MODELING PERCEIVED SERVICE QUALITY USING DIFFERENT COMPARISON STANDARDS

Veronica Liljander, Swedish School of Economics and Business Administration, Finland

ABSTRACT

It has been suggested that the difference between satisfaction and perceived service quality can be explained by the nature of the comparison standard and performance measure. Eight different comparison standards, two performance and satisfaction measures and one measure of intentions to behave were collected in a field study of restaurants. The results indicate that 1) of the comparison standards deserved service is the best predictor of overall satisfaction with a transaction and intentions to behave 2) of the inferred disconfirmation measures acceptable service and excellent service, when subtracted from perceived performance this time, are the best at explaining satisfaction and intentions, 3) performance alone is the best predictor of satisfaction, 4) the most frequently used measure of perceived service quality, excellent service subtracted from performance over several transactions was not connected with either satisfaction or intentions to behave, and 5) previous experiences with the service affect the evaluation of satisfaction with a transaction.

BACKGROUND AND PURPOSE OF THE STUDY

Perceived service quality was launched by Grönroos more than 10 years ago (1982) and it soon developed into a popular concept among researchers and managers alike. The concept was originally a direct transfer of the satisfaction concept from the consumer behavior literature into services marketing and was thus defined as the difference between predictive expectations and perceived performance of a service. Performance that equals or exceeds expectations will make the consumer perceive good service quality. The connection to the satisfaction literature seems to have been soon forgotten and during the last ten years research on perceived service quality has rarely taken into account the development within satisfaction research. One important reason for this may be the influence the American research team Parasuraman, Zeithaml and Berry (PZB) has had on the development of service quality. These researchers argue that there is a conceptual difference between satisfaction and perceived service quality, and that this difference can be explained by the nature of the performance and expectations measures. Service quality is seen as similar to attitude and therefore performance is measured as the perceived performance of more than one transaction with the service provider (Parasuraman et al. 1988). Satisfaction, on the other hand, is believed to be transaction specific and performance should be measured as the performance of one service encounter. Service expectations were earlier defined by PZB as what a service should be like (Parasuraman et al. 1988), or service excellence (Parasuraman et al. 1991), and later as a zone of tolerance between adequate service and desired service (Zeithaml et al. 1993). These comparison standards are similar in that they encompass the consumer's previous experiences with many brands, not only the focal brand. Satisfaction, on the other hand, is determined by predictive expectations, which are transaction specific (Ibid). Thus the difference between satisfaction and service quality according to PZB is a) how expectations are measured and b) if performance is measured over one or several transactions. When we consider that desired service and other standards similar to those proposed by PZB (Swan et al. 1982; Cadotte et al. 1983) have been suggested and used in consumer satisfaction studies long before they were introduced in the service quality literature, the nature of expectations may not be a discriminating factor between service quality and satisfaction. The performance measure also has its problems. If the consumer uses the service only once or for the first time (e.g., education, surgery and tourist attractions), s/he cannot make an evaluation over several transactions and there will be no difference between performance this time and performance over time. In our view the distinction between satisfaction and service quality is not conclusive. Although the consumer may differentiate between the two concepts, it remains to be shown that this is done in terms of different comparison standards and perceptions of performance. In this study we

will not make a difference between the two concepts. Thus all proposed models of satisfaction may also be called perceived service quality models, when the product studied is a service. By comparing different models from the satisfaction literature with models from the perceived service quality literature we will seek the model that explains satisfaction with the service, i.e., perceived service quality, the best.

So far there have been few studies of the ability of different comparison standards and performance to explain satisfaction with either one or several service transactions. In satisfaction research many different standards of comparison have been proposed and it is surprising that these have not been investigated within service quality research. The following standards have been proposed (e.g., Woodruff et al. 1991): 1) *desired or ideal service*, which may also be called normative expectations (this is the standard proposed by PZB), 2) *best brand norm*, 3) *product type norm*, 4) *brand norm*, 5) *predictive expectations*, 6) a *minimum tolerable level*, or *adequate service* as it has been called by Zeithaml et al. (1993), 7) *deserved service*, 8) *equity*, 9) *promises*, and 10) *needs and values*. To our knowledge, there is no service quality study which would compare the most used standard, excellent service, with other comparison standards. Neither is there much research on which operationalization of satisfaction provides the best explanation of intentions to behave.

The purpose of this study is to examine how well different comparison standards explain satisfaction with a service. The study is further designed to make it possible to compare the standard proposed by PZB, service excellence, with other standards drawn from satisfaction research. In addition, it will be possible to compare PZB's proposed way of measuring performance over several transactions with the more used performance of one encounter. Another purpose with this study is to use PZB's definitions of satisfaction and perceived service quality and compare these as to their ability to explain intentions to rebuy a service. Which operationalization of satisfaction, satisfaction this time or satisfaction over time, is better at predicting intentions to behave?

COMPARISON STANDARDS

The standards that will be used in the empirical study here are *service excellence, best brand norm, product type norm, brand norm, adequate service, predicted service, deserved service and equity*. An overview of the problems connected with choice and measurement of comparison standards can be found in Woodruff et al. (1991). They point out that the comparison standard, or standards, used by a consumer may vary from one transaction to another for the same product. This makes it difficult to compare changes in satisfaction over time. The relation between different comparison standards, satisfaction and intentions are discussed in Liljander and Strandvik (1993b). On the whole it can be said that inferred disconfirmation of both experienced-based norms and predictive expectations has been connected to satisfaction, although the correlations may vary according to product, involvement and situational characteristics. Some support has also been found for the effect of equity on satisfaction (e.g., Swan and Oliver 1985a; 1985b). There is, however, very little research involving deserved as a standard. Tse and Wilton (1988) found no relation between this standard and any of the three dependent variables that they used. The authors called the standard equity but the operationalization was in our opinion deserved (what the consumer got for what s/he paid). To our knowledge there is no study concerning services where deserved service would have been measured.

