to study because it appears to influence the formation of customers' purchase intentions. Indeed, emotions are basic, primal motivations that may be considered to be crucial determinants in the choice of products and services (Chadhuri 1997).

Bagozzi, Gopinath and Nyer (1999) state that emotions are central to the actions of consumers and managers alike. Emotions are not mere feeling states, but are affective responses to what happens in the environment and cognitive representations of the event's meaning for the individual (Frijda and Mesquita 1994). Emotions are defined as a mental state of readiness that arises from appraisals of events or one's own thoughts. The relationship between emotion and satisfaction can be viewed through the work of appraisal theorists such as Roseman (1991), who maintain that the critical determinant of any emotion is the evaluation and interpretation that result after comparing an actual state with a desired state. The link between this process of evaluation and comparison and traditional definitions of customer satisfaction is easy to see.

Emotions both influence and are influenced by the other elements in the interchanges with the environment, such as external events and the attitudes and the actions of the other individuals involved (Ellsworth 1994). Emotion theory states that emotions occur only when an event is appraised by the individual as being relevant to his or her concerns. Emotions may separate individuals from others or they may join them to others. In the service setting, the emotions of the service provider may influence and interact with the emotions of the customer.

The display of positive emotion by employees influences customer affect and customer judgments of service quality (Pugh 2001). Customers "catch" the displayed emotions of employees through the process

of emotional contagion (Hatfield, Cacioppo and Rapson 1994) and that customer affect subsequently influences customer satisfaction judgments. Seen in this context, it is easily understood why customer satisfaction processes for services are viewed differently than customer evaluations of products; they are based on processes as well as outcomes (Halstead, Hartman and Schmidt 1994). As Howard and Gengler (2001, p. 189) observe: "much of consumer behavior is a socially interactive experience." The human interaction between the employees of the service provider and the client influence the evaluation of a service and the subsequent level of satisfaction expressed in a manner distinct from a customer's evaluation of and satisfaction with a product.

RESEARCH OBJECTIVES

The objectives of this research are (1) to evaluate the relative contributions of the affective and cognitive components to the explanation of customer satisfaction (2) to determine if the impact of emotion and disconfirmation on the overall customer satisfaction evaluation varies according to the service encounter.

More specifically, the hypotheses to be tested are as follows:

H₁: Emotion and disconfirmation will both be statistically significant in explaining satisfaction in a service encounter.

This first hypothesis is set forth based on the work of Oliver (1993a) that presented a model of customer satisfaction where disconfirmation of expectations, attribute performance and affect (emotion) all contributed independently, as well as on the work of Westbrook (1987) who examined the effect of expectations, expectation disconfirmation and affect on satisfaction and found both negative and positive affective dimensions. Additionally, Fournier and Mick (1999) state that models of customer satisfaction based solely on confirmation/disconfirmation have been found to be insufficient in some cases and irrelevant in others.

H₂: Emotion can be statistically more important than disconfirmation in the explanation of satisfaction in a service encounter.

Support for the second hypothesis can be found in the work of Liljander and Strandvik (1997) who demonstrated that emotion is of paramount importance in service satisfaction. Additionally, Alford and Sherrell (1996) found that emotion, not disconfirmation, contributed significantly to explaining customer satisfaction with dental services.

H₃: The contribution emotion makes to the total explanation of customer satisfaction will vary significantly according to the service encounter.

The support for the third hypothesis is that it has been suggested that the impact of emotions can be stronger in some instances than in others (Machleit and Mantel 2001). For example, emotion has been shown to impact customer satisfaction more when customers view performance as high and are very satisfied (Oliver, Rust and Varki 1997). Emotion is the component that drives the customer from being merely satisfied with no problems in a service encounter to being delighted by unexpected value (Chandler 1989). Also, intuitively, customers are thought to get more emotional when they are highly dissatisfied.

