

MEASUREMENT INSTRUMENT DEVELOPMENT USING TWO COMPETING CONCEPTS OF CUSTOMER SATISFACTION

Ann R. Cooper, Michigan State University
M. Bixby Cooper, Michigan State University
Dale F. Duhan, Michigan State University

AN ABSTRACT

This paper reports on the development of two instruments for the measurement of customer satisfaction. The development of two instruments reflects the fact that there are two philosophies found in the literature regarding the appropriate form of the concept of customer satisfaction. The first indicates that the concept is a ratio of perceptions and expectations and the second approach indicates that it is the difference between perceptions and expectations. There are important implications for the process of scaling in the use of one approach or the other. This paper reports an investigation into the implications of each approach. The investigation found that the ratio of perceptions and expectations, when used in scale development, resulted in a scale with lower reliability, lower relative validity, and dimensions that were more difficult to interpret than the scale developed using the differences.

INTRODUCTION

The concept of customer satisfaction is fundamental to the marketing process. In fact, the foundation of modern marketing, the marketing concept, is built on the satisfaction of customer needs and wants. Given the relationship of customer satisfaction to the marketing discipline, it is not surprising that a great deal of the research over the past 20 years has been devoted to understanding the process by which customers develop judgments of satisfaction.

While the concept of satisfaction is fundamental to the marketing process, perhaps no other topic has generated as many difficulties in theoretical formulation and in measurement. Initial theoretical development indicated that satisfaction is closely related to the concept of attitude (Howard & Sheth 1969). Early research relied on overall global measures of the satisfaction/dissatisfaction construct as a form of attitude. (Cardozo 1965, Andreasen 1977) However, considerable research in the 1970s revealed that satisfaction is considerably more complex than originally proposed and that the measurement issues were numerous. Several competing theories of satisfaction formulation evolved (e.g., equity theory, assimilation/contrast theory, generalized negativity), including expectancy/disconfirmation and its variants (Anderson 1973, Oliver 1980, Olshavsky and Miller 1972, Swan and Trawick 1981, Churchill and Suprenant 1982, Bearden and Teel 1983, Oliver and DeSarbo 1988). Other theoretical and empirical efforts have investigated the role of affect in satisfaction (Westbrook 1980, 1987), involvement level (Richins and Bloch 1988) and product performance (Swan 1988).

Expectancy/disconfirmation theory is the most widely accepted paradigm and has a relatively rich development.

It is a derivative of adaptation level theory (Helson 1948) and it states that customers compare actual product performance with expectations of that performance. If expectations are met or exceeded, the consumer is satisfied or highly satisfied respectively (Swan & Trawick 1981). Conversely, if perceived performance falls short of expectations, dissatisfaction results. Thus, satisfaction level is defined as a function of the customer's expectations and the disconfirmation gap existing between expectations and actual performance.

The expectancy/disconfirmation paradigm can be stated as follows: First, customer satisfaction is a function of the level of a customer's expectations regarding a product or service and that person's actual experience with the product or service. Second, the customer compares perceptions of actual performance to prior expectations regarding the product or service. Finally, the comparison results in a subjective judgment that the product performance was better than expected (positive disconfirmation), exactly as expected (confirmation), or worse than expected (negative disconfirmation). Confirmation and positive disconfirmation bring about satisfaction while negative disconfirmation leads to dissatisfaction.

Expectations

Because much of the emphasis in the expectancy/disconfirmation paradigm falls on the role of expectations, a considerable subset of the satisfaction literature has focused on the nature of expectations. (Summers and Granbois 1977, Miller 1977, Swan and Trawick 1981). Olson and Dover (1979) view expectations as belief probabilities of attribute occurrence in a product or service. Miller (1977) proposed four types of expectations that an individual might use: 1) the ideal attributes of a product or service; 2) prior beliefs concerning product performance; 3) minimum standard, or what the customer believes performance must be and; 4) desires, or what the customer believes performance should be. There has been limited support for a typology of expectations (Bolting and Woodruff 1988).

