Reality or perception? The effect of actual and perceived performance on satisfaction and behavioral intention

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To appear in the *Journal of Service Research*

MGSM WP 2003-1

January 2003
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MGSM WP 2003-1

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This research was supported by a grant from the Institute for the Study of Business Markets.

The authors would like to thank the Editor and anonymous reviewers of the Journal of Service Research for their helpful suggestions concerning the revision of the paper.
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Abstract

The extent to which actual (rather than perceived) performance influences customer satisfaction has received limited attention by researchers, yet it is important for managers to understand the extent to which customer perceptions and behavioral intentions are associated with actual service performance. This study investigates the links between actual and perceived performance, customer standards, attributions, satisfaction and behavioral intention. The results suggest actual performance is a significant predictor of customer satisfaction, separate from its indirect association via perceived performance. Customers’ comparison standards are also suggested to impact on satisfaction both directly and indirectly. Customer attributions, in contrast, do not appear to influence performance judgments, but are significantly associated with satisfaction levels. Customer experience is shown to be associated with satisfaction via an interaction effect, and also to be significantly associated with behavioral intentions. The implications for research and management are discussed.
INTRODUCTION

There is a large amount of evidence to show that customer satisfaction and behavioral intention are influenced by customers’ perceptions of performance (see for example Anderson and Sullivan 1993; Bearden and Teel 1983; Cadotte, Woodruff, and Jenkins 1987; Churchill and Surprenant 1982; Oliver 1977; Spreng and Olshavsky 1993; Swan and Combs 1976; Westbrook and Reilly 1983). While the effect of performance on satisfaction has been well established, the way in which it influences satisfaction is not clear. In a comprehensive review, Oliver (1997) identifies conflicting studies that show a direct effect of performance on satisfaction, indirect effects via disconfirmation, and both direct and indirect effects. More recent studies, however, have argued that performance effects should be modeled directly, rather than by a disconfirmation effect (e.g. Brady, Cronin, and Brand 2002; Page and Spreng 2002). Part of the reason for conflicting results on the effect of performance may be that very few studies have differentiated between actual and perceived performance, even though the limited research available suggests that customers may estimate actual performance inaccurately (Hornik 1984). The extent to which actual performance influences perceived performance, and in turn judgments of satisfaction and behavioral intention, is consequently unclear.

This paper addresses this gap in the literature by estimating the relationships between actual and perceived performance, satisfaction judgments and behavioral intention, after allowing for effects due to customers’ comparison standards, experience and attributions. Measures of actual performance are often available to managers on a continuous basis, in contrast with measures of perceived performance, which are typically gathered less frequently, and which even when regularly compiled, are usually only available to managers after some delay for collection, analysis and information dissemination. If actual performance is a significant predictor of customer evaluations, information on customer judgments can be
inferred and continuously updated, without waiting for calibration against perceived performance judgments. Understanding the way that customers’ perceptions of performance are influenced by actual performance, and by other variables such as customers’ comparison standards and their attributions for service problems, can thus assist management to identify managerial leverage points and how these vary according to customers’ comparison standards, experience and attributions. By investigating the respective effects of actual and perceived performance on satisfaction and behavioral intention, the paper makes a distinctive contribution to the understanding of customer evaluations.

**LITERATURE REVIEW**

For most products or services there are aspects of performance that can be objectively assessed (e.g. delivery performance, waiting time, interest rates, etc). While these attributes can be objectively measured, customers’ assessments may not reflect objectively measured performance. For example it is known that assessment of waiting time will be influenced by a number of factors unrelated to actual waiting time (Clemmer and Schneider 1993; Gail and Scott 1995; Kumar, Kalwani, and Dada 1997; Rust, Zahorik, and Keiningham 1994). Several authors have noted this importance of distinguishing between actual performance and customers’ perceptions of performance (Holbrook and Corfman 1985; Iacobucci, Grayson, and Ostrom 1994; Parasuraman, Berry, and Zeithaml 1985; Yi 1990). However there has been limited investigation of the difference in practice, possibly because measures of actual performance and the consumer’s calculation of how performance relates to comparison standards are typically not available (Oliver 1997).