METHODOLOGY

Experimental Design

An experimental design was deemed most appropriate for this type of research for two reasons. First, Bagozzi, Gopinath and Nyer (1999) contend that discrete emotional reactions are likely to happen when one manipulates conditions producing specific appraisals in an experimental setting. Also, research studying the construct validity of measures of discrete emotions obtained in nonexperimental survey settings shows that discriminant validity is often lacking among measures of different positive or different negative emotions (Bagozzi 1993) or between measures within a certain subcategory of positive or negative emotions, such as measures of joy, gladness

and elation (Bagozzi 1991). To accomplish the research objectives, a simulation methodology was utilized in which scenarios were created and presented to the potential respondents. Because scenarios allow complex constructs to be explored that are not easily operationalized in the real world (Alford and Sherrell 1996), they have often been used in satisfaction research (Bitner, 1990; Churchill and Sprenant 1983). The subjects were requested to imagine themselves in the setting described and to report how they would "feel" about the service encounter after having read the complete scenarios. They then responded using satisfaction measurement scales as well as Izard's Differential Emotion Scale. A dental setting was chosen for this study because a professional service was desired and a dental office is a service situation to which respondents of all ages can relate.

Four service encounters were created using a scenario approach. The expectation scenarios (see Appendix 1) were developed by creating both high and low expectations based upon a description of the dental office and its surroundings, as well as a description of previous experiences in that dental office. Scenarios describing the actual dental visit (low performance and high performance) then followed (see Appendix 2). This led to the creation of the following two by two experimental design:

Service Encounters		
Expectations	Performance	
	High	Low
High	T ₁	T ₂
Low	T ₃	T ₄

Each of the four treatments above (T1 through T4) represented independent treatments, with a full factorial design being used. Each respondent was randomly assigned to a treatment. These scenarios were created by the researchers working in conjunction with two separate Midwestern dentists to ensure that all simulated treatment cells were realistic. Additionally, each of the scenarios was pretested with the results showing that the desired effects were being achieved; the scenario reflecting high expectations

The Contribution of Emotion

was viewed as such, with the results being statistically different from the scenario creating low expectations. Similarly, the scenario reflecting high performance was perceived as such with results being statistically different from those of the scenario reflecting low performance.

Each of the four cells in the experimental design represents a situation that could happen in any dental service setting. For each of the experimental conditions, the subjects (approximately 90 per cell) were instructed to evaluate the simulated service encounter using validated scales that have appeared in the literature on the evaluation of satisfaction and emotion.

The Sample

The respondents for this study (N=359) were business students, both graduate and undergraduate, from two AACSB midwestern universities. Students were chosen as subjects because they are more likely to be homogeneous on certain demographic characteristics (age, education, income, social class). Calder Phillips and Tybout (1981) suggest that homogeneous samples permit more precise predictions and provide a stronger test of theory. The objective of the experimental design was to examine the impact of manipulation of the independent variables, not to infer to the population as a whole, so students were very appropriate for this design. The dental office was a service setting to which all could relate and with which all had experience (the few students who indicated that they had never been to the dentist were eliminated from the study). The mean age of the respondents was 22.3 years old. 53.6 percent were male and 46.4 percent were female.

Measures

The selection of measurement instruments for this study was based on a combination of theoretically based scales. The measurement of satisfaction chosen to investigate the differential impact of emotion and disconfirmation on this construct was the following multiple measure scale, developed and validated by Oliver and Swan (1989), which is used as a global measure of customer satisfaction.

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Very Dissatisfied	1	2	3	4	5	6	7	Very Satisfied
Did a Poor Job	1	2	3	4	5	6	7	Did a Good Job

Using an aggregate measure such as this is thought to be a more accurate means of measuring customer satisfaction, because it enables respondents to impose their own weighting criteria on the elements previous to responding with an overall evaluation of satisfaction (Szymanski and Henard 2001).

The respondents were asked to circle the number that indicated how satisfied they were with their dental visit. Two independent studies conducted by Hurley and Estelami (1998) found the mean and top-box percentiles to be the best indicators of customer satisfaction, even though some (Peterson and Wilson 1992) question both the validity and usefulness of using mean scores.