Disconfirmation Process

A second major issue in the expectancy/disconfirmation paradigm is the nature of the expectancy/disconfirmation process itself. As originally posited, the process is seen as a comparison between expectations and customer perceptions of actual performance. It is the nature of the comparative process which deserves some attention. The vast majority of expectancy/disconfirmation research has assumed that the comparative process which customers use, is an additive process. That is, when perceptions of actual performance are compared to expectations, customers somehow subtract

an expectation level from the perception level to find a difference between expectations and performance. Thus, the terminology of "positive disconfirmation" and "negative disconfirmation" arose. From a methodological viewpoint most researchers have followed the structure established by Oliver in 1980 which actually avoids the issue of subtraction of expectations from performance evaluations. In his research Oliver established scales ranging from "better than expected" (positive disconfirmation) to "the same as expected" (confirmation) to "worse than expected" (negative confirmation). Nevertheless, the actual scales utilized resulted in positive numbers indicating positive confirmation, zero indicating confirmation, and negative numbers representing negative disconfirmation.

It is important to note that there is an alternative method of viewing the comparative process. The term "comparison" suggests a juxtapositioning of two items to determine their similarity. This juxtapositioning may be viewed as a ratio of the two items rather than a difference of the items. Indeed, Oliver notes that the performance/expectation ratio was utilized in early satisfaction research (Oliver 1980 p. 460). More recently, Lele with Sheth (1987) have reintroduced the performance/expectation ratio as a measurement device. Latour and Peat in 1978 also expressed satisfaction as a ratio such that the difference between performance perception and the comparison level (expectation) was divided by the comparison level. Table 1 presents a summary of selected conceptual and empirical work dealing with the measurement of satisfaction and the disconfirmation concept. Of particular note in the table is the form of measurement and whether it is considered to be an additive process or a ratio process. While certainly Table 1 is not a complete listing of all research in the field, it is indicative of the fact that there is disagreement regarding whether the process is a ratio comparison or a difference comparison.

Service Quality

In recent years a related research stream has explored the measurement and formation of quality perceptions within service industries (Czepiel 1980, Parasuraman, Zeithaml and Berry 1985, 1988). The researchers in this area have noted that there is an extreme similarity between the concepts of customer satisfaction and service quality. In fact the formation of the constructs of satisfaction and service quality are structurally quite similar. Service quality has been examined using precisely the same framework of expectations, perceptions and disconfirmation. Czepiel (1980) notes that "What is thought of as marketing issue when termed 'customer satisfaction' becomes an operational and personnel management issue when termed 'service quality assurance'." The primary difference between satisfaction and service quality is apparently in the definition of the nature of expectations. Some service quality researchers claim that satisfaction is a transaction specific notion and results from a comparison of brand beliefs (expectations) which are predictions made by customers about what is likely to happen during a transaction versus their perceptions of what actually happened during that transaction. For service quality, however, expectations are

viewed as the desires or wants of the customers, in other words, norms or ideals regarding what should be offered rather than what customers predict will be offered (Parasuraman, Zeithaml and Berry 1988). This argument raised by service quality researchers is reminiscent of the literature dealing with the typology of expectations. Other service quality researchers have skirted the issue of quality versus satisfaction. Brown and Schwartz (1989) simply refer to "evaluation outcomes" as defined by 'expectations for an encounter' minus "experience for the encounter". It is interesting to note that both satisfaction researchers and service quality researchers believe that satisfaction soon decays into an overall perception of service quality (Oliver 1981, Czepiel et al. 1985, Berry, Zeithaml and Parasuraman 1985).

Objective of the Study

Regardless of whether customer satisfaction and service quality are indeed different constructs, the methodology as applied in both research streams is similar. Both rely on the measurement of expectations in some form, perceptions of actual performance and computation of the disconfirmation gap between expectations and performance. The disconfirmation process in both research streams is typically treated as a differencing procedure. Thus, the measurement issues in both streams are the same.