Among the few studies that have analyzed the respective effects of actual and perceived performance, Hornik (1984) and Katz, Larson and Larson (1991) compared actual and perceived waiting time. Both studies found an association between the two, but found that consumers tend to over-estimate waiting time. Katz, Larson and Larson also found that
satisfaction decreased as actual waiting time increased, though it was not clear to what extent satisfaction was driven by perceived and/or actual waiting time. Oliver and DeSarbo (1988) examined the effect of actual performance on satisfaction in a simulated stock market exercise but in this study, performance (gains and losses in share transactions) was directly reported to subjects, so there would be little reason to suspect any discrepancy between actual and perceived performance. The study found that actual performance had a significant effect on customer evaluations, even after allowing for the effect of disconfirmation of performance expectations. Rust et al. (1999) also studied the effects of actual performance and variations in performance in an experimental setting where objective past performance (battery life time) was similarly reported to subjects. The study indicated that the effect of disconfirmation, and hence the probability of choice, will depend on both actual performance and on the customer’s distribution of performance expectations. Both the Oliver and DeSarbo (1988) and Rust et al. (1999) studies provide evidence concerning the effect of performance in experimental settings when performance is transparent, but the extent to which this occurs in markets with incomplete information, or when actual performance is less accurately recalled at time of choice, is unclear. This study addresses this gap in the literature by assessing the respective effects of actual and perceived performance on satisfaction. Specifically, we assess the direct and indirect effects of actual performance on satisfaction by means of the following hypotheses. (For the sake of readability, one sided alternative univariate hypotheses have been specified where the direction of association is strongly suggested by the literature. All statistical tests, however, applied more rigorous two-tailed tests, and tested for significance of the partial effect i.e. after allowing for the effect of other factors in the model.)

\[ H_1: \text{Actual performance will be positively associated with perceived performance.} \]
H₂: Actual performance will be positively associated with customer satisfaction after allowing for the effect of perceived performance.

Perceived performance has been strongly established to be positively associated with satisfaction. We formally test this relationship by H₃, thereby also allowing testing of the partial effects of other variables on satisfaction.

H₃: Perceived performance will be positively associated with customer satisfaction.

The effect of performance (either actual or perceived) needs to be assessed in the light of customers’ comparison standards, since there is evidence that higher comparison standards are associated with lower perceived performance (Tse and Wilton 1988) and/or lower satisfaction (Gardial et al. 1994; Tse and Wilton 1988; Westbrook and Reilly 1983; Woodruff, Cadotte, and Jenkins 1983; Oliver and Burke 1999). However it is not clear if the effect of comparison standards is indirect, by influencing the subjective evaluation of performance, or directly on satisfaction. For example, Johnson, Anderson and Fornell (1995) and Tse and Wilton (1988) found that customer expectations influenced performance, while other studies have found that customers’ comparison standards impacted directly on satisfaction (Gardial et al. 1994; Westbrook and Reilly 1983; Woodruff et al. 1983), and Oliver and Burke (1999) found an effect on both performance and satisfaction. As a result of these different findings, we model both direct and indirect effects of comparison standards on satisfaction in order to separate these potentially different paths. In addition, the direction of association between comparison standards and satisfaction is unclear. Most studies have suggested that higher comparison standards will be associated with lower satisfaction, consistent with a disconfirmation of expectations effect. In contrast, however, several authors have suggested that higher expectations will be associated with higher levels of satisfaction, possibly due to previous experience with the product or service resulting in higher expectations (Iacobucci et al. 1994; Oliver 1977; Oliver 1997; Olshavsky and Miller 1972).
These differing results may be in part explained by the use of different comparison standards (see for example, Boulding et al. 1993; Olshavsky and Miller 1972). We use a ‘desired’ standard, (customers’ rating of ‘best achievable performance’) following evidence that ‘desired’ standards are better predictors of satisfaction (Page and Spreng 2002). However the conflicting results concerning the effect of different comparison standards on satisfaction do not provide a strong argument that the effect would be positive or negative. As a result, we propose and test two sided hypotheses reflecting the potential direct and indirect effects of comparison standards on satisfaction.