In their first report on service quality Parasuraman et al. (1985) did not define expectations. Later they have referred to interpretations of extensive focus group interviews which revealed that consumers use desired service as a standard when evaluating service quality (Parasuraman et al. 1988, Zeithaml et al. 1993). The concept was first operationalized as what the service should be (Parasuraman et al. 1988), and later as service excellence (Parasuraman et al. 1991). The reason for the change was that the customers' answers to "should"-expectations were felt to give too high scores for expectations and therefore the wording was changed to excellent service. This standard can be compared to

Woodruff et al.'s (1983) suggestion that consumers with wide experience of a product may form norms of what performance levels a brand or product should achieve.

Service excellence in service quality research has been operationalized in a standardized questionnaire called Servqual (Parasuraman et al. 1988; 1991). The difference between the attribute sum of performance and the attribute sum of expectations is called the Servqual score. The authors have demonstrated that this score correlates significantly with overall quality perceptions (Ibid). Servqual has been criticized as to the validity of the questions and quality dimensions, as well as regarding the measure of expectations (see e.g., Babakus and Boller 1992; Liljander and Strandvik 1992). In their own reassessment of Servqual, Parasuraman et al. (1991) report that overall perceived quality regressed on performance showed higher regression scores than overall perceived quality regressed on the Servqual score. Other studies have also found performance to be a good indicator of both satisfaction with goods (Churchill and Surprenant 1982; Tse and Wilton 1988) and satisfaction/perceived quality of services (Cronin and Taylor 1992; Liljander and Strandvik 1992). Parasuraman et al. (1991), however, argued that expectations should still be measured as they are an important indicator to managers of how well the service performs compared with the standard.

Zeithaml et al. (1993) have also introduced the idea of a minimum acceptable level into their service quality model. The meaning of this adequate service, however, remains unclear. At the same time as they state that adequate service is comparable with Miller's (1977) minimum tolerable, they ask if the predicted service level can ever exceed the adequate level. According to Miller this should never be the case. In a situation where there are several alternatives, the consumer is not likely to choose a service with a performance level which they expect to be below what is acceptable to them. According to Miller (1977) the minimum tolerable level is better than nothing, but an achievement of this level does not insure that the customer will feel satisfied with the product. If e.g. performance is above the minimum tolerable level but falls below the predicted level, the consumer will feel dissatisfied. Adequate service should be interpreted as the lowest level that still satisfies the customer. This level is at least slightly better than what is tolerable.

The position of the standards on a scale may vary depending on the consumer's experience and situational variables (Liljander and Strandvik 1993b). This should be considered when one investigates the relationship between disconfirmation of a standard and satisfaction. According to the disconfirmation paradigm performance should equal or exceed the comparison standard for the consumer to be satisfied. Perceived good service quality is also a function of exceeding expectations. It is, however, not very likely that a service performance will exceed the best brand norm or excellent service, and it has been shown that consumers are satisfied despite a negative disconfirmation of these norms (Liljander and Strandvik 1992). Swan et al. (1982) compared desired service, defined as what the consumer wants the service to be like, with predictive expectations in a restaurant setting. The results generally showed that consumers' predictive expectations either equalled or fell short of what they wanted.

INTENTIONS TO BEHAVE

Several studies have shown a positive connection between satisfaction and intentions to behave for both goods (Oliver and Bearden 1983; Prakash and Lounsbury 1984) and services (Cadotte et al. 1983; Prakash 1984; Swan 1977; 1988; Swan and Trawick 1982). Understandably, most studies have only measured intentions to behave, not actual purchase behavior. Dufer and Moulins (1989) found some interesting results in their study on the relationship between satisfaction with a product (coffee, shampoo and detergent), intended loyalty and actual repurchase. Those who expressed an intention to be loyal had a higher score for satisfaction than those who intended to change the brand. The satisfaction scores for those who actually repurchased the same brand of coffee and shampoo were, however, not significantly different from those who bought another brand. According to the authors this seems to suggest that although satisfaction is a good predictor of intended loyalty it is not a good

predictor of actual repurchase.

Results from studies that have measured both overall satisfaction and service quality show satisfaction to be the better predictor of intentions to behave (Cronin and Taylor 1992; Liljander and Strandvik 1992).

MODELS OF PERCEIVED SERVICE QUALITY

Only simple models of the main constructs will be presented. Although it has been shown that a consumer may use more than one comparison standard (Tse and Wilton 1988) and that models of satisfaction containing several constructs are often the most effective (Liljander and Strandvik 1992; 1993a), no multiple construct analysis will be presented in this paper. As mentioned at the beginning of the paper, all models of satisfaction will be treated as potential models of perceived service quality, when the product is a service. Two types of satisfaction will be considered. One is satisfaction with a specific transaction and the other satisfaction over several transactions. The latter measure is PZB's view of perceived service quality. The models are thus constructed on the basis of prior satisfaction and service quality research. The following models will be of special interest here:

1. Satisfaction this time = Performance this time - Adequate service
2. Satisfaction this time = Performance this time - Predicted service
3. Satisfaction this time = Performance this time - Product norm
4. Satisfaction this time = Performance this time - Brand norm
5. Satisfaction this time = Performance this time - Best brand norm
6. Satisfaction this time = Performance this time - Excellent service
7. Satisfaction this time = Deserved service
8. Satisfaction this time = Equity in relation to friends
9. Satisfaction this time = Equity in relation to service provider
10. Satisfaction this time = Performance over time - Excellent service
11. Satisfaction over time = Performance over time - Excellent service
12. Satisfaction over time = Performance this time - Predictive expectations
13. Satisfaction this time = Performance this time
14. Satisfaction this time = Performance over time
15. Satisfaction over time = Performance this time
16. Satisfaction over time = Performance over time
17. Intentions to behave = Satisfaction this time
18. Intentions to behave = Satisfaction over time

Models 1-9 are derived from the satisfaction literature and can all be seen as some type of disconfirmation measures. A minimum tolerable level was considered more difficult to measure than adequate service, and therefore the latter concept was chosen for this study (model 1). Models 1-6 propose that satisfaction is determined by inferred disconfirmation of a standard of comparison. Deserved service and equity in models 7-9 contain in themselves a comparison level which is the cost and efforts of obtaining a service, and comparisons with friends/dealer. Models 2 and 11 are proposed service quality models, the first by Grönroos (1982) and the second by Parasuraman et al. (1988). The proposition that service quality may be determined by the discrepancy between performance over time and adequate service will not be investigated in this study.