The measurement of emotions has taken on many forms depending on the discipline and purpose of the researcher. Two seminal works in the area of measurement of emotional responses were done in the area of advertising by Edell and Burke (1987) and Holbrook and Batra (1987). Both research groups started with scales having many items, 52 and 94 respectively, and then used factor analysis to arrive at a smaller number of underlying dimensions, or three factor solutions, which were similar to the three factor solutions of Russell and Mehrabian (1977) in their pleasure-arousal-dominance model, and to the circumplex model of Watson and Tellegen (1985). Richins (1997) contends that the two-factor or three-factor measures are unsuitable for the purpose of measuring consumption-related emotion and proposes a set of consumption emotion descriptors (the CES) in which sixteen clusters of emotions were identified. Bagozzi, Gopinath and Nyer (1999) believe that use of the CES could be problematic in that discriminant validity would be difficult to achieve and recommend the use of unipolar scales that ask respondents to express to what extent each emotion describes their own subjective feelings, rather than bipolar scales that tend to obscure differences in emotional responses across various dimensions. Thus, Izard's Differential

Emotions Scale (DESII) (Izard 1977) was used in this study to measure emotion, with the respondents being asked to imagine their emotions given the scenarios with which they were presented. This scale was selected because it has proved to be a valid and reliable instrument in consumption settings (Westbrook 1987; Liljander and Strandvik 1997). It consists of ten emotions: interest, joy, anger, disgust, contempt, shame, guilt, sadness, fear and surprise. Two dimensions of affect are generally uncovered, positive and negative. A seven point scale was used for each item to enhance the chances that optimal distributional properties of measures would be achieved.

The disconfirmation measure used was the cognitively oriented disconfirmation of expectations scale assessed in the "worse than expected" and "better than expected" method (Oliver 1980; Tse and Wilton 1988). This is the most commonly accepted measure of disconfirmation and the one employed by Babin and Griffin (1998).

ANALYSIS AND RESULTS

Manipulation Checks

To ensure that the desired effects were being perceived by the respondents who received different experimental treatments, questions were asked to measure the accomplishment of these effects and ANOVA was used to test the differences between the treatment levels. The first manipulation check pertained to the expectations created by the two different scenarios. Respondents were asked the following two questions after they had read the scenarios creating expectations (and before they had read the scenarios relating to performance), to affirm that those receiving the scenario creating high expectations viewed it as such and those receiving scenarios creating low expectations perceived them as such:

- (1) Overall, your expectations of having the cavity filled correctly are:
low 1 2 3 4 5 6 7 high

- (2) What is the likelihood that you will have future problems with your tooth?
not very likely 1 2 3 4 5 6 7 very likely

These two manipulation questions were examined for both scenarios comparing the means using t tests. The results can be seen in Table 1. Significant differences at the .001 level were found between the means of respondents receiving the scenario creating high expectations and the means of the respondents receiving the scenario creating low expectations. This is, of course the desired result, confirming that the expectations manipulation worked.

The second manipulation check pertained to the scenario describing the actual visit to the dentist office, i.e., the performance manipulation. Subjects responded to the following questions after they had read the scenarios describing the actual visit to the dentist office, to confirm that those receiving a scenario intended to create the perception of high performance viewed it as such and likewise with those receiving the scenarios intended to describe low performance:

- (1) Overall, how would you rate the performance of the dentist?
poor 1 2 3 4 5 6 7 excellent
- (2) How likely are you to use this dental service again?
not very likely 1 2 3 4 5 6 7 very likely

These two questions were examined for both scenarios by comparing the means using t tests; the results can be seen in Table 1. Significant differences at the .001 level were found between the means of the respondents receiving the scenario creating the perception of high performance and the means of the respondents receiving the scenario creating the perception of low performance. Thus, the performance manipulation worked and the desired result was achieved. Also, pretests had been done before the actual study was conducted; these showed that the manipulations of expectations and performance were working effectively. In all cases, the desired effects were perceived by the respondents

Table 1
Expectation and Performance Manipulation Checks
Expectation Manipulation Check

Overall expectation of having cavity filled correctly:

	<u>Mean</u>	<u>Prob ≥ T</u>
Respondents receiving high expectations scenario	5.80	.001
Respondents receiving low expectations scenario	3.66	.000

Likelihood you will have future problems:

	<u>Mean</u>	<u>Prob ≥ T</u>
Respondents receiving high expectations scenario	3.41	.001
Respondents receiving low expectations scenario	5.15	.000

* respondents answered using 7-point Likert-type scale with 1 low and 7 high

Performance Manipulation Check

Overall rating of dentist's performance:

	<u>Mean</u>	<u>Prob ≥ T</u>
Respondents receiving high performance scenario	5.94	.001
Respondents receiving low performance scenario	2.72	.000

Likelihood of using this dental service again:

	<u>Mean</u>	<u>Prob ≥ T</u>
Respondents receiving high performance scenario	5.88	.001
Respondents receiving low performance scenario	2.60	.000

* respondents answered using 7-point Likert-type scale with 1 low and 7 high

and it was concluded that the treatments were effectively manipulated.