In this study, two different scales for measurement of customer satisfaction/service quality were developed and compared. These scales reflect the two philosophies found in the literature regarding the appropriate form of the concept of customer satisfaction and the disconfirmation process. This study adapted the SERVQUAL instrument designed by Parasuraman, Zeithaml and Berry (1988) for specific use in the church setting. Although the SERVQUAL instrument was originally designed for the measurement of service quality, the ambiguity which exists concerning the conceptual difference between customer satisfaction and service quality renders the instrument useful for comparison of the ratio formulation to the difference formulation. These two formulations will result in two separate scales for measurement. Since the two scales are developed from the same data set, using the same procedures, and decision criteria, any differences between the scales can be attributed to the two approaches to formulating customer satisfaction. This study investigated the validity, reliability, and factor structure underlying scales developed from each of the two formulations.

SCALE DEVELOPMENT

Initial Scale Development

The SERVQUAL scale (Parasuraman, Zeithaml and Berry 1986, 1988) was developed to provide a tool with which firms can measure customer evaluations of delivered service quality. The use of this scale enables a firm to answer questions such as: Do internal and external measures of service quality coincide? What service attributes do customers evaluate when assessing service quality? To what service quality standards should the

Table 1
Summary of Selected Conceptual and Empirical Research
on the Measurement of Satisfaction

<u>Reference</u>	<u>Measure</u>	<u>Form</u>
Howard and Sheth, 1969	Actual Satisfaction-Expected Satisfaction $A_i + 2 = (S_i + 1 - A_i) + A_i$ where: A_i = Pre-Transaction Attitude $A_i + 2$ = Post-Transaction Attitude $S_i + 1$ = Satisfaction	Difference
Anderson, 1973	Disconfirmation = Perceptions - Expectations	Difference
Czepiel and Rosenberg, 1977	Consumer Satisfaction (CS) = (Consumer Facet Satisfaction (CFS)) Consumer Facet Satisfaction = Purchase, Decision, Performance, Psychosocial Dimensions, and Other Relevant Facets $CS = (\text{Importance} \times \text{CFS})$ $CS = (\text{Should Be} - \text{Is Now})$ $CS = (\text{Would Like} - \text{Is Now})$ $CS = (\text{Expected to BE} - \text{Is Now})$	Difference/ Ratio
Day, 1977	Magnitude of Difference between Perceived Performance and Level of Expectations	Difference
Miller, 1977	Satisfied = Expectations \leq Perceptions Dissatisfied = Expectations $>$ Perceptions	Difference
Morris, 1977	Deficit = Current State of Attribute - Norm with Respect to Attribute	Difference
LaTour and Peat, 1978	$S_j = I_i (A_i - CL_i)/CL_i$ where: S_j = Post-Consumption Satisfaction with Brand j I_i = Importance Attached to Attribute i A_i = Subjectively Experienced Attribute Level CL_i = Comparison Level for Attribute i	Ratio
Olson and Dover, 1979	Disconfirmation = Expectations - Perceptions	Difference
Oliver, 1980	Satisfaction = Performance/Expectations Disconfirmation: Perceptions - Expectations	Ratio Difference
Swan and Trawick, 1981	Disconfirmation: Perceptions - Expectations	Difference
Churchill and Surprenant, 1982	Satisfaction = Perceptions - Expectations	Difference
Prakash and Lounsbury, 1984	Confirmation = Postpurchase evaluation _i - Expectations _i	Difference
Lele with Sheth, 1987	Satisfaction = Perceptions/Expectations	Ratio
Parasuraman, et al., 1985, 1986, 1988	Perceived Service Quality = Perceptions - Expectations	Difference
Brown and Schwartz (1989)	Evaluation Outcome = Expectations - Experience	Difference

firm aspire? Is the firm meeting service quality performance standards? Which service quality attributes require additional management attention?