Research Question 1. Models 1-6 will be compared as to which is the best at explaining satisfaction with a service on one occasion. Is model 6, with excellent service, better than any of the models 1-5 or 7-9? If so, then this would indicate that the comparison standard proposed by PZB, excellent service, is indeed the standard used when evaluating service quality.

Research Question 2. Is model 10 a better model of service quality than model 6 is? This would indicate that performance should be measured as perceived service over several service encounters as suggested by Parasuraman et al. (1988).

Research Question 3. If predictive expectations subtracted from performance this time is how consumers evaluate satisfaction this time (Zeithaml et al. 1993), then this disconfirmation measure should correlate higher with satisfaction this time (model 2), than with satisfaction over time (model 12). Likewise excellent service subtracted from performance over time should correlate higher with satisfaction over time (model

11), than with satisfaction this time (model 10).

Research Question 4. Both measures of satisfaction may be explained by either performance measure alone (models 13-16). Models 13-16 will therefore be compared to models 1-12.

Research Question 5. Are intentions to revisit prompted by satisfaction this time or satisfaction over time (models 17 and 18)? If satisfaction over time is a better indicator of intentions, then again PZB's definition of service quality is better than the transaction specific satisfaction measure normally used within satisfaction research.

RESEARCH METHOD

Self-administered questionnaires were used to gather data. The data was collected from 3 different restaurants, within one chain of restaurants, during the period 5.11.-17.12.1992. The data was collected between about 4 p.m. and 10 p.m., and only customers who sat at the tables and had ordered food were included in the study. Respondents were offered complimentary coffee or tea if they agreed to participate. In addition, they could take part in a lottery of 5 two person dinners. Customers who refused to take part in the study were not counted, but were estimated to be around 10 %. It was not considered feasible to let all consumers evaluate all the standards as the questionnaire would be too long. Six different questionnaires were created, although with some questions in common. The questionnaire was four pages long. At least 30 usable questionnaires were collected of each standard from each restaurant. A total of 628 questionnaires were obtained, of which 53 were rejected as incomplete. 181 questionnaires were retained for analysis from Restaurant A and 197 from Restaurant B and C respectively.

To be able to investigate whether *excellent service* is the best comparison standard for evaluating services, this standard was evaluated by all the respondents. Of the other standards only deserved service and equity were answered by all. As there is very little research on these standards it is of interest to see how they perform in comparison with the other standards. *Adequate service, predictive expectations, product norm, brand norm and best brand norm* were all put on different questionnaires so that each respondent evaluated only one of these standards. All respondents evaluated *perceived performance this time* and questions about *satisfaction* and *intentions to rebuy*. One set of respondents evaluated *performance over time*, excellent service and performance this time. This was to check the difference between the two types of performance measures and their relation to the satisfaction and intentions measures. The first page of the questionnaire contained the comparison standard that varied across questionnaires, the second page contained questions about excellent service, the third page was about performance this time, and the rest of the questions were on the last page.

On the basis of previous studies of restaurants 38 attributes were chosen for a small pilot study at one of the three restaurants. 33 customers who visited the restaurant one weekday evening participated in the study. A correlation matrix and simple regression on satisfaction of the attributes were analyzed and 21 attributes were retained in the final study. The attributes could be divided into 3 main categories; 1) ability and willingness to serve, 2) food aspects and 3) servicescapes, i.e., the physical surroundings (the "landscape") of a service which include ambient conditions, spacial layout and functionality, signs, symbols and artifacts (Bitner 1992). Servicescapes in this study included furnishings, noise, music, air conditioning, restrooms, and the other customers. The attributes are listed in Appendix 1.

A 10-point scale, ranging from the *worst restaurant* that the customer had experienced to the *ideal restaurant*, was used for the attribute-specific constructs (adequate service, predictive expectations, product type norm, brand norm, best brand, excellent service, performance). It is easier to evaluate different levels of services on a scale which is subjectively anchored in the worst service that the customer has experienced. The other end could be anchored as the best service that the customer has experienced, but this would make it difficult, if not impossible, to measure excellent service, which may very well be higher up on the scale than the best brand. Therefore a "dream" service was chosen as the other end of the scale.

It is a level of service which the customer may feel that s/he has experienced, but which may also be unattainable. A 10-point scale was chosen so that it would be possible to express a wide range of feelings about the standards. The questions and scales used in the study are listed in Appendix 2.

EXPLICATION OF CONSTRUCTS

Excellent service was measured as the customer's perception of what would be the characteristics of an excellent restaurant. In accordance with the research by Parasuraman et al. (1991), no guidelines were given as to what kind of restaurant should be considered. This is thus an industry standard. *Best brand* was described as the best restaurant the customer had experienced. Customers were asked to name the restaurant as this was thought to anchor their evaluations better in this particular restaurant. It is to be noted that the best brand in this case does not have to equal the customer's best experience regarding each attribute. Even the best restaurant may have flaws. This is also what distinguishes it from an excellent restaurant for which the respondent may freely mark what s/he feels is characteristic of excellent service regarding each item. *Brand norm* was measured as the customer's evaluation of a typical restaurant within this particular chain of restaurants. Respondents were screened so that only those who had visited another restaurant within the chain evaluated this standard. The *product type norm* was explained to the customers as a typical family restaurant with table service. They should not think about restaurants that could be called "business men's restaurants", as these would be more expensive and might have a higher standard. A few examples were given of restaurants that were considered family restaurants. The type of restaurants that the respondents were to think about should be of similar "type" as the restaurants within the chain, without making them think about only these restaurants. *Predictive expectations* were described as the customers expectations in respect to each item for this particular visit to the restaurant were they were interviewed. *An adequate restaurant* was described in this study as the lowest level for each item that the customer could accept from a restaurant and still be satisfied. The standard was further described as being on the border of what would satisfy the customer. This operationalization was a free interpretation of the concept as it has been described by Zeithaml et al. (1993). As it has not been operationalized before, no comparisons with other studies can be made. No situational descriptions were given, like what is acceptable for lunch, dinner, when one is in a hurry, when there are few alternatives etc. All of these may, however, have an effect on what is considered an adequate level for a restaurant.