Results and Testing of the Hypotheses

Cronbach alpha reliabilities were performed on the instrument used to measure customer satisfaction, the multiple measure scale developed and validated by Oliver and Swan (1989). The reliability alpha of this global measure of customer satisfaction was found to be .976; thus, it was judged to be a reliable measurement instrument.

The next step in the analysis was to extract an "Index of Emotion" by factor analyzing the emotion variables from Izard's DESII Scale used in this study. Principal component analysis was used to uncover the principal component which explained 55 percent of the total variance. To determine the relative contributions of emotion and disconfirmation in explaining the total variation in customer satisfaction, regression analysis was performed. The independent variables emotion and disconfirmation were regressed against the dependent variable customer satisfaction.

Looking at Table 2, one observes that in the total sample of 359 observations, both emotion and disconfirmation were statistically significant ($F = 625, p > .000$) and together they explained 79 percent of the total variance in customer satisfaction; thus, hypothesis one is supported. Hypothesis two is also supported because emotion, with a Beta weight of .552, was found to be statistically different (higher) than disconfirmation with a Beta weight of .379, indicating that emotion can be more important in the explanation of satisfaction.

To test the third hypothesis and to better understand the importance of emotion and disconfirmation in various types of service encounters, a separate regression analysis was performed on each cell in the experimental design (T_1 - T_4). Table 2 also summarizes the results of the cell by cell analysis.

Based on the findings in this study of dental practices, in all service encounters (HH, HL, LH, LL) emotion and disconfirmation are both statistically significant, but emotion can be the more important independent

variable when performance is high (HH and LH). However, when an individual perceives performance as low, whether expectations were high (HL) or low (LL), disconfirmation is a more important contributor to the total explanation of satisfaction.

To test whether the cell by cell regression equations were significantly different, a standard procedure called the Chow (1960) test was run (Dillon and Goldstein 1984). The test statistic required for this analysis was calculated to be 18.75. Since the appropriate critical value for the F-distribution is 3.78 at $\alpha = .01$ with 3 and 309 degrees of freedom, the null hypothesis was rejected; the four cells are not similar with respect to the relationship among the dependent variable satisfaction and the independent variables disconfirmation and emotion.

Having established that the four cells are statistically different with respect to the emotion and disconfirmation measures, it is necessary to determine where the differences exist. To do this, a test using paired comparisons was conducted to ascertain whether the coefficients were different from each other. The unstandardized coefficients with standard error measures are shown in Table 3, and the pairwise comparisons using t-tests can be seen in Table 4.

Looking then at Table 4, it can be seen that the regression coefficients for disconfirmation are significantly different for the four indicated pairs. In some cells disconfirmation plays a more important role in predicting satisfaction than in other cells. In four paired situations (HH vs HL, HH vs LL, HL vs LH, and LH vs LL), the importance of disconfirmation varies from cell to cell, that is the regression coefficients are significantly different. Thus, disconfirmation is less important in some cells (high perceived performance), or service encounters, than in others (low perceived performance).

However, when one looks at the regression coefficients for the emotion measure, one sees that although emotion is statistically significant in each cell and its importance does vary from cell to cell, the differences are not statistically significant. Thus, hypothesis three is unsupported.

Table 2
Regression Analysis
Importance of Disconfirmation and Emotion
in Explaining Customer Satisfaction

		T ₁	T ₂	T ₃	T ₄
Experimental cell	Total	HH	HL	LH	LL
Sample size	359	104	90	81	84
Adj R ²	79%	23%	66%	50%	45%
F Value	625	15.1	78.7	37.2	30.1
<u>Disconfirmation</u>					
Beta Weights	.379	.224	.548	.275	.544
Significance	(.000)	(.026)	(.000)	(.015)	(.000)
<u>Emotion</u>					
Beta Weights	.552	.358	.323	.506	.261
Significance	(.000)	(.000)	(.001)	(.000)	(.007)

Table 3
Unstandardized Regression Coefficients by Treatment Cell

	Disconfirmation		Emotion	
	Coefficient	Std Error	Coefficient	Std Error
HH	.185	.081	.893	.246
HL	.506	.089	.679	.203
LH	.238	.096	1.073	.235
LL	.666	.115	.612	.221

