

SERVICES QUALITY IN TEACHING:  
AN EXPLORATORY APPLICATION OF THE DISCONFIRMATION MODEL

Joseph L. Orsini, California State University, Sacramento  
Melanie Meyer (student), California State University, Sacramento

ABSTRACT

Recent research in services marketing theory, regarding services quality, proposes a model of overall quality based on both perceptions of service attributes and the expectations of those attributes. A test of this hypothesis in the college teaching industry, contrasting the hypothesized model with the more usually used model based on perceptions alone, does not substantiate the hypothesis. However, mitigating factors may be responsible rather than weakness of the basic theory.

INTRODUCTION

Teaching effectiveness, or quality, is one of the most important aspects of faculty development and promotion in higher education institutions (Braskamp, Brandenburg and Ory 1984). While various means of evaluating teaching quality are used, the most popular continue to be those performed by students (McCallum 1984). The education literature has a substantial heritage of discussions of the use of student ratings of faculty (Cohen 1981), where concerns generally center on the composition of the particular instrument being used (Lammers and Kirchner 1985).

Interest in the field of services marketing is much more recent, with the preponderance of the literature being less than a decade old. Even more recently, interest in services quality has led to the introduction of a hypothesis with important ramifications for teaching quality evaluation. This hypothesis, generally referred to as the disconfirmation model (Gronroos 1984, Parasuraman, Zeithaml and Berry 1985), states that overall perceived service quality is a function of the level of the perceived individual service characteristics, mitigated by the expected level (prior to the receipt of the service) of those characteristics.

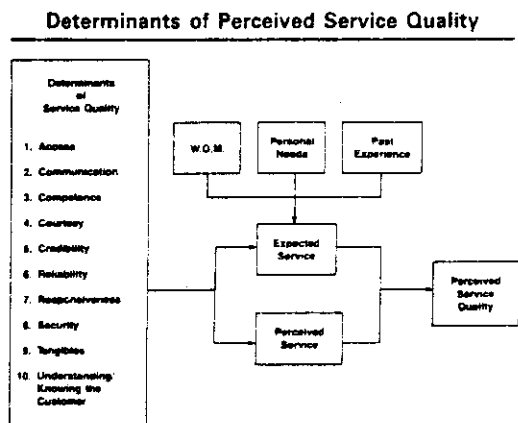
The purpose of this paper is to perform an exploratory study regarding the application of this theory to the college teaching industry. The hypothesized disconfirmation model of instructor effectiveness will be compared to the more widely used multiattribute model, which holds that overall instructor teaching rating is a direct function of the levels of perceived instructor characteristics (e.g., Marsh 1982). Should the disconfirmation model be found to be a superior evaluation method, redesign of the many existing teaching effectiveness instruments would have to be considered.

LITERATURE REVIEW AND HYPOTHESIS

Within services industries generally the employment of user ratings of services quality is firmly established, both theoretically (e.g., Lewis and Booms 1983) and in application (e.g., Center for the Study of Services 1981). The same process also has a long history of use in the college teaching industry (Cohen 1981).

The increasing importance of services in the American economy (Business Week 1981), together with increasing importance of product quality in general (Garvin 1984), has led to efforts aimed at generating service quality models applicable across a wide variety of services. Out of this stream of research has recently come the hypotheses that overall perceived quality can be measured on ten service attributes, and that this overall perceived quality is a function of the perceived level of these attributes, mitigated by the expectations of those attributes (Parasuraman, Zeithaml and Berry 1985; see Fig. 1).

FIGURE 1



Source: Parasuraman, Zeithaml and Berry (1985)

These hypotheses were derived subjectively from focus groups of consumers and depth interviews of managers, based on discussions of four industries: retail banking, credit cards, securities brokerage, and product repair and maintenance (Parasuraman, Zeithaml and Berry 1985). As the authors state,

(The figure) indicates that perceived service quality is the result of the consumer's comparison of expected service with perceived service. (p. 47)

The implications of this hypothesis, if sustained by empirical research, would be widespread, including its application to the college teaching industry. It would mean that faculty evaluations by students, to be valid rating instruments, would have to include measures of student prior expectations as well as observations at the end of the semester. In other words, the reputation of an instructor or course would, according to this theory, have a substantial impact on student perceptions of the overall quality of the teaching.

Based on their review of teacher evaluation processes, Braskamp, Brandenburg and Ory (1984) conclude that evaluation instruments should be used for two purposes: overall evaluation, and faculty development. The nature of the rating instrument, however, is different for each of these purposes. For matters of retention and promotion, only global or overall ratings are necessary.