Deserved service was measured as "When you compare what you got (food, service, atmosphere) relative to what you gave (payment for food, other efforts), how well do these correspond? To suit the Finnish language the scale ranged from "I made a bad deal" to "I made a good deal". *Equity* was measured with two items: a) "When you compare what you got (food, service, atmosphere) relative to what you gave (payment for food, other efforts), and what the restaurant got (payment for food) relative to what they gave you (food, service, the restaurant itself), do you feel that you both gained equally from your visit, that it was a fair deal for both of you?", and b) customers were asked to compare what they got/gave relative to what their friend/s got/gave.

Performance this time and perceived performance from all previous experiences with the restaurant were measured on the same 21 attributes as the attribute-specific comparison standards. Respondents were screened so that only those who had visited the same restaurant before answered the attribute-specific questions about performance over time.

Satisfaction was measured as a) *satisfaction with the restaurant this time* and b) *satisfaction over all visits* to the restaurant. The first measure is a traditional satisfaction measure while the other is a measure of service quality defined as the customer's satisfaction with the service over time. *Intention to behave* was measured as intentions to revisit the restaurant. The scales are described in Appendix 2.

RESULTS

The discussion of results are organized in the following way. First we look at the position of the standards and how they are related to each other.

We then proceed to compare how well the disconfirmation of different attribute-specific standards correlate with satisfaction, and further compare these correlations with the correlation of deserved service and equity with satisfaction. We will also look at the relation between the different satisfaction constructs and intentions to behave. All data analyses have been performed using SPSS for Windows 5.0. The variables used in the analyses are listed in Table 1.

Table 1
Direct and Derived Measures Used in the Analysis, Abbreviations as Used in the Text

Measure	Direct measures	Derived measures
Adequate/Acceptable service on attributes	ACC	
Predictive expectations on attributes	PE	
Product norm on attributes	PN	
Brand norm on attributes	BN	
Best brand norm on attributes	BBN	
Excellent service on attributes	EXC	
Deserved service	DESERVE	
Equity in relation to restaurant	EQREST	
Equity in relation to friends	EQFRIEND	
Performance this time on attributes	PER1	
Performance over time on attributes	PER2	
Satisfaction with restaurant this time	SATIS(1)	
Satisfaction with restaurant over time	SATIS(2)	
Intentions to revisit the restaurant	INTENT	
Average of acceptable service		AVG(ACC)
Average of predictive expectations		AVG(PE)
Average of product norm		AVG(PN)
Average of brand norm		AVG(BN)
Average of best brand norm		AVG(BBN)
Average of excellent service		AVG(EXC)
Average of performance this time		AVG(PER1)
Average of performance over time		AVG(PER2)
Average of inferred disconfirmation of acceptable service		AVG(PER1-ACC)
Average of inferred disconfirmation of predictive expectations		AVG(PER1- PE)
Average of inferred disconfirmation of product norm		AVG(PER1-PN)
Average of inferred disconfirmation of brand norm		AVG(PER1-BN)
Average of inferred disconfirmation of best brand norm		AVG(PER1-BBN)
Average of inferred disconfirmation of excellent service (subtracted from performance this time)		AVG(PER1-EXC)
Average of inferred disconfirmation of excellent service (subtracted from performance over time)		AVG(PER2-EXC)

The Position of the Standards in Relation to Each Other

The means of 21 attributes for adequate service, product norm, brand norm, best brand norm, excellent service, performance this time and performance of all previous occasions taken together are presented in Table 2. To see if there are differences in means between the restaurants, the results from each restaurant is presented. An analysis of variance showed that few means differed significantly across restaurants. Restaurants B and C were not significantly different ($p <= 0.05$) with regard to any of the measures. Restaurant A had a significantly higher mean than B and C for PE, BBN, EXC and PER1. In addition, Restaurant A differed significantly from C regarding the product norm. The results are not surprising, as Restaurant A has a higher profile than the other restaurants within the chain. It is interesting, however, that the customers of Restaurant A also evaluated the best brand and excellent service higher than customers at the other restaurants. This supports the findings by Cadotte et al. (1983) where the best brand norm varied significantly across fast food, family and atmosphere restaurants. Thus it seems that the higher the quality of the service chosen, the higher the customer's best brand experience and evaluation of what constitutes excellent service will

be. It also looks as if adequate service and the brand norm were not affected by the quality of performance. A correlation matrix which will be discussed later in this paper, however, shows that all the standards to some degree correlate with performance.

Table 2
Averages of 21 Attributes

ACC	BN	PN	PE	BBN	EXC	PER1	PER2
Restaurant A							
6.77	6.84	7.52	7.73	8.22	8.55	7.86	7.65
Restaurant B							
6.72	6.77	7.05	6.75	7.49	8.24	7.18	7.12
Restaurant C							
6.57	6.74	6.39	6.76	7.47	8.13	7.11	7.20

Looking at the absolute values, we can see that the order of the standards is very similar across restaurants. The means of the two measures of performance are also very similar. They are generally surpassed only by the best brand norm and excellent service. In fact, the means of acceptable service, product norm, brand norm and predictive expectations are remarkably close to each other considering the width of the scale and the conceptual difference between the standards.

As not all respondents evaluated all the standards and performance over time, only some of the means can be compared for significance. Independent t-tests for paired samples were performed on excellent service and performance this time against all other attribute-specific standards and performance measures. Service excellence was significantly ($p <= 0.05$) different from ACC, PN, BN, PE, BBN, PER1 and PER2 at all three restaurants. For performance on this occasion the results varied depending on the restaurant. For Restaurant A PER1 differed significantly from ACC, PN and EXC. At Restaurant B it differed significantly from PN, BN, PE and EXC, while significant differences at Restaurant C were found for BN, EXC, and PER2 (which in this case was lower than PER1). Thus the only standard that was significantly different from performance this time at all restaurants was service excellence.