The SERVQUAL scale was developed as a general measurement instrument which identified the relevant dimensions utilized in the evaluation of many services. As such, its application to a specific service may require adjustment in the instrument itself. This adjustment process is advocated by Parasuraman, Zeithaml, and Berry (1988).

"The instrument has been designed to be applicable across a broad spectrum of services. As such, it provides a basic skeleton through its expectations/perceptions format encompassing statements for each of the five service quality dimensions. The skeleton, when necessary, can be adapted or supplemented to fit the characteristics or specific research needs of a particular organization (30, 31). The SERVQUAL instrument was adapted to the church setting in the present research study.

Berry, Zeithaml and Parasuraman (1985) originally identified ten determinants or dimensions of service quality based upon focus group interviews. These dimensions were: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding the customer, and tangibles. The items of the SERVQUAL instrument which measured expectations and perceptions of service quality were originally adapted to the specific service under study by substituting more appropriate terms. For example, "customers" was changed to "attendees" and "firms" to "churches." An additional dimension called "spirituality" was introduced as the researchers felt this dimension was crucial in the service quality evaluation process for this particular service. Based upon informal discussions with individuals familiar with this service, additional items were created and added to the scale to capture this new dimension.

Data Collection and Scale Modification

A sample was drawn from churches located in the Ann Arbor postal region that were members of the National Association of Evangelicals, and were listed in the Ann Arbor/Ypsilanti Area Yellow Pages. Respondents completed the instrument and provided feedback regarding the appropriateness of the questionnaire items. This feedback was used to modify the scale.

This first round of data collection indicated that some items were not relevant in the evaluation of service quality in churches. These items were dropped. Items that were difficult to interpret in the church setting were subsequently reworded. An additional dimension, called "fellowship," was introduced as it was believed that interactions among service participants were relevant in service quality evaluations of churches and possibly other services. Informal discussions with service participants served as a basis for development of additional items capturing the fellowship dimension. The resulting instrument consisted of 28 items encompassing 12 dimensions. Following these modifications factor analysis revealed that some dimensions were not distinct and should be combined. The dimensions of responsiveness, security, and fellowship were collapsed into one dimension as were credibility and reliability. This resulted in a nine

dimension scale. The instrument also included direct measures of satisfaction, as well as expectations and perceptions, on each of the scale items.

Data Collection and Scale Purification

A second sample was drawn from individuals attending churches in the Grand Rapids, Michigan metropolitan area. Questionnaires were distributed and collected on the same Sunday. A total of 106 usable questionnaires were collected.

Scale structure: The first step in this round of analysis was to structure the scale into two forms. The first was based on the differences between perceptions and expectations (Customer Satisfaction = Perceptions - Expectations) and is called DSCALE. The second is based on the ratio between perceptions and expectations (Customer Satisfaction = Perception/Expectations) and is called RSCALE.

Reliability analysis: The next step was to investigate the reliability of each of the sets of items designed to measure the nine scale dimensions. Coefficient alpha was calculated for each of the dimensions. The initial values of coefficient alpha ranged from .17 to .64 across the nine dimensions for both DSCALE and RSCALE.

For many dimensions the item-to-total correlations indicated that dropping some items would improve the coefficient alphas. These items were dropped and the coefficient alphas were recalculated. If, after this process, the item-to-total correlation indicated that still further improvement could be made, the process was repeated. Two more iterations of the process resulted in a set of items for each scale with improved reliability scores and no further opportunities for improvement.

Dimensionality: Next, the set of items for each scale was factor analyzed using a principal components procedure. The dimensions of these scales are assumed to be intercorrelated, thus, an oblique rotation was used in addition to an orthogonal rotation. The initial analysis for DSCALE converged to eight factors and RSCALE converged to six factors. These represent a reduction in the dimensionality for both scales. All but two of the factors for DSCALE were interpretable in terms of the original dimensions. Only one of the RSCALE factors was easily interpreted in terms of the original nine dimensions.