Table 4
Pairwise Comparisons (t-tests) of
Unstandardized Regression Coefficients by Treatment Cell

Disconfirmation				Emotion			
HH	HL	LH	LL	HH	HL	LH	LL
HH	-2.67*	-.42	-.342*	HH	.67	-.53	.85
HL		2.05*	-1.10	HL		-1.27	.22
LH			-2.86*	LH			1.43
LL			-	LL			-

* Statistically significant at the .05 level

EXPLORATORY LOOK AT EMOTION

To better understand the components of emotion, factor analysis was performed using varimax rotation. Three factors were uncovered that explained 76 percent of the total variance (see Table 5).

The first factor uncovered is referred to here as angry/delighted, the second factor as surprise and the third factor as shame (not wanting to tell others). The first factor appears to be similar to factors uncovered by Westbrook/Oliver (1991) when they found happy/content and angry/upset. Delight is of course central to the work of Oliver, Rust and Varki (1997). Richins (1997) uncovered sixteen emotion clusters, two of which were anger and joy, which would be similar to this first factor. The second factor, surprise, is one also uncovered by Westbrook and Oliver (1991), as well as by Richins (1997) and Mano (1990). The third factor, shame, is not as commonly uncovered by researchers; however, it too was mentioned by Richins (1997) as one of her sixteen emotion clusters. This is an emotion that suggests that people may find themselves in situations where they don't want to tell anyone about what they have experienced. Pertaining to dental care, they would be ashamed to let anyone know they had used such poor judgment in selecting a dentist.

A cell by cell analysis was conducted using regression to determine if the importance of the different emotion

factors varied according to the situation an individual encountered. With satisfaction as the dependent variable, regression analysis was performed on the three emotion factors plus the disconfirmation measure to assess the relative importance of each in explaining customer satisfaction. (see Table 6)

When the contributions of the three emotion factors plus disconfirmation were analyzed across all cells, it was found that the anger/delight factor and disconfirmation were both statistically significant and explained 80 percent of the total variance in customer satisfaction. The surprise and shame factors were not statistically significant.

To gain further insight, a cell by cell regression analysis was conducted. As can be seen in Table 6, the importance of the different emotions varied from cell to cell, as did the importance of disconfirmation. In experimental cell T₁ (high expectations, high performance), both the anger/delight factor and disconfirmation were found to be statistically significant in explaining the total variance in customer satisfaction, with the anger/delight factor being slightly more important than disconfirmation. In experimental cell T₂ (high expectations, low performance), again both anger/delight and disconfirmation were statistically significant, but this time disconfirmation was the more important of the two. In experimental cell T₃ (low expectations, high performance), only anger/delight was statistically

Table 5
Factor Analysis of Izard Emotion Variables

Izard Emotion Variable	Factor 1 (55.1%)	Factor 2 (12.6%)	Factor 3 (8.3%)
Angry	.904		
Mad	.891		
Disgusted	.888		
Enraged	.882		
Afraid	.882		
Delighted	.876		
Happy	.868		
Fearful	.865		
Discouraged	.850		
Scared	.808		
Joyful	.805		
Downhearted	.801		
Scornful	.790		
Sad	.699		
Contemptuous	.496		
Amazed		.824	
Astonished		.806	
Surprised		.736	
Alert		.520	
Attentive		.448	
Bashful			.810
Shy			.770
Guilty			.726
Blameworthy			.596

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table 6
Importance of Disconfirmation and the Three Factors of Emotion
in Explaining Customer Satisfaction

		T ₁	T ₂	T ₃	T ₄
Experimental cell	Total	HH	HL	LH	LL
Sample size	355	102	88	80	84
Adj R ²	80%	25%	69%	53%	50%
F Value	361	8.03	50.2	23.8	21.5
Beta Weights					
Disconfirmation	.396* (.000)	.285* (.004)	.608* (.000)	.267* (.065)	.537* (.000)
Anger/Delight	-.549* (.000)	-.349* (.002)	-.300* (.001)	-.547* (.000)	-.326* (.001)
Surprise	.003 (.908)	-.103 (.291)	.031 (.639)	.120 (.144)	.096 (.265)
Shame	.052 (.31)	.061 (.550)	-.003 (.984)	.063 (.451)	.074 (.357)

* statistically significant at the .05 level

significant in explaining the variance in customer satisfaction. Lastly, in experimental cell T₄ (low expectations, low performance) both disconfirmation and the anger/delight factor were statistically significant, with disconfirmation found to be more important.