The means of excellent service and performance seemed to vary slightly depending on which comparison standard was used in the questionnaire, but an analysis of variance showed no differences in the averages of excellent service or performance this time between any of the standards. There also seemed to be some connection between perceived performance and how the standards were evaluated on an attribute level as can be seen from Figures 1 and 2, where profiles of performance attributes and two standards are drawn. In Figure 1 performance of attribute number 11 (the functionality of the restrooms) is rated especially low for Restaurant C. This same drop on the scale can be found in Figure 2, where one group of respondents has evaluated a typical restaurant (PN) and another group of respondents has given their opinion about what is acceptable of restaurants (ACC). The only standard not to show this drop for attribute 11 was excellent service.

The means on DESERVE, EQRES and EQFRIEND are presented in Table 3. Analysis of variance was performed to determine whether there were differences between restaurants with respect to how deserved service, equity with restaurant and equity with friends were evaluated. The only significant difference ($p <= 0.05$) was found for EQRES between Restaurants A and B, which means that visitors of restaurant A felt that they gained more compared to the restaurant, than did the visitors of Restaurant B. A paired samples t-test showed that deserved service differed significantly from both types of equity at all three restaurants. EQRES and EQFRIEND were significantly different from each other only for Restaurant B.

Table 3
Means of Deserved and Equity

	DESERVE	EQRES	EQFRIEND
Restaurant A	5.41	4.56	4.61
Restaurant B	5.43	4.11	4.32
Restaurant C	5.47	4.35	4.35

According to equity theory those customers who perceived that they gained equally in relation to friends/restaurant should be the most satisfied. 37 % of all the customers thought that they and the restaurant had gained equally (scored 4 on the 7-point scale), while 53 % thought that it was a fair deal in relation to the friends they dined with.

Figure 1
A Comparison of Attribute-Specific Means of Performance for the Three Restaurants

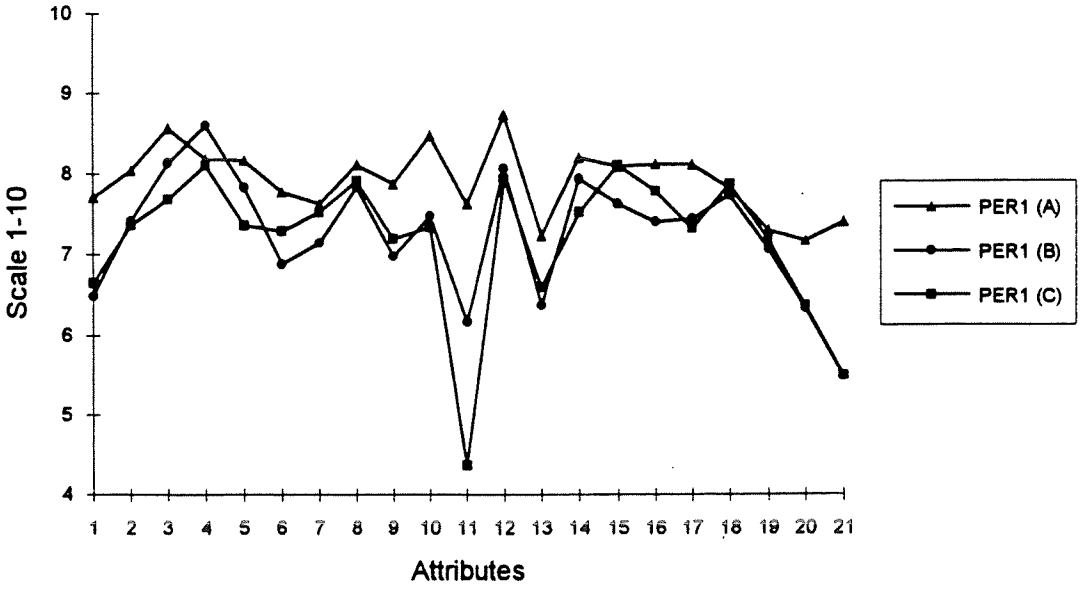

Figure 2
Attribute-Specific Means for Acceptable Service and Product Norm for Restaurant C

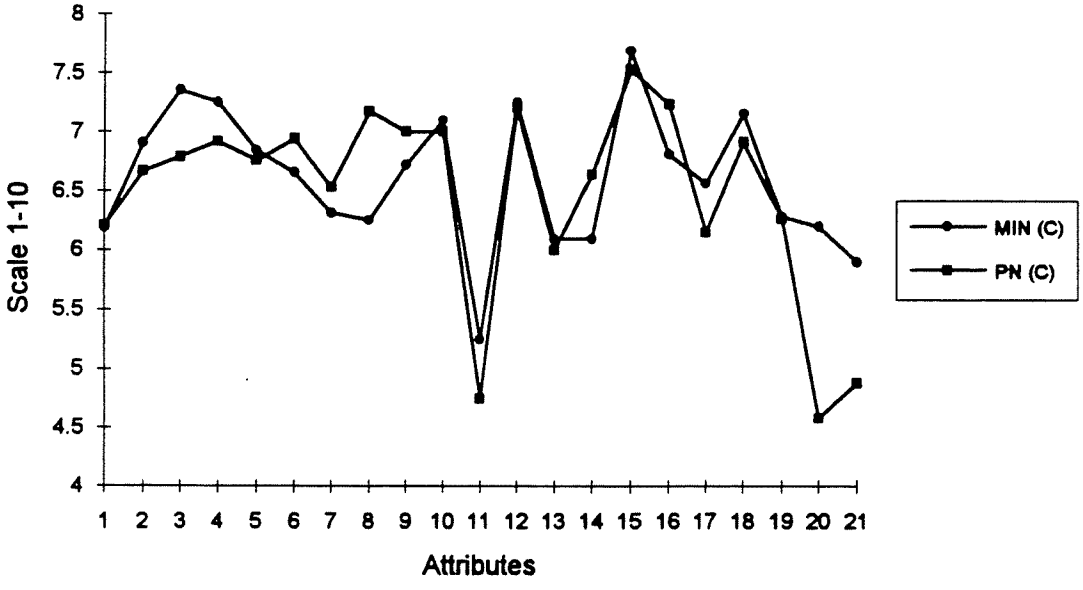

Table 4
Pearson Correlation Matrix on All Standards of Comparison

	AVG(ACC)	AVG(PE)	AVG(PN)	AVG(BN)	AVG(BBN)	AVG(EXC)	DESERVE	EQRES
AVG(PE)	na							
AVG(PN)	na	na						
AVG(BN)	na	na	na					
AVG(BBN)	na	na	na	na				
AVG(EXC)	0.39**	0.28**	0.37**	0.14	0.61**			
DESERVE	0.18	0.41**	0.49**	0.38**	0.25*	0.15**		
EQRES	0.04	0.28**	0.43**	0.38**	0.22*	0.14*	0.48**	
EQFRIEND	0.03	0.14	0.41**	0.08	0.35**	0.10*	0.33**	0.44**