For faculty development, however, individual items of quality measurement should be used. The selection and measurement of these individual items is more difficult, and it is the individual items of faculty evaluation which are pertinent to the disconfirmation theory. Faculty members trying to improve their teaching quality, for example, would find that reputations developed from previous courses taught may mask their current efforts at improvement and change.

Thus far, little empirical research has addressed the concepts proposed in Parasuraman, Zeithaml and Berry (1985). Orsini (1986) examined the ten characteristics aspect of their model and concluded that these ten performed as well as characteristics developed specifically in the college teaching industry. Empirical substantiation of the disconfirmation model has not, at this writing, appeared in the literature.

The purpose of this exploratory study is to test the disconfirmation model hypothesis by comparing the predictiveness of that model with the more commonly used multiattribute model based on direct perceptions. The college teaching industry is again used as an area of application. In particular, for overall teaching quality (Q):

H1: The disconfirmation model  $Q = f(\text{Perception} - \text{Expectation})$  will be more predictive than the direct attribute model  $Q = f(\text{Perception})$ .

H2: The disconfirmation model  $Q = f(\text{Perception} - \text{Expectation})$  will be more predictive than the model of teaching quality as a function of perception and expectation in combination  $Q = f(\text{Perception}, \text{Expectation})$ .

H3: The disconfirmation model  $Q = f(\text{Perception} - \text{Expectation})$  will be more predictive than the model of teaching quality as a function of perception and disconfirmation in combination  $Q = f(\text{Perception}, \text{Perception} - \text{Expectation})$ .

#### METHODOLOGY

A correlational design was used to evaluate the disconfirmation model as compared to the other

models. Difference in predictiveness of the models served to test the hypothesis of superiority of the disconfirmation model.

A convenience sample of 50 upper-division undergraduate business majors was used to test the hypothesis. The subjects were randomly divided into two groups: one group was asked to evaluate an instructor of their choice they have had recently who they thought was effective; the other group was asked to select and evaluate an instructor they have had recently but who was ineffective. This procedure was implemented in order to derive a wide distribution of service quality perceptions.

The test instrument used for instructor perceptions was developed by Marsh (1982), uses a 5 point rating scale for all instructor characteristics and the overall measure of quality, and is similar to the many instruments used in instructor evaluation. It was a self-administered instrument, and completed during the class session. The expected levels of the various items were measured by using basically the same instrument, but instructing the respondents to perform the ratings as they expected them on the first day of class in the course. Thus the expectations evaluated were not true expectations, but the memory of those expectations. This issue is discussed in greater detail below.

Analysis was by correlation and multiple regression. The individual items of the test instrument were first grouped together in their respective categories, e.g., Enthusiasm, Organization, etc., then used for correlation and regression. There were thus seven multi-item predictors, and the single item criterion variable: the comparison to other instructors.

#### FINDINGS

In addition to bivariate correlations and multiple regression of the models as discussed above, nonlinear and multiplicative forms of the regression models were tested. None were superior to the predictiveness of the linear additive models, hence the latter were used in hypothesis testing.

The results of the bivariate analysis of overall teaching quality and the seven combined characteristics is indicated in Table 1. While the  $p = .10$  would usually be suitable for hypothesis testing, given the probability of experiment-wise error (multiple hypothesis tests producing significance by chance), the  $p = .01$  level of alpha (approximately  $.10/7$ ) is more appropriate even for exploratory research. While the correlations of all of the Perceived and all of the Disconfirmation (Perceived - Expected) variables are significant at  $p < .01$ , only Organization of the Expected variables is significant at even the  $p < .05$  level.

The multiple regression testing of the hypotheses utilized stepwise regression for each model development. In the hypotheses tests, the stability of the resulting models was indicated by the same variables being predictive whether either forward

or backward stepwise regression was used. For the testing of Hypotheses 2 and 3, the Expected or Disconfirmation variables were preferentially entered into the model first, then the Perceived variables allowed to enter. The results of these analyses are indicated in Table 2.

TABLE 1  
Correlations of Perceived, Expected,  
and Disconfirmation Characteristics  
With Overall Quality

Variable	Perceived*	Expected**	Disconfir- mation* (Perceived- Expected)
Enthusiasm	.90	.22	.72
Organization	.89	.30	.77
Interaction	.79	-.02	.75
Rapport	.75	-.01	.73
Breadth	.70	-.13	.65
Exams	.81	-.19	.74
Assignments	.73	-.17	.68

n = 50  
\* = all variables significant at  $p < .01$   
\*\* = no variables significant at  $p = .01$

TABLE 2  
Models of Overall Perceived Service Quality

Model*	Coefficient of Determination**	Number of Variables in the Model
$Q = f(P-E)$	.65	2
$Q = f(P)$	.90	4***
$Q = f(P, E)$	.90	4***
$Q = f(P, P-E)$	.90	4***

n = 50  
\* = service characteristics:  
P = Perceived;  
E = Expected;  
Q = Overall Perceived Quality  
\*\* = all results significant at  $p < .01$   
\*\*\* = identical variables in each model

It will be noted from Table 2 that all models produce significant overall predictiveness. However, while the Disconfirmation model was significant, it was substantially lower in predictiveness than the Perceived model. Also, the resulting models found significant for Hypotheses 2 and 3 are the same as the Perceived model, i.e., contained the same four variables as the Perceived model. Thus, none of the hypotheses are sustained, as the service quality model based on only Perceived variables was superior in predictiveness to any other form.