H4: Customers’ comparison standards will be associated with perceived performance.

H5: Customers’ comparison standards will be associated with satisfaction.

There is also evidence that perceptions of performance may be influenced by customers’ attributions for problems. Research has shown that individuals make attributions about the cause of an event, and that these attributions influence future expectations and perceptions of events (Weiner 1992; Weiner, Russell, and Lerman 1979). The nature of customer attributions has important implications for consumer evaluations, but has received limited research in marketing (Weiner 2000). In particular, attribution research in marketing has often used Weiner’s classification of internal and external attributions, where any external attribution is with the product or service provider, and not controllable by the individual (Gail and Scott 1995; Hunt and Chandran 1991; Oliver and DeSarbo 1988; Taylor 1994). However consumers are unlikely to attribute product or service failure to themselves (Folkes and Kotsos 1986; Valle and Wallendorf 1977). When a customer receives a service and judges its performance, any performance problems may be attributed to factors within the service supplier’s control, or to elements outside its control. This would be expected to have implications for satisfaction, but satisfaction has generally not been investigated as a primary dependent variable of attributions (Oliver 1997). Thus this study extends previous work on
attributions in the marketing field by examining the effect on satisfaction of attribution for problems to factors directly within, or external to, the control of the service organization. The way in which attributions might influence satisfaction judgments has not been well established in the literature. It is possible that attributions could directly influence a) evaluations of performance (Woodside, Sertich, and Chakalas 1987) b) satisfaction with the outcome (Bitner 1990; Folkes, Koletsky, and Graham 1987) and/or c) behavioral intention (Folkes 1984; Richins 1983). As a result, we test for direct effects of attributions on all three dependent variables: perceived performance, satisfaction and behavioral intention.

H₆: Attribution of problems to factors outside the control of the service provider will be positively associated with perceived performance.

H₇: Attribution of problems to factors outside the control of the service provider will be positively associated with satisfaction.

H₈: Attribution of problems to factors outside the control of the service provider will be positively associated with behavioral intention.

Satisfaction and behavioral intention may also be influenced by consumers’ experience with the product or service. For experienced customers, satisfaction at any time is likely to be a function of previous encounters with the product or service. For example, Anderson and Fornell (1994) found that the largest predictor of satisfaction at time \( t \) is the pre-existing level at time \( t - 1 \), suggesting that those with at least some experience may make satisfaction judgments differently from novices. Experience has been shown to be associated with performance (Patterson and Johnson 1995) brand evaluations (Zaichowsky and Simpson 1996) satisfaction (Patterson 2000; Ram and Jung 1991) and judgments of value (Bolton and Drew 1991). Experience may also directly influence behavioral intentions: Rust et al. (1999) showed that updating of performance expectations will depend on prior knowledge, and suggested that cumulative customer experience would then have a direct influence on
behavioral intentions. We therefore test for an effect of experience on both satisfaction and
behavioral intention:

H9: Customer experience will be positively associated with satisfaction.

H10: Customer experience will be positively associated with behavioral intention.

Customer experience with the product or service is also likely to have an effect on
satisfaction by influencing customers’ expectations, and/or their perception of performance.
Few studies, however, have examined the updating of expectations, and Oliver points to the
necessity of work in this area (1997, p. 89). For example Oliver suggests that high customer
expectations may be the result of previously experienced high levels of performance,
suggesting that high expectations (for experienced customers) may predict high levels of
satisfaction. As a result, the effect of customers’ comparison standards and/or perceptions
might be expected to change as customers become more experienced. Taylor (1997) has
identified that the role of expectancy disconfirmation in satisfaction formation is not well
understood, and has suggested that interactions based on different comparison standards may
provide a meaningful research emphasis. As a consequence, we test for an interaction effect
between experience and comparison standards (H11), and between experience and perceived
performance (H12).