* = p<= 0.05, ** = p <=0.01, na = not available

Only 21 % and 11 % respectively thought that they gained less than the restaurant or friend/s. Of those who marked some degree of satisfaction on the satisfaction scale 13 % thought that they gained less than the restaurant, 40 % thought that they gained equally and 52 % that they gained more. For EQFRIEND the percentages were 6 %, 54 % and 40 %. We can thus see that an unfair deal, where the customers felt that they had got a better deal than restaurant or friend/s, was just as satisfying as a fair deal. The consumer's evaluation of equity may depend on the product, the situation and personal characteristics of the consumer. When there are no, or few, competitors consumers may more easily assume that the company is taking advantage of the situation and that it does not even try to make a fair deal with the consumer. Another company may have an image of good value for money and fair deals for all the involved. It is also realistic to assume that a normal customer will feel satisfied if s/he gains more than someone else, be it a friend or a company.

A correlation matrix of the standards is presented in Table 4. Excellent service shows low or no correlation at all with the brand norm, equity and deserved service. The highest correlation is between the best brand norm and excellent service, which could also be expected considering how near they are to each other conceptually. Thus, though the average of excellent service may be significantly different from all other standards (Table 2) it still correlates with many of them. Acceptable service correlates only with excellent service. This may be explained by the fact that acceptable service asked for the lowest level that would still satisfy the customer, and an attribute that is evaluated highly for excellent service can also be expected to be evaluated highly for what is acceptable service. Equity and deserved service seem to relate strongest to the product norm. Of the two equity measures EQFRIEND generally shows fewer and lower correlations with the other variables.

Standards and Performance Compared to Satisfaction and Intentions

The relation between the standards, performance, satisfaction and intentions are shown in Table 5 and 6. All attribute-specific standards correlate with PER1. Acceptable service and service excellence show the lowest correlations with performance and other variables. The other attribute-specific standards strongly correlate with performance this time. The extremely high correlation between predictive expectations and performance (0.79) indicates that most of the customers were familiar with the restaurants and that the performance matched their expectations. This is supported by the fact that 70-80 % of the customers had visited the restaurant before. It is interesting that the second highest correlation for performance this time is with the best brand norm. Although excellent service and the best brand norm had the highest correlations within the comparison standards, excellent service correlates to a much lower degree with performance. Excellent service correlates higher with performance over time than with performance this

Table 5
Pearson Correlation Matrix on Standards, Performance, Satisfaction and Intentions

	AVG (ACC)	AVG (PE)	AVG (PN)	AVG (BN)	AVG (BBN)	AVG (EXC)	AVG (PER1)	AVG (PER2)	SATIS(1)	SATIS(2)
AVG(PE)	na									
AVG(PN)	na	na								
AVG(BN)	na	na	na							
AVG(BBN)	na	na	na	na						
AVG(EXC)	0.39**	0.28**	0.37**	0.14	0.61**					
AVG(PER1)	0.36**	0.79**	0.66**	0.64**	0.72**	0.45**				
AVG(PER2)	na	na	na	na	na	0.53**	0.86**			
SATIS(1)	0.17	0.54**	0.28**	0.35**	0.19	0.17**	0.51**	0.57**		
SATIS(2)	-0.3	0.41**	0.39**	0.37**	0.24*	0.15**	0.50**	0.50**	0.65**	
INTENT	0.09	0.45**	0.20*	0.40**	0.14	0.10*	0.44**	0.43**	0.55**	0.57**

* = p< = 0.05, ** = p < =0.01, na = not available

Table 6
Pearson Correlation Matrix on Deserved, Equity, Performance, Satisfaction and Intentions

	DESERVE	EQREST	EQFRIEND	PER(1)	PER(2)	SATIS(1)	SATIS(2)
EQREST	0.48**						
EQFRIEND	0.33**	0.44**					
PER(1)	0.52**	0.39**	0.29**				
PER(2)	0.43**	0.46**	0.23*	0.86**			
SATIS(1)	0.57**	0.41**	0.32**	0.51**	0.57**		
SATIS(2)	0.47**	0.35**	0.35**	0.50**	0.50**	0.65**	
INTENT	0.53**	0.32**	0.27**	0.44**	0.43**	0.55**	0.57**

* = p< = 0.05, ** = p < =0.01

time, but there is no difference between the correlations with the two satisfaction measures. PER2 and SATIS2 were the measures advocatedby PZB for measuring service quality.

Of the attribute-specific standards predictive expectations correlate the best with satisfaction and intentions to revisit. Due to the high correlation between predictive expectations and performance, these two constructs show very similar correlations with satisfaction and intentions. Opinions on other restaurants within the same chain also affect intentions to revisit one particular restaurant.

In Table 6 deserved service and the two measures of equity are compared with performance, satisfaction and intentions. All three standards significantly correlate with the other measures but deserved service shows the highest correlation. DESERVE is followed by EQREST and EQFRIEND. The correlations for deserved service are very similar to those of the performance measures regarding satisfaction, but surpasses both PER1 and PER2 regarding intentions to behave. Thus deserved service is a better determinant of satisfaction and intentions to behave than is either measure of equity.

Although it might be expected that performance this time would correlate higher with satisfaction this time than with satisfaction over time and that performance over time accordingly should correlate higher with satisfaction over time, this is not the case. We can note that performance this time and performance over time are almost identical measures with a correlation of 0.86. It is therefore no surprise that the measures are very similar in their correlations with satisfaction and intentions. High evaluations of performance over

all previous visits, however, seem to affect satisfaction this time more than satisfaction over time. Thus the relationship between the customer and the service provider is important for how the customer evaluates a particular visit. This may be compared with the image component in Grönroos' model of perceived service quality. According to Grönroos a good image will serve as a filter when the customer evaluates a service experience. A customer who has a positive opinion of the service provider will accept some mistakes without letting it affect his or her satisfaction with the service. Here it looks as if it will even enhance the feeling of satisfaction.