Examination of the factor structures for both scales lead to the identification of several items with high loadings on several factors. These items were eliminated one at a time and the factor structure matrices were reexamined after each step. The elimination of individual items modified the factor structure for both DSCALE and RSCALE. In both cases it further reduced the dimensionality of the scales to seven for DSCALE and five for RSCALE. After four iterations for RSCALE and three for DSCALE, no further improvements in the factor structure were found. A critical value of $\pm .216$ was used to judge the significance of the factor loadings (for a sample size of 100, with 20 variables, the significance level for the fifth factor would be $\pm .216$, (Hair, Anderson and Tatham 1987). At this level all of the factor loadings were significant. Additionally, a reanalysis of the

reliability (coefficient alpha scores) of each of the dimensions revealed that no improvement in reliability could be attained by eliminating any further items (see Tables 2 and 3). After these final modifications, many more of the resulting factors were interpretable in terms of the original dimensions.

Table 2
Summary of Results from Scale Purification of DSCALE

Dimension	Label	Reliability Coefficient (alpha)	Item Number	Factor Loadings
Courtesy*	D1	.85	05	.75
			21	.75
			06	.75
			14	.75
			09	.69
Tangibles*	D2	.53	03	.75
			01	.73
			15	.50
Spirituality*	D3	.66	04	.72
			18	.70
			17	.58
			13	.55
Fellowship*	D4	.66	11	-.77
			12	-.68
			25	-.55
			10	-.46
Communication*	D5	.34	27	-.74
			24	-.72
Reliability*	D6	.37	26	.77
			08	.60
			07	.47
Personalization	D7	.67	22	.81
			16	.74
			20	.59

* Dimensions identifiable from original scale

Validity comparisons: In the second round of data collection, the respondents completed an item assessing their overall satisfaction. This overall satisfaction item (OS, a five point item ranging from "I am very satisfied with the church I attend" to "I am very dissatisfied with the church I attend") provides a third alternative (in addition to DSCALE and RSCALE) for the measurement of satisfaction. It was used to help assess the convergent validity within each scale as well as the relative validity of DSCALE and RSCALE. The correspondence between the OS ratings and the scores for DSCALE and RSCALE were examined in two ways. First, the correlation

Table 3
Summary of Results from Scale Purification of RSCALE

Dimension	Label	Reliability Coefficient (alpha)	Item Number	Factor Loadings
Service Attitude	R1	.66	14	.93
			21	.88
			08	.78
			20	.57
Security/Fellowship*	R2	.74	12	.93
			15	.86
			13	.78
			11	.78
Understanding/Knowing*	R3	.39	16	.68
			17	.64
			04	.56
			24	.56
Courtesy*	R4	.84	05	.94
			06	.93
Pleasantness	R5	.35	25	.79
			03	.75

* Dimensions identifiable from original scale

between OS and DSCALE ($r_{OS,DS}$) was compared to the correlation between OS and RSCALE ($r_{OS,RS}$). Both correlations were significant at the .05 level indicating evidence of overall agreement between the OS ratings and each of the scales. The correlation between OS and DSCALE was higher (.53) than the OS, RSCALE correlation (.25). The test for differences in correlations (Walker and Lev 1953) found a t-value of 2.15 which is significant at the .05 level. The significantly greater level of correspondence between DSCALE and a third measure of satisfaction indicates greater convergent validity for DSCALE than for RSCALE.

The second examination of the comparison between the correspondence of the OS ratings and the scores for DSCALE and RSCALE used one-way analysis of variance. The five points of the OS item served as the independent variable. The analysis was performed on each dimension of each scale as well as on the complete DSCALE and RSCALE. Tables 4 and 5 present the results of this analysis. There were no respondents that indicated that they were "very dissatisfied" with their church so the effective range of the OS ratings was 2 ("somewhat dissatisfied") through 5 ("very satisfied"). The differences among the OS rating were significant with both scales. All but one of the dimensions of the DSCALE also had significant differences among the OS ratings, but only two of the RSCALE dimensions had significant differences.