H11: The effect of comparison standards will depend on customer experience.

H12: The effect of perceived performance will depend on customer experience.

Customer satisfaction, unsurprisingly, has been well established to be positively
associated with behavioral intention. We formally test this relationship with H13, i.e.:

H13: Customer satisfaction will be positively associated with behavioral intention.

In addition to the separated hypotheses listed above, we also test the fit of the overall
model, as shown in Figure 1.
The model was tested in the vehicle transportation market, because in this market, there are objective measures of performance (damage rates, vehicle delivery time) yet it is not clear to what extent actual performance and/or perceived performance contribute to customer evaluations. The market thus provides an opportunity to build on the work of Oliver and DeSarbo (1988), who studied the effect of performance in an experimental setting where measures of actual performance were directly available to consumers. This study collected data evaluating the perceived performance of a service provider, a vehicle transporter, on a specific attribute, the rate of damage to cars transported to vehicle dealerships. (Damage rates had previously been identified as a critical attribute contributing to overall dealer satisfaction.) Data was collected through a census survey sent to every dealership for the two largest auto companies in the country. Respondents for the survey were chosen using a sample stratified by dealership role to select respondents from the three positions who have most to do with the transport of vehicles; Dealer Principal, Stock Controller and Sales
Manager. In large dealerships, these roles are separate, but in smaller dealerships one individual will often fill two or more of these roles, so responses were combined for the purposes of analysis.

Perceived performance (estimated percentage of vehicles damaged in transit), satisfaction with the damage rate, customer experience and customer attributions for the cause of problems (provider attribution) and behavioral intention (intention to use) were assessed by the survey. Actual performance (the percentage of vehicles damaged in transit) was obtained from company records for the proceeding three month period for each dealership, allowing perceived performance ratings to be matched with the actual delivery performance experienced by the respondent’s dealership. (Vehicle damage is inspected for and recorded at delivery, so accurate records are maintained for this variable.) Full details of the item measures are given in Appendix 1.

The survey achieved a response rate of 65.6%, or 444 responses. All variables were standardized and the full model was tested using structural equation modeling with Lisrel 8.30. The interaction effect was modeled using the indicant product approach discussed by Kenny and Judd (1984) and Rigdon, Schumacker and Wothke (1998). Respondents answering a ‘don’t know’ option to any of the variables or other cases of missing data were excluded from the analysis, resulting in 291 useable responses.

RESULTS

The estimated standardized path coefficients for the fitted model are shown in Table 1, and the results for specific hypotheses are shown in Table 2. A selection of fit indices is given in Appendix 2. The fit measures suggest that the model provides a good fit for the data (Hu and Bentler 1999).
Table 1: Parameter estimates from the path analysis

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Perceived performance</th>
<th>Satisfaction</th>
<th>Intention to use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Path coefficient</td>
<td>Std error</td>
<td>t</td>
</tr>
<tr>
<td>Comparison standard</td>
<td>0.33</td>
<td>0.051</td>
<td>6.49*</td>
</tr>
<tr>
<td>Actual</td>
<td>0.35</td>
<td>0.052</td>
<td>6.72*</td>
</tr>
<tr>
<td>Attribution</td>
<td>0.07</td>
<td>0.052</td>
<td>1.28</td>
</tr>
<tr>
<td>Perceived Experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience* standard</td>
<td>0.08</td>
<td>0.044</td>
<td>1.82</td>
</tr>
<tr>
<td>Experience* perceived</td>
<td>-0.16</td>
<td>0.040</td>
<td>-3.49*</td>
</tr>
<tr>
<td>Satisfaction</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$df = 275$  *Significant at $p = 0.05$