Discussion

The growing recognition of the importance of customer service makes understanding precisely the construct of customer satisfaction all the more relevant. Research presented here is directed toward increasing the understanding of the role emotion plays in the formation of overall customer satisfaction.

Our findings offer significant insights into the differential roles that emotion and disconfirmation play in a dental setting. First of all, emotion and

disconfirmation did explain more of customer satisfaction than did disconfirmation alone, which further validates the work of Westbrook (1987) and Liljander and Strandvik (1997). In situations where performance was high, emotion was more important in explaining customer satisfaction, regardless of the level of expectations, which would concur with Liljander and Strandvik (1997) who found emotion to be of paramount importance in service encounters. The findings in this research differ from the work of Alford and Sherrell (1996) who found that disconfirmation was not statistically significant in explaining customer satisfaction. In our study (see Table 2), emotion was the most important in situations of high performance (T₁ and T₃), but in all treatment cells (t1-t4), both disconfirmation and emotion were statistically significant. Here, the strength of this study comes through; one can note in Table 2 exactly in which situations disconfirmation is

most important. In situations where performance is low (T_2 and T_4), regardless of expectations, disconfirmation is more important than emotion in explaining customer satisfaction. Two findings are of interest to note: (1) emotion is statistically significant in all situations, no matter what the expectations were or performance perceived was; and (2) performance appears to drive the composition of customer satisfaction by changing the weight given to emotional responses. In situations of high performance, emotion is most important in explaining customer satisfaction and in situations of low performance, disconfirmation is more important than emotion, regardless of expectations. The importance of performance in predicting satisfaction judgments has of course been noted in other studies (Spreng, MacKenzie and Olshavsky 1996; Alford and Sherrell 1996) and is naturally well-recognized by managers. The findings of Taylor and Cronin (1994) showed that expectations did not directly influence patient satisfaction and our findings would possibly further validate their results. The finding that emotion is most important in situations of high performance would, of course, concur with the work of Oliver, Rust and Varki (1997) which promote the idea that it is not enough for service providers to deliver problem-free service, but, in fact, customers must be delighted (emotionally very pleased) to register high customer satisfaction.

When Izard's DESII scale was factor analyzed, three factors were uncovered with angry/delighted being the most important followed by surprise and shame. As was mentioned earlier, all of these factors have been noted previously by researchers such as Mano (1990), Liljander and Strandvik (1997), Richins (1997) and others. The unusual finding here was that surprise was not statistically significant in the explanation of customer satisfaction, no matter which of the various service situations were considered (see Table 6). In the work of Mano (1990), pleasantness and arousal were the two principal independent dimensions of emotions, but surprise was one of the descriptors listed within the domain of arousal. Westbrook and Oliver (1991) also found pleasant surprise as one of their five identifiable patterns of affective response within the consumption experience, but they also

noted that these dimensions would vary in importance according to the various types of consumption experiences.

Managerial Implications

The results of these studies do indeed have implications for service providers. In the broadest sense, the key implication for marketing managers is that there may be more to customer satisfaction than just the service provider meeting expectations. Indeed, the emotion generated during the service encounter is often equally or more important in explaining customer satisfaction than is the comparison of perceived performance with expectations. Of particular interest is that when performance is perceived as high, regardless of expectations, the emotional component has more of an impact on customer satisfaction than does the cognitive component (disconfirmation). This complements the work of Oliver, Rust and Varki (1997) in which they concluded that meeting the expectations of consumers is not enough; the service provider must think of ways to engender customer delight with the service encounter to increase the chances that the customer will be truly satisfied and return again to patronize the service provider. This may mean that in today's world where good service is expected, the competitive advantage will go to those service providers that not only perform well, but also deliver "the little extras."

In terms of this study, which incorporates a dental setting, providing the "little extras" might mean one waiting room for children equipped with videogames and another waiting room for adults. This might possibly delight the children and improve the emotional state of the adult clients. Another "extra" which might engender positive emotion to the service encounter in the medical field, such as in a doctor's or dentist's office, would be a phone line or online service where a patient could access information such as how far appointments were running behind or if they were on schedule. This would minimize waiting time and annoyance by letting patients know when they actually needed to arrive.