Inferred Disconfirmation Measures Related to Satisfaction and Intentions to Behave

We will now take a look at the research questions posed in connection to the service quality models. The first question was which of the inferred disconfirmation measures of performance this time, deserved service or equity, correlates best with *satisfaction this time*. The inferred measures are presented in Table 7 and deserved service and equity can be found in Table 6. Looking at the inferred measures, we can see that acceptable service and service excellence, that had the lowest correlations with satisfaction and intentions, now have the highest correlations when they appear as inferred disconfirmation measures. This would support the use of these standards when measuring service quality, as proposed by Zeithaml et al. (1993). The only other inferred measure that correlates with SATIS(1) is disconfirmation of the brand norm. When we compare the results of disconfirmation of acceptable and excellent service with those of deserved service and equity, we can see that they are similar to EQFRIEND but inferior to DESERVE and EQRES. Of all the measures deserved service shows the highest correlation with satisfaction this time. It is interesting to note that deserved service also is the best predictor of intentions to behave. It is surpassed only by the satisfaction measures.

In question 2 we asked if there was a difference between excellent service subtracted from performance over time or from performance this time compared to SATIS1. Table 7 shows that AVG(PER2-EXC) does not correlate significantly with either satisfaction measure, nor with intentions to behave. Thus service excellence subtracted from service performance over time is not a good measure of service quality. The results are interesting considering the fact that previous studies have found significant correlations between this measure and some measure of satisfaction. This also answers part of research question 3, whether AVG(PER2-EXC) correlates to a higher degree with SATIS2 than with SATIS1. The conclusion would be that although service excellence can be used as a standard for measuring service quality, it is not effective together with performance over time. The other part of question 3 was whether AVG(PER1-PE) was better correlated with SATIS1 than with SATIS2. We can see in Table 7 that neither correlation is significant. Thus there is no support for the

Table 7
Pearson Correlation Matrix on Satisfaction, Intentions and Standards Subtracted from Performance

	AVG (PER1-ACC)	AVG (PER1-PE)	AVG (PER1-PN)	AVG (PER1-BN)	AVG (PER1-BBN)	AVG (PER1-EXC)	AVG (PER2-EXC)	SATIS(1)	SATIS(2)
AVG(PER1-PN)	na								
AVG(PER1-BN)	na	na	na						
AVG(PER1-BBN)	na	na	na	na					
AVG(PER1-EXC)	0.47**	0.15	0.20**	0.23*	0.44**				
AVG(PER2-EXC)	na	na	na	na	na	0.86**			
SATIS(1)	0.34**	-0.15	-0.10	0.26**	0.17	0.32**	0.19		
SATIS(2)	0.42**	-0.09	0.02	0.10	0.33**	0.32**	0.04	0.65**	
INTENT	0.27**	-0.0.5	0.06	0.13	0.32**	0.32**	0.14	0.55**	0.57**

* = p<= 0.05, ** = p <=0.01, na = not available

proposition by Zeithaml et al. (1993) that AVG(PER1-PE) determines satisfaction this time, while AVG(PER2-EXC) determines satisfaction over time (service quality). The results do not support Grönroos' service quality model either, which states that service quality is the difference between performance and predictive expectations. In addition, all inferred disconfirmation measures were inferior to deserved service as a standard. It can, however, be argued that attribute-specific standards give a kind of comparative information which is important to managers. This would support a continued use of some kind of standard that has been shown to affect the customers' evaluation of satisfaction and intentions to revisit. In this study, e.g., most customers seemed to believe that the restaurant they had chosen was better than the restaurants within the chain in general. This may be a sign of rationalization of the choice should not worry a manager. A very low brand norm might, however, also be a sign of that something should be done to enhance the image that the customers have of the service provider. One of the restaurants was evaluated as being very similar to the best restaurant that the customer had experienced. This, on the other hand, is very satisfying information for any company, regardless of how well inferred disconfirmation of the standard explains satisfaction or intentions to rebuy. The fact that the results of this study varies from other studies show that which standard is effective may vary across products, and even within the same product group. Of the experience-based norms only disconfirmation of the brand norm had any effect on satisfaction. This is in contrast to earlier research by Cadotte et al. (1983) where the product studied was also a restaurant. They found all norms to be good determinants of satisfaction, but also that the best brand norm and product type norm were the most effective norms.

When we look at research question 4, how well the performance measures by themselves correlate with satisfaction, we can see from Table 6 that they are good predictors of both satisfaction this time and satisfaction over time. This confirms the results of earlier studies where performance alone has been the best determinant of satisfaction. Only deserved service comes close to, or exceeds, the correlations of performance with satisfaction and intentions. This confirms that there is no need to go through the laborious task of collecting attribute-specific information on both comparison standards and performance, unless there is some other reason for it than to use it as a determinant of satisfaction. It looks like it would be enough to collect evaluations of performance and some additional variables like deserved service and equity in relation to the service provider.

The fifth question was whether satisfaction this time or satisfaction over time was better at explaining intentions to revisit. As Table 6 shows, both measures correlate significantly with intentions, and there is very little difference between them. It is thus not possible to say that one measure is better than the other. We should, however, also remember that all respondents answered these questions, regardless of whether they had visited the restaurant before or not. For first-time visitors both measures will thus be equal. The data should therefore be divided into two groups and reanalyzed. It should, however, also be noted that when PZB have measured performance and overall quality they have not screened out first time visitors.