Table 2: Summary of hypothesis results

<table>
<thead>
<tr>
<th>H</th>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Actual performance will be positively associated with perceived performance</td>
<td>Supported</td>
</tr>
<tr>
<td>2</td>
<td>Actual performance will be positively associated with customer satisfaction after allowing for the effect of perceived performance.</td>
<td>Supported</td>
</tr>
<tr>
<td>3</td>
<td>Perceived performance will be positively associated with customer satisfaction.</td>
<td>Supported</td>
</tr>
<tr>
<td>4</td>
<td>Customers’ comparison standards will be associated with perceived performance.</td>
<td>Supported</td>
</tr>
<tr>
<td>5</td>
<td>Customers’ comparison standards will be associated with satisfaction.</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>Attribution of problems to factors outside the control of the service provider will be positively associated with perceived performance.</td>
<td>Not supported</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>7</td>
<td>Attribution of problems to factors outside the control of the service provider will be positively associated with satisfaction.</td>
<td>Supported</td>
</tr>
<tr>
<td>8</td>
<td>Attribution of problems to factors outside the control of the service provider will be positively associated with behavioral intention.</td>
<td>Not supported</td>
</tr>
<tr>
<td>9</td>
<td>Customer experience will be positively associated with satisfaction.</td>
<td>Not supported</td>
</tr>
<tr>
<td>10</td>
<td>Customer experience will be positively associated with behavioral intention.</td>
<td>Supported</td>
</tr>
<tr>
<td>11</td>
<td>The effect of comparison standards will depend on customer experience.</td>
<td>Not supported</td>
</tr>
<tr>
<td>12</td>
<td>The effect of perceived performance will depend on customer experience.</td>
<td>Supported</td>
</tr>
<tr>
<td>13</td>
<td>Customer satisfaction will be positively associated with behavioral intention.</td>
<td>Supported</td>
</tr>
</tbody>
</table>

**DISCUSSION**

The results provide a number of insights into the way in which customers appear to make judgments about performance in this market, and how those judgments are associated with subsequent evaluations of satisfaction and behavioral intention.

*Performance judgments*

Actual performance, not surprisingly, was significantly and positively associated with perceived performance. \( H_1 \) was therefore supported. However the estimated path coefficient was 0.35 (s.e. = 0.052) suggesting that for each unit change in actual performance, there was only a change of 0.35 of a unit in perceived performance. An assumption of improvement programs is often that improvements in performance will be noticed by customers, but these results show that this may not be so. In this case, increases in actual performance were not
associated with equivalent increases in perceived performance. The results suggest that in such a situation, management might benefit from providing feedback to customers about actual performance and performance improvements, in an attempt to ensure greater correspondence between actual performance and customer evaluations of that performance.

Customers’ ratings of the best achievable industry performance were also significantly and positively associated with judgments of perceived performance (H₄). Customers who believe that high levels of performance are achievable tended to rate performance higher, on average, even after adjusting for the effects of actual performance. However the direction of causality in this association is unclear, and needs to be investigated in future work. It is possible that customer standards drive perceptions of performance, in line with a confirmation bias or halo effect—a prior belief about the capacity of the company influencing perceptions of performance (Beckwith and Lehmann 1975; Bernadin et al. 1987; Nisbett and Wilson 1977a). It is also possible that the causation is in the opposite direction, and that what customers judge to be ‘best achievable’ for industry performance is largely determined by some function of the performance that they are currently receiving. This effect, or ‘backward assimilation’ was tested and supported by Oliver and Burke (1999) who found that retrospective measures of expectations were partially influenced by performance observations. Alternatively, a third variable may be driving both performance and expectations, such as the distance over which vehicles are transported. For example shorter distances would be associated with higher levels of performance (in this case lower levels of damage) and higher expectations of performance. In each case, the results suggest that customers’ comparison standards are not independent of recent performance.