Table 4
Comparisons of DSCALE Dimensions
by Overall Satisfaction Levels

Dimensions	Overall Satisfaction Levels				
	Very Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Very Satisfied
Courtesy	---	-1.38 ^b	-.37 ^{bc}	-.53 ^d	-.002 ^e
Tangibles ^a	---	---	---	---	---
Spirituality	---	-1.55 ^b	-.60 ^{bc}	-.92 ^b	-.03 ^e
Fellowship	---	-1.83 ^b	-.45 ^{cd}	-.70 ^c	-.05 ^d
Communication	---	-1.36 ^b	-.60 ^{bc}	-.86 ^b	-.23 ^c
Reliability	---	-.39 ^b	.27 ^{bc}	-.06 ^b	.35 ^e
Personalization	---	-1.52 ^b	-1.0 ^{bc}	-.27 ^c	.39 ^d
Complete Scale	---	-1.41 ^b	-.47 ^{cd}	-.52 ^c	.03 ^d

^a No Observations in this cell.
^{b,c,d} Cells with the same superscript are not significantly different, those with different superscripts are significantly different.
^e The test for overall differences was not significant, thus no contrasts were tested.

Table 5
Comparisons of RSCALE Dimensions
by Overall Satisfaction Levels

Dimensions	Overall Satisfaction Levels				
	Very Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Very Satisfied
Service Additude	---	.76 ^c	1.45 ^c	.98 ^{bd}	1.09 ^d
Security and Fellowship ^a	---	---	---	---	---
Understanding and Knowing	---	.61 ^b	.95 ^b	.81 ^b	1.09 ^c
Courtesy ^a	---	---	---	---	---
Pleasantness ^a	---	---	---	---	---
Complete Scale	---	.68 ^b	1.13 ^{cd}	.92 ^{bc}	1.05 ^d

^a No Observations in this cell.
^{b,c,d} Cells with the same superscript are not significantly different, those with different superscripts are significantly different.
^e The test for overall differences was not significant, thus no contrasts were tested.

DISCUSSION AND CONCLUSIONS

In this study, as in the Parasuraman, Zeithaml and Berry study (1988), the original set of dimensions of the scale were reduced, and in some instances, replaced by other dimensions. For RSCALE three of the original nine dimensions were still identifiable when the purification process was complete. For DSCALE six of the original nine dimensions remained. Examination of the factor correlation matrices (Table 6) indicates that both the ratio scale and the difference scale have relatively low correlations among their respective factors and relatively high factor loadings. This suggests that the form that is used for the customer satisfaction construct leads to very different conclusions about its dimensionality.

Table 6
Factor Correlation Matrices

	DSCALE					
	D1	D2	D3	D4	D5	D6
D2	.16					
D3	.24	.14				
D4	-.24	-.15	-.17			
D5	-.16	-.08	-.18	.10		
D6	.22	.10	.17	-.12	-.11	
D7	.26	.12	.18	-.16	-.18	.13

Average Absolute Pairwise Correlation = .16

	RSCALE			
	R1	R2	R3	R4
R2	.09			
R3	.20	.06		
R4	.20	.09	.12	
R5	.03	.07	.15	-.02

Average Absolute Pairwise Correlation = .10

The next issue of importance is whether or not this research indicates that one or the other form of the construct is more favorable for measurement development. The greater ease of interpreting the dimensions for DSCALE is certainly an advantage over the RSCALE. Additionally, the DSCALE item set required fewer modifications to find a stable factor structure. The reliability coefficient for the DSCALE item set was greater than for RSCALE (.89 versus .72) and it required fewer modifications to achieve stability of its reliability. The investigation of validity found that the correspondence between DSCALE and OS was greater in the case of both the comparison of correlations and in the comparison of the ANOVA results. Although both tests (DSCALE with OS and RSCALE with OS) were significant, the F-value for DSCALE was more than twice the F-value for RSCALE, indicating a much greater correspondence

between OS and DSCALE. Thus the convergent validity of the DSCALE was greater than of the RSCALE.