SUMMARY AND DISCUSSION

This study was unique in that eight different comparison standards were measured in the same study. The design of the study made it possible to compare models of perceived service quality drawn from the service literature with models proposed within consumer satisfaction research. The model that has dominated satisfaction research and early service quality research, predictive expectations subtracted from perceived performance of one transaction, does not correlate with overall satisfaction. This result is not surprising considering the high correlation between predictive expectations and performance found in this study. If performance has been perceived as more or less constant across many service transactions, and no negative or positive surprises have occurred, the customer will have predicted the service "correctly". Predictive expectations in this study were not measured as actual expectations before entering the restaurant, but as what they were perceived to have been. It is realistic to assume that this is how the customer would evaluate

predictive expectations if they were used as a standard when evaluating service quality. The result supports Woodruff et al.'s (1983) suggestion that there is a range of outcomes that the consumer will consider normal. To find the negatively or positively surprising events and the effect that they have on satisfaction and intentions, studies could be performed using the critical incident technique.

The model proposed by Parasuraman et al. (1988) for measuring perceived service quality, excellent service subtracted from performance over time, did not perform well either. It did not correlate with either satisfaction measure or intentions. Thus neither of the traditional service quality models were supported by the study. The results did, however, show that performance over time affected satisfaction with one transaction. The better the perceived performance over time had been, the more satisfied the customer felt with a specific transaction. The findings from this study support the importance of a good relationship between the customer and the service provider.

Some might argue that this study is not a test of the service quality model proposed by PZB, because the Servqual questions have not been used. However, as was mentioned earlier, these questions have been sharply criticized and using them would have meant having to reject all questions on the servicescapes, except for how the personnel is dressed, and all questions about the food. As these aspects are an important part of the experience from a restaurant, the Servqual questions were not used.

In contrast to earlier studies by Cadotte et al. (1983; 1987), inferred disconfirmation of different experience-based norms were not found to be effective in determining satisfaction or intentions to behave. Adequate service and excellent service subtracted from perceived performance of one transaction correlated significantly, but not highly, with both satisfaction measures and with intentions to behave. The results for both measures of equity were very similar to adequate and excellent service. Contrary to theory, customers were also satisfied when they were of the opinion that they benefitted more from the transaction than their friend/s, or the restaurant, did. Deserved service, which has been very seldom used in either satisfaction or service quality studies, was the best determinant of satisfaction with the service. This suggests that deserved service should be included as a variable in future studies. It may e.g. be used to evaluate different parts of a service.

As in many other studies, performance alone was found to be a better predictor of satisfaction than any of the other independent measures. Only deserved service showed similar correlations with satisfaction, and a higher correlation when compared to intentions to behave than all the other measures. Other standards may be included for diagnostic purposes, to see how customers perceive the company compared with the best company they have experienced etc., but they should be used only as a complement to the performance measures.

The data from this study should be analyzed further using multi-construct models proposed in earlier studies. This would probably show that some variables together are better predictors of service quality than when used independently. There are as yet very few studies of different comparison standards and no general pattern can be discerned from the results of previous studies. The product studied, the consumption situation and personal characteristics of the customer may all have an impact on how perceived service quality should be measured.

Although this study is different from previous studies in that it uses many different comparison standards, it is based on the traditional disconfirmation paradigm. The results showed that traditional inferred disconfirmation measures were not effective in explaining satisfaction with the service. On the whole there seems to be a diminishing support for the disconfirmation model in favour of performance only models. Perhaps the answer to this problem would be to include attributions as a mediating variable between disconfirmation and satisfaction, as suggested by Oliver (1989) and Bitner (1990). Oliver (1989) argues that positive or negative disconfirmation will result in a search for the cause of disconfirmation. Depending on the consumers' attributions of disconfirmation of expectations they will feel varying degrees of satisfaction. Oliver also proposes emotions as a possible mediator of satisfaction. Thus, though two consumers may have the same satisfaction scores, the emotions leading up to that score may be quite different.

The role of emotions have so far not been discussed within service quality research, although these should be particularly important in many services, like concerts and theater performances.

Appendix 1

	Final study	Category
1	How the personnel was dressed	S
2	Waiters' skills (skill in serving and knowledge about food and drink)	P
3	Waiters' willingness to provide service	P
4	Bringing the ordered food and drink within a reasonable time	P
5	Airconditioning at the restaurant (e.g., how disturbing is the cigarette smoke and the smell of cooking)	S
6	Decor and lighting	S
7	The mixture of customers	S
8	Other customers' behavior	S
9	The atmosphere of the dining area	S
10	Cleanness of the restaurant	S
11	Functionality and cleanness of the restrooms	S
12	Friendliness of service	P
13	Variation of the menu	F
14	The cleaning away of dishes from the table	P
15	Taste of food	F
16	Looks of food	F
17	Size of portion	F
18	Price/quality relation of food	F
19	Sound volume at the restaurant	S
20	The music	S
21	Functionality of the furniture	S

S = Servicescape attributes
P = personnel attributes
F = food attributes

Appendix 2
Description of the Direct Measures used in the Study

Construct	Type	No	Scale	End-points	Answered by all
Comparison Standards					
Excellent service	Attribute-specific	21	10-point	Worst - ideal restaurant	yes
Best brand norm	Attribute-specific	21	10-point	Worst - ideal restaurant	
Brand norm	Attribute-specific	21	10-point	Worst - ideal restaurant	
Product type norm	Attribute-specific	21	10-point	Worst - ideal restaurant	
Predictive expectations	Attribute-specific	21	10-point	Worst - ideal restaurant	
Minimum tolerable	Attribute-specific	21	10-point	Worst - ideal restaurant	
Deserved	Global	1	7-point	Bad deal - good deal	yes
Equity	Global	2	7-point	The restaurant gained more than I did - I gained more than the restaurant	yes
			7-point	My friends/gained more than I did - I gained more than my friend/s	yes
Performance					
Performance this time	Attribute-specific	21	10-point	Worst - ideal restaurant	yes
Performance over time	Attribute-specific	21	10-point	Worst - ideal restaurant	
Satisfaction					
Satisfaction with restaurant this time	Global	1	7-point	Very unsatisfied - very satisfied	yes
Satisfaction with restaurant over time	Global	1	7-point	Very unsatisfied - very satisfied	yes
Intentions to behave					
Intentions to revisit this restaurant	Global	1	7-point	Definitely not - Definitely yes	yes

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Send correspondence regarding this article to:
Veronica Liljander
Department of Marketing and Economic Geography
Swedish School of Economics and Business Administration
Arkadiagatan 22
00100 Helsinki, FINLAND