After allowing for the effects due to actual performance and comparison standards, the customer’s attribution for the cause of problems was not significantly associated with the level of perceived performance. H₆ was therefore not supported.
Satisfaction

Not surprisingly, the factor most strongly associated with satisfaction was perceived performance ($H_3$). However the study also found that actual performance was significantly associated with satisfaction, even after allowing for the effect due to perceived performance. $H_2$ was therefore supported. Our results are consistent with recent findings by Page and Spreng (2002), who found that performance was the major predictor of satisfaction. Our study extends their work by suggesting that measures of actual performance, if available, can further improve the prediction of satisfaction. This suggests that the effect of actual performance on satisfaction is not completely mediated by respondent perceptions of performance: actual performance had both a significant direct and indirect effect on satisfaction, and it is interesting to compare their relative magnitudes. The direct effect (from Table 1) is the coefficient of actual performance on satisfaction, 0.10. The indirect effect is obtained from multiplying the standardized coefficient of actual on perceived performance times that of perceived performance on satisfaction, $0.35 \times (0.62) = 0.217$. This shows that 69% ($= 0.217/(0.217+0.10)$) of the effect of actual performance on satisfaction was felt through its influence on perceptions, while 31% of it was felt directly. The reasons why actual performance would have a direct effect on satisfaction, even after allowing for its indirect effect, are not clear, since one might expect the effect of actual performance to be completely mediated by perceived performance. Kalwani et al. (1990) found that consumers' perceptions of performance may overweight recent events, and/or be anchored on extreme performance. In this case, actual performance was measured by performance over the three months prior to the survey, so it is possible that evaluations of performance were dominated by very recent performance, or particular problems, while satisfaction judgments were more impacted by average performance. There is also evidence from the field of psychology that evaluations can be influenced by stimuli of which a person is unaware: Nisbett and Wilson
(1977b) presented evidence from a wide range of studies of judgments and behavior to suggest that individuals are often unaware of a stimulus that caused a response, and unaware that the stimulus influenced the response. In their terms, respondents may have been consciously unaware that performance was different from the level they reported, but nevertheless, the actual level of damage was processed at some cognitive level and was thus able to influence satisfaction judgments. An alternative explanation is that some survey respondents may consciously under-estimate performance to avoid allowing management to become complacent. Whatever the explanation, the significant direct effect of performance on satisfaction suggests that adding a measure of actual performance, if available, will increase a model’s ability to predict satisfaction.

The results also showed that customer attributions were significantly associated with satisfaction. If the source of problems was attributed to the company, satisfaction was significantly lower than if the cause of problems was seen to be external to the company (H7). This suggests an important avenue for management research and action. If management can understand customer attributions, and influence those attributions when external factors are responsible for problems, then customer satisfaction may be able to be influenced, independent of changes in actual or perceived performance.

Consistent with past research, the study also found an association between customers’ comparison standards and satisfaction. H5 was therefore supported. While previous research has clearly established an effect of comparison standards on satisfaction, this study suggests that the effect of standards is both direct and indirect (via the effect of perceived performance). Comparison standards appear to have a double effect, firstly influencing customers’ judgment of performance, and then affecting satisfaction with that perceived level of performance. Some previous studies have suggested the effect of comparison standards would be negative i.e. that lower expectations would be associated with a higher possibility of
exceeding those standards, resulting in higher satisfaction. In contrast, this study found a positive association, but the direction of causality, as discussed above, is unclear. These results are consistent with Oliver’s discussion of an ongoing spiral where experience of a product or service drives expectations, which in turn influence evaluations (1997). The difference between these results and earlier studies that found a negative effect of comparison standards might therefore be because many studies have examined satisfaction with products with which the respondent had no prior experience.

The importance of experience in modeling satisfaction is reinforced by the significant interaction between customer experience and perceived performance. At lower levels of perceived performance, experienced customers were less satisfied than less experienced customers. Previous research (e.g. Patterson 2000; Ram and Jung 1991) has shown an association between customer experience and satisfaction, but this study suggests that the effect of experience is not clear cut, and may depend on the level of perceived performance. This study failed to find a significant main effect of experience on satisfaction (H₉ was not supported). Instead it found an effect of experience on satisfaction via an interaction effect (H₁₂): the effect of perceived performance varied according to customers’ level of experience. This finding suggests that future researchers should model interaction effects when considering the effect of experience. While this study did not find the significant effect of experience on satisfaction found by previous studies, this may be due to the failure of other studies to model an interaction between experience and perceived performance. Failure to model unobserved interaction effects is likely to lead to difficulties in interpreting the importance of different variables (Taylor 1997).