The general conclusion from this research is that the difference form of the customer satisfaction construct lead more readily to the development of a sound measurement instrument. This is not to say that the scale developed from the ratio form of the construct was unsound. Different approaches to scale development (e.g., the use of magnitude scaling) may lead to somewhat different conclusions regarding the relative ease of scale development with these two forms of the customer satisfaction construct.

REFERENCES

- Anderson, Rolph E. (1973), "Consumer Dissatisfaction: The Effect of Disconfirmed Expectancy on Perceived Product Performance," *Journal of Marketing Research*, 10 (February), 38-44.
- Andreasen, Alan R. (1977), "A Taxonomy of Consumer Satisfaction/Dissatisfaction Measure," in *Conceptualization and Measurement of Consumer Satisfaction and Dissatisfaction*, H. Keith Hunt, ed. Cambridge, MASS: Marketing Science Institute.
- Bearden, William O. and Jesse E. Teel (1983), "Selected Determinants of Consumer Satisfaction and Complaint Reports," *Journal of Marketing Research*, 20 (February), 21-8.
- Berry, Leonard L., Valarie A. Zeithaml and A. Parasuraman (1985), "Quality Counts in Services, Too," *Business Horizons*, 28 (May-June), 44-52.
- Bolting, Claire F. and Robert B. Woodruff (1988), "Effects of Situational Involvement on Consumer's Use of Standards in Satisfaction/Dissatisfaction Processes," *Journal of Consumer Satisfaction, Dissatisfaction, and Complaining Behavior*, 1, pp. 16-24.
- Brown, Stephen W. and Theresa A. Schwartz (1989), "A Gap Analysis of Professional Service Quality," *Journal of Marketing*, 53 (April), pp. 92-98.
- Cardozo, Richard N. (1965), "An Experiential Study of Consumer Effort, Expectation, and Satisfaction," *Journal of Marketing Research*, 2 (August), p. 244-9.
- Churchill, Gilbert A., Jr. (1979), "A Paradigm for Developing Better Measures of Marketing Constructs," *Journal of Marketing Research*, 16 (February), 64-73.
- _____ and Carol Surprenant (1982), "An Investigation into the Determinants of Customer Satisfaction," *Journal of Marketing Research*, 19 (November), 491-504.
- Czepiel, John A. and Larry J. Rosenberg (1977), "Consumer Satisfaction: Concept and Measurement", *Journal of the Academy of Marketing Science*, 5 (Fall), pp. 403-411.
- Czepiel, John A. (1980), "Managing Customer Satisfaction in Consumer Service Businesses," Report No. 80-109, Marketing Science Institute, Cambridge, MA.
- _____, Michael R. Solomon, Carol F. Surprenant, and Evelyn G. Gutman (1985), "Service Encounters: An Overview," in John A. Czepiel, Michael R. Solomon, and Carol F. Surprenant, eds., *The Service Encounter*. Lexington, MA: Lexington Books, 3-15.
- Day, Ralph L. (1977), "Extending the Concept of Consumer Satisfaction" in *Advances in Consumer Research*, 4, W.D. Perreault, ed., Ann Arbor, MI: Association for Consumer Research, pp. 149-154.
- Hair, Joseph F. Jr., Rolph E. Anderson, and Ronald L. Tatham (1987), *Multivariate Data Analyses*. New York: McMillan.
- Helson, Harry (1948), "Adaptation-Level as a Basis for a Quantitative Theory of Frames of Reference," *Psychological Review*, 55 (November), 297-313.
- Howard, John A. and Jagdish N. Sheth (1969), *The Theory of Buyer Behavior*. New York: Wiley.
- Hunt, H. Keith, (1977) "Consumer Satisfaction/Dissatisfaction - Overview and Future Directions," in *Conceptualization and Measurement of Consumer Satisfaction and Dissatisfaction*, Cambridge, MASS: Marketing Science Institute.
- LaTour, Stephen A. and Nancy C. Peat (1978), "Conceptual and Methodological Issues in Consumer Satisfaction Research," in William L. Wilkie, ed., *Advances in Consumer Research*, Volume VI, (Ann Arbor: Association for Consumer Research), 431-7.
- Lele, Milind M. and Jagdish N. Sheth (1987), *The Customer is Key*. New York: Wiley.
- Miller, John A. (1977), "Studying Satisfaction: Modifying Models, Eliciting Expectations, Facing Problems and Making Meaningful Measurements", in *Conceptualization and Measurement of Consumer Satisfaction and Dissatisfaction*, H. Keith Hunt, ed., Cambridge, MA: Marketing Science Institute, pp. 72-91.
- Morris, Earl W. (1977), "A Normative Deficit Approach to Consumer Satisfaction," in *Conceptualization and Measurement of Consumer Satisfaction and Dissatisfaction*, H. Keith Hunt, ed. Cambridge, MASS: Marketing Science Institute, pp. 240-74.
- Oliver, Richard L. (1980), "A Cognitive Model of the Antecedents and Consequences of Satisfaction Decision," *Journal of Marketing Research*, 17 (November), 460-9.
- _____ (1981), "Measurement and Evaluation of Satisfaction Processes in Retail Settings," *Journal of Retailing*, 57 (Fall), 25-48.
- _____ and Wayne S. DeSarbo (1988), "Response Determinants in Satisfaction Judgments," *Journal of Consumer Research*, 14 (March), 495-507.
- Olshavsky, Richard W. and John A. Miller (1972), "Consumer Expectations, Product Performance, and Perceived Product Quality," *Journal of Marketing Research*, 9 (February), 19-21.
- Olson, Jerry C. and Philip Dover (1979), "Disconfirmation of Consumer Expectations Through Product Trial," *Journal of Applied Psychology*, 64 (April), 179-89.
- Parasuraman, A., Valarie A. Zeithaml, and Leonard L. Berry (1985), "A Conceptual Model of Service Quality and Its Implications for Future Research", *Journal of Marketing*, 49 (Fall), pp. 41-50.
- _____, _____, _____ (1986), "SERVQUAL: A Multiple-Item Scale for Measuring Customer Perceptions of Service Quality," Report No. 86-108, Marketing Science Institute, Cambridge, MA.
- _____, _____, and _____ (1988), "SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality," *Journal of Retailing*,