The Contribution of Emotion

Another important strategy for addressing the emotional component is to get customers in a positive frame of mind by providing adequate information at every step of the service encounter. This will allay any fears present during the delivery of the service, as well as reduce cognitive dissonance during the post purchase period. Also, providing information to customers empowers them and allows them to feel in control. This is very important because consumers' perceptions of being "in control" of their consumption experience has been shown to generate positive affect which then leads to more positive evaluations of their service encounters (Ward and Barnes 2001). In the specific service used in this research, the dental office should provide understandable information about both the procedure to be done and the cost for that service. Patients can also be reassured in more subtle ways by soothing music playing in the background and by decorating the dental office in subtle, yet warm, colors.

Lastly, keeping in mind the importance of the emotional component, the service provider should continually strive to establish a relationship of trust and caring with the customer so that positive emotional ties are created (Gabarino and Johnson 1999). The firm needs to ensure that all employees involved in providing the service emanate a positive and caring attitude, because this will then translate into more positive evaluations of the service provider. As Howard and Gengler (2001) point out, one person's emotional state can influence another person's evaluation of a product or service. Firms need to seek ways to manage customer relationships over the long term (Bolton and Lemon 1998) and more dynamic customer satisfaction management is key to such efforts. As Webster and Sudaram (1998) suggest, even if a service failure occurs, customer satisfaction can still be salvaged if the appropriate actions are taken. This attention to customer satisfaction and its emotional components is even more critical in the area of services, due to the fact that the relationship between satisfaction and increased profits is stronger for services than for products (Edvardsson, Johnson, Gustafsson and

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Strandvik 2000). Additionally, the satisfaction evaluation, depends to a large extent, on the interaction between the service provider and its employees and the customer.

CONCLUSION

In this preliminary work, we have shown the possible value of studying emotion when measuring customer satisfaction. Carr (1999) contends that satisfied customers are *not* all equal. Those displaying the highest levels of satisfaction are, in economic terms, significantly more attractive than those that are moderately satisfied. A study done by PNC Bank in Boston directly tied customers' satisfaction ratings to their actual behavior as documented by bank balances and transactions, showing that the most satisfied customers were those who used the bank's services most often. Understanding and addressing the emotional component of the service encounter is an opportunity for firms to move their customers from being merely satisfied to truly delighted and to reap the ensuing economic rewards.

These recommendations are presented, of course, with a caveat as to the limitations of the sample. Yet it is believed that the results of this study will alert firms and marketers to the potential impact that emotion can play when measuring customer satisfaction. Customer satisfaction rates in the U. S. are currently at an all-time low, with customer complaints, boycotts and other expressions of a customer discontent on the rise (Fournier, Dobscha and Mick 1998). Thus, research such as this will only gain in importance as the cost of attracting new customers increases in today's ever competitive global environment. As Gengler and Leszczyc (1997) point out, customer satisfaction research should be used not only as a means of measuring consumer attitudes, but also as a proactive tool for managing customer relations. Understanding what customers want and expect from customer service should be of primary concern to all managers (Jamison 1999), since customer satisfaction is central not only to assessing past performance, but also to predicting future financial success. However,

it is critical to remember that customer satisfaction is only partly explained by the comparison of expectations and perceived performance; emotion may play an even more important role in certain situations.

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Appendix 1 Scenarios - Expectations

High

Imagine yourself in the following situation as though it were happening to you.

Two weeks ago you visited your dentist for your bi-annual teeth cleaning and check-up. At that time you were told that you had a cavity that needed to be filled and so you set-up an appointment to have this done. You are now returning to the dentist for this filling.

As you approach the dental office, you find a place to park near the office, which is located on the second floor of a modern brick building in a better suburb of town. You enter the office, close the door and have a seat. It is a large office with ten chairs, soft mauve carpeting, nicely coordinated wall paper, and soft pleasant music playing. As you sit down, you hear a high speed modern dental drill in the inner office.

The Contribution of Emotion

Although it has been over a year since your last filling, you recall the situation well. You remembered that everything went very smoothly. There was no pain during the drilling of the tooth and you were in and out of the dental office in a short period of time. Overall, it was a very pleasant and satisfactory experience. You are anticipating a similar visit during this visit as well.