Behavioral intention

Consistent with past studies, and unsurprisingly, willingness to reuse the service was strongly associated with satisfaction (H₁₃). The results also show that willingness to re-use is
positively associated with the level of customer experience, even after allowing for the effect of experience on satisfaction (H$_{10}$). More experienced customers were more willing to re-use the service, on average, at any given level of satisfaction. This is consistent with the suggestion by Rust et al. (1999) that experience will have a direct effect on behavioral intentions, possibly by resulting in lower levels of uncertainty. The effect of customer attributions, in contrast, was via their effect on satisfaction. After allowing for the indirect effect of attributions on behavioral intention via satisfaction levels, attributions for the cause of problems were not significantly associated with willingness to re-use the service (H$_8$).

The study’s results have clear implications for management. Companies that have improved performance may benefit from emphasizing this to customers, rather than assuming that the customer will observe the improvement, following Oliver’s suggestion that raising customers’ expectations can result in higher levels of satisfaction (1997). This approach is supported by the findings of Rust et al. (1999) that probability of choice is strongly influenced by uncertainty of outcomes. Provision of information concerning actual performance would then be a strategy for decreasing uncertainty, and hence increasing the probability of choice.

The strong association between actual performance and satisfaction, both directly and indirectly, also offers management an opportunity to model satisfaction from measures of actual performance. While this is likely to result in lower predictive ability than direct measurement of customer satisfaction, it offers the potential to estimate satisfaction continuously, without the cost or time of continuous survey measures.

For both researchers and management, the study suggests that adding measures of actual performance, where available, to satisfaction models can result in better prediction of satisfaction. Similarly the results suggest that researchers should test for a possible interaction between customer experience and perceived performance. Increasingly, researchers are acknowledging that customers’ expectations will be updated as experience increases, and
more experienced customers are likely to have more strongly held, and possibly more accurate, expectations. It therefore makes sense to test for a direct effect of experience on satisfaction, as suggested by several studies, but also to test for interactions between experience, comparison standards and perceived performance.

The study also suggests that an investigation of customer attributions may be fruitful in explaining satisfaction. Consistent with previous studies, we found a direct effect of attributions on satisfaction. If management can understand and possibly alter attributions for problems, customer satisfaction might be increased without real changes in performance. The attribution measure used in this study needs further development, but still found that attributions were a significant predictor of customer satisfaction. As noted by Oliver (1997), there has been little work on attribution scales in marketing, and development of more sensitive attribution scales is likely to lead to increased understanding of the role of attributions.

**CONCLUSION AND SUMMARY**

The study demonstrates the importance of understanding the factors that contribute to customer judgments, apart from merely measuring perceived performance and/or satisfaction. Firstly, the study contributes to the very limited work on the effect of actual performance. It suggests that measures of actual performance, if available, should be modeled in addition to measures of perceived performance. This may help to achieve a better understanding of the relationship between actual and perceived performance, and also a better prediction of satisfaction. The study reinforces the importance of customer experience, and suggests that experience may impact on satisfaction (via an interaction effect) and also on willingness to re-use a service. In particular, it suggests that perceived performance needs to be considered in the light of customer experience, and modeled using an interaction effect, supporting the argument of Taylor (1997) for increased testing of higher order and interaction effects in
modeling consumer decision-making. This has implications for management, who may benefit from developing particular retention strategies for different groups of customers. In this study, experienced customers were less satisfied than less experienced customers at low levels of performance, but were more likely to reuse the service at any level of satisfaction, suggesting that retention strategies might most usefully be targeted at less experienced customers. In other industries, this may not be true, and the impact of experience on customer behavior is an area which could usefully be investigated by further research. The research also shows that customer attributions for problems will be important in understanding satisfaction evaluations. The effect of customer attributions, and the results of attempting to manage them, are areas which have had limited research in marketing, and which warrant further investigation, because there is the potential for managers to influence attributions and thus to influence customer satisfaction.