- (Spring), 12-40.
- Prakash, V. and J.S. Lounsbury (1984), "The Role of Expectations in the Determination of Consumer Satisfaction", *Journal of the Academy of Marketing Science*, 12 (Summer), pp. 1-17.
- Richins, Marsha L. and Peter H. Block, "The Role of Situation and Enduring Involvement in Postpurchase Product Evaluation," *Journal of Consumer Satisfaction, Dissatisfaction, and Complaining Behavior*, 1 (1988), pp. 10-15.
- Summers, John O. and Donald H. Granbois (1977), "Predictive and Normative Expectations in Consumer Dissatisfaction and Complaining Behavior", in *Advances in Consumer Research*, pp. 155-158.
- Swan, John E., "Consumer Satisfaction Related to Disconfirmation of Expectations and Product Performance," *Journal of Consumer Satisfaction, Dissatisfaction, and Complaining Behavior*, 1 (1988), pp. 40-47.
- _____ and I. Frederick Trawick (1981), "Disconfirmation of Expectations and Satisfaction with a Retail Service," *Journal of Retailing*, 57 (Fall), 49-67.
- Walker, Helen M. and Joseph Levi (1953), *Statistical Inference*, New York: Henry Holt.
- Westbrook, R.A. (1980), "Intrapersonal Affective Differences on Consumer Satisfaction with Products", *Journal of Consumer Research*, 7 (June), pp. 49-54.
- _____ (1987), "Product/Consumption-Based Affective Responses and Postpurchase Processes," *Journal of Marketing Research*, 24 (August), pp. 258-270.