Low

Imagine yourself in the following situation as though it were happening to you.

For the past several years you have visited a dental practice on a regular basis. You have never heard of any major negative comments about the care provided. Your dentist focuses primarily on teeth cleaning and cavity repair. If problems become more complex, they refer patients to other practices in the area. The staff has been there for many years, but you have never gotten to know any of them very well. They always appear to be too busy and involved in their work. Included among the professional staff are several dentists, who also do teeth cleaning and tooth repair. You never know which dentist you will get when you arrive at the office. You like some better than others, but that choice is not possible in this very busy practice.

Two weeks ago you visited your dentist for your bi-annual teeth cleaning and check-up. At that time you were told that you had a cavity that needed to be filled and so you set-up an appointment to have this done. You are now returning to the dentist for this filling.

As you approach the dental office, you find a place to park directly in front of the office, which is on the first floor of an old frame home located in a declining area of town. You enter the office, close the door and have a seat. It is a small office with carpeting that is due for replacement and walls that are in need of paint. As you are seated, you hear an old-fashioned low-speed dental drill grinding away on another patient's tooth. While waiting for your appointment with the dentist, you pick up a Time magazine sitting on a table in a dimly lit waiting room and notice that it is dated June, 1994.

Although it has been over a year since your last filling was done in this office, you recall the situation quite well. Even though you had received novocaine, you could still feel some pain during the drilling of your tooth. The dentist appeared intent on completing the filling and paid little attention to the fact that you were in considerable pain. You also recall that once the filling was completed

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and the dentist shot some cold water into your mouth for you to rinse your mouth, there was considerable sensitivity to cold. Although the dentist realized this sensitivity, he did not comment on it. It took several weeks before this sensitivity went away.

At your last appointment when the dentist told you that you had a cavity, you started to wonder how large it was and whether a root canal or even removal of the tooth might be necessary. You think to yourself that you will be glad when this appointment is over.

Appendix 2 Scenarios - Performance

High

The receptionist immediately greets you by name and invites you to have a seat in the dental chair. The dentist promptly greets you and asks you how you are doing today. You indicate that you are fine, but will be glad when the appointment is over. After a brief review of your chart, he assures you that the filling is a very minor repair to the tooth and it is nothing to worry about. The first step of the procedure is to inject some Novocaine into the gums. You hardly feel the injection and the area around the tooth numbs quickly. The dentist then starts to drill with the high powered water injector drill. In a matter of a few minutes, he is done drilling and is ready to put the filling into the tooth. As he washes out your mouth with a spray of cold water, you notice no sensitivity to cold. As you are leaving the office, the dentist wishes you a good day and assures you that all will be O.K., but that if you have any problems, you should give him a call.

Low

As you browse through the magazine, the dentist's dental assistant walks past the door to the dental office several times, but does not acknowledge your presence. After ten minutes of waiting, you begin to wonder whether you had the correct date for your appointment, so you walk over to the reception window. The dental assistant acknowledges you by stating that she would be with you in a couple of minutes. After another five minutes, she asks you to come in and be seated in the dental chair.

As you are seated in the dental chair, the dentist promptly greets you and asks you how you're feeling today. You indicate that you are fine but will be glad when the appointment is over. He calmly says that it

should not take long to put a new crown on the tooth. You quickly respond that you understood that only a filling was necessary. The dentist quickly realizes that he has the wrong chart. He quickly returns with the correct chart and begins to prepare you for your filling. The first step of the procedure is to inject some Novocaine into the gums. You feel the brief but fairly sharp pain of the injection, but have no problem dealing with that level of pain. The dentist then states that the injection did not go in properly and another injection should be necessary. This injection works properly and the dentist begins drilling. As he is drilling, the dental assistant comes over to him to ask him a question related to someone on the phone. Even though you received Novocaine, you can feel the pressure and considerable pain during the drilling. As he continues drilling, you feel the drill slip several times and brush up against another tooth. He completes the filling of the tooth and as he washes out your mouth, the cold water sends a pain through your entire body. The dentist says that is not a problem and it should go away in a few days.

You depart the office and return home.

- * Similar scenarios used by Ueltschy and Krampf (2001); see *Journal of Marketing Theory and Practice*, (Summer), 14-31 for details.