In summary, by investigating and modeling the multiple factors that influence customer judgments, researchers can develop a better understanding of the ways in which customers make judgments about performance, and the consequences of those judgments. An understanding of the antecedents of consumer judgments can then be used by managers in order to target resources more efficiently, to achieve improvements in customer satisfaction and to increase the probability that customers will re-use or recommend a product or service.
Appendix 1: Survey measures

Single-item scales were used for all measures, using the approach of Bolton (1998). Single item measures have been argued to avoid the disadvantages of multiple-item scales, which can inflate across-item error term correlation and undermine respondent reliability (Drolet and Morrison, 2001).

*Sat\(\text{isf}^{+}\)action and behavioral intention.*

Because of the typical skewness of satisfaction scales (Fornell 1992) nine point scales were used to increase the dispersion of responses, in the approach of Westbrook and Oliver (1981) and Kalwani and Silk (1982). Satisfaction with the attribute under investigation, damage, was measured on a nine point scale (completely dissatisfied/completely satisfied, with a neutral mid-point, neither satisfied nor dissatisfied) in a manner similar to Mittal, Ross and Baldasare (1998). Behavioral intention was rated on a similar nine point scale (very unlikely/likely to reuse), with a neutral mid-point (neither likely nor unlikely).

*Actual performance*

Data on actual performance was obtained from the transport company's internal records. The level of actual damage is determined by the number of cars recorded as damaged following inspection on arrival at the dealership premises. Records were obtained for every car delivered to each dealership over the three month period preceding the survey. The proportion of cars damaged was calculated separately for each dealership which had responded to the survey.

*Perceived performance*

Perceived performance was assessed for a specific attribute (transit damage rates), asking respondents to indicate the percentage of vehicles which were delivered damaged on a
five category scale; 0-5%, 6-10%, 11-20%, 21-50% and greater than 50%. Data were then recoded to the midpoint of this scale, or to 50% for the highest category.

Comparison standards

Comparison standards were assessed using customer expectations of best achievable industry standards (Cadotte et al. 1987; Cadotte, Woodruff, and Jenkins 1982; LaTour and Peat 1979), asking respondents to rate the best achievable level of transit damage on a five category scale; 0%, 1-2%, 3-5%, 6-10%, 11-20%.

Attributions

Customer attributions for problems were assessed by asking respondents to rank potential causes of transit damage (six potential causes rated from one to six in order of importance). The highest ranked attribution for damage was recoded as to whether it was within the control of the transporter (e.g. driver care and handling) or outside the control of the transporter (e.g. factory damage).

Experience

Experience with the service provider was assessed by the length of time using the provider (a choice from one of four discrete ranges) from less than six months, 6-12 months, 1-3 years or more than 3 years.
Appendix 2

Following Hu and Bentler (1999), a selection of stand alone and combinatorial cut-off indices was used. All suggest that the model provides a good fit for the data. The values are illustrated in Table 3.

Table 3: LISREL fit indices

<table>
<thead>
<tr>
<th>Index</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardized root mean square (SRMR)</td>
<td>0.012</td>
</tr>
<tr>
<td>Tucker Lewis Index (TLI)</td>
<td>1.06</td>
</tr>
<tr>
<td>IFI (Bollen’s fit index)</td>
<td>1.01</td>
</tr>
<tr>
<td>Comparative fit index (CFI)</td>
<td>1.00</td>
</tr>
<tr>
<td>Root mean square error of approximation (RMSEA)</td>
<td>0.0</td>
</tr>
</tbody>
</table>

REFERENCES


Drolet, Aimee L. and Donald M. Morrison (2001), "Do we really need multiple-item measures in service research?," Journal of Service Research, 3 (3), 196-204.


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