#### DISCUSSION

The results of this study do not support the disconfirmation hypothesis of Parasuraman, Zeithaml

and Berry (1985), that perceptions of overall service quality are a result of the difference between observed and expected levels of provider characteristics. The more widely acknowledged model, of overall quality evaluation as a direct function of attribute perceptions, provided substantially greater predictiveness. Further, it may be speculated that the predictiveness of the Disconfirmation model was due to the strength of the perceptions only, and the subtraction of expectations only served to detract from the predictiveness of the perceptions.

One possible explanation regarding the lack of Parasuraman, Zeithaml and Berry's (1985) hypothesis substantiation is that, in the performance of their qualitative research, the authors were unable to differentiate between consumer opinions on service quality and consumer satisfaction with that quality. In a contemporary article on the same study, the authors discuss the disconfirmation model more in terms of satisfaction with overall service quality rather than the overall service quality itself (Berry, Zeithaml and Parasuraman 1985, p. 47). This would be more in accord with the widely accepted disconfirmation model of consumer satisfaction and dissatisfaction (e.g., Swan and Combs 1976).

However, shortcomings found in the methodology of this exploratory study are also possible explanations for the results found. Inherent in any small convenience sample is the problem of lack of stability of the findings due to small sample size. Further, generalizability is certainly suspect, as only upper division business majors enrolled in the author's marketing research courses were used as subjects. While they were free to consider any subject matter and faculty member they desired, extending the results to other courses, majors, or schools should be undertaken with extreme caution.

However, still other plausible explanations for the findings should be considered, in addition to shortcomings of theory and method. One of these is the difference between the industry of application of the theory and the industries from which the theory was derived. While the retail banking, credit card, security brokerage, and product repair and maintenance industries differ from each other in some respects, they also seem similar in many respects. Three of the four, for example, are related to monetary aspects of consumers' lives, while the fourth is related to property. Many other dimension of services have been proposed (e.g., Lovelock 1983), thus raising the possibility of industry specific results in both theory and test of theory.

In this regard, other variables, possibly related to industry, may act as covariates in effecting the outcomes of both the theory development and the theory test. In the consumer satisfaction/dissatisfaction literature, for example, Oliver and Bearden (1983) conclude that there is a possibility that the importance of expectations as a determinant of satisfaction decreases for high involvement products, while the importance of performance increases. Similarly, Churchill and Suprenant (1982) found that satisfaction with a

video disc player was only related to performance perceptions, and was not effected by either the disconfirmation experience or prior expectations. Since college courses would, in all likelihood, be considered highly involving, the weakness of the disconfirmation model of service quality in its applicability to the college teaching industry may, nonetheless, still be applicable for the industries of the theory development.

Still another possibility involves the length of time elapsing between the actual expectation of quality (prior to the start of the semester) and the evaluation of the service (the end of the semester). Since the evaluation of expectations was based on the memory of prior expectations, rather than the expectations themselves, simple forgetting is one strong possibility. With random positive and negative memories by different students, the results of no significant association, as found, is plausible. However, as the actual course/instructor evaluation process takes place at the end of the semester, the conditions of this hypotheses test are similar to the actual instructor evaluation situation.

#### FUTURE RESEARCH

The findings of this preliminary study, and their possible explanations, have raised some important issues for consideration in the development of a useful model of service quality. Particularly important is the question of the effects of level of involvement on the expectation portion of the disconfirmation model. More specifically, at question is the effect of the level of consumer involvement on the relative importance of perception and expectation; such that higher involvement yields higher perception importance and lower expectation importance.

Other issues deserve investigation. One is the effect of memory on the expectation portion of the disconfirmation model for services of long duration. Also, the question of perception of quality vs. satisfaction with quality deserves attention. Conceivably there might be a very complex relationship among expectations, perceptions, and satisfaction with perceptions.

Certainly an early step in this research ought to be to replicate the findings of this study on a larger and more representative sample of students. It should be possible, in doing this replication, to investigate the satisfaction/perception issue, and perhaps even the memory issue, with a minimal additional effort. At any rate, the importance of the subject area warrants additional research in the very near future.

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