THE ZONE OF TOLERANCE:
EXPLORING THE RELATIONSHIP BETWEEN SERVICE TRANSACTIONS AND SATISFACTION WITH THE OVERALL SERVICE

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ABSTRACT

This paper briefly reviews some of the literature on service quality and in particular the zone of tolerance, the zone of acceptable or expected outcomes in a service experience. The paper uses the zone of tolerance to explore the relationships between customers' satisfaction with individual transactions, or service encounters, and their satisfaction with the overall service. Nine propositions are provided which identify how customers' perceptions of the quality of a service can be influenced and how the thresholds of the zone of tolerance can be adjusted during the process of service delivery. The paper also considers some of the design implications of the propositions.

INTRODUCTION

Various models have been used and developed over the last ten years to explain satisfaction and service quality. The most widely used and accepted satisfaction theory arising from the consumer behaviour literature is the disconfirmation theory (see, for example, Churchill and Surprenant 1982, Woodruff et al 1985, Swan 1988, Tse and Wilton 1988, Oliver and DeSarbo 1988, Cooper et al 1989, Vezina and Nicosia 1990, Bolton and Drew 1991). The disconfirmation theory holds that satisfaction is related to the size of the disconfirmation experience, where disconfirmation is related to the person's initial expectations (Churchill and Surprenant, 1982).

This theory is very similar to the service quality model, found in the service management literature, which has been developed, most notably, by Berry et al (1985). This model is based on the view that service quality results from customers comparing their expectations prior to receiving service to their perceptions of the service experience itself. If a customer's perceptions were matched by his/her expectations, then the customer is satisfied with the service. If the experience was better than expected, then perceived service quality is high and the customer is delighted. If the experience did not meet expectations then service quality is perceived to be poor and the customer is dissatisfied (see also Parasuraman et al 1985, Brogowicz et al 1990, Grönroos 1990, Berry and Parasuraman 1991, Haywood-Farmer and Nollet 1991).

There is a debate to be found in some recent papers concerning the differences between these two constructs and the efficacy of expectation-based evaluations (see, for example, Cronin and Taylor 1992, Cronin and Taylor 1994, Taylor 1993, Oliver 1993, Parasuraman, Berry and Zeithaml 1994). The premise on which this paper is based is that satisfaction with a service is the antecedent to service quality (see, for example, Rust and Oliver 1994) and that a customer's satisfaction with individual transactions, or service encounters, affects the customer's dis/satisfaction with the overall service experience (see also Bitner and Hubbert 1994). This view of satisfaction, as the result of a developmental process, is also supported by Tse and Wilton (1988), Oliver and DeSarbo (1988), Swan (1992) and Erevelles and Leavitt (1992).

This article attempts to understand the links between customers' dis/satisfaction with a series of transactions, or service encounters, and their overall dis/satisfaction with the whole service experience. The purpose of the paper is to generate some propositions to help better understand how customers' perceptions can be managed during the process of service delivery.

THE ZONE OF TOLERANCE

One construct that has emerged from both the service management and the consumer behaviour literatures, though sometimes under slightly different names and defined in slightly different ways, is the zone of tolerance (see for example Miller 1977, Oliver 1980, Woodruff et al 1985, Swan 1988, Kennedy and Thirkell 1988, Berry and Parasuraman 1991, Zeithaml et al 1993). There appear to be three main, though overlapping, applications of the zone; as a description of an outcome state, a description of a range of pre-performance expectations, and as the satisfactory range of in-process service performances.

The service quality/disconfirmation model has three *outcome states* on a variable scale. The three states are "dissatisfaction", resulting from poor perceived quality (negative disconfirmation), "delight" from high quality (positive disconfirmation) and "satisfaction" from adequate quality (confirmation). It is this satisfaction state that is sometimes defined as the zone of tolerance (see, for example, Kennedy and Thirkell 1988).

A second use of the "zone of tolerance" is its application to *pre-performance expectations*. It is widely accepted that pre-performance expectations, or comparison standards, may range from "minimum tolerable" (see for example Miller 1977, LaTour and Peat 1979) to "ideal" (see for example Miller 1977, Mattsson 1992) with "deserved" (Miller 1977, Woodruff et al 1985), "desirable" (Olshavsky and Spreng 1989, Spreng and Olshavsky 1992) and "adequate" (Berry and Parasuraman 1991, and Zeithaml et al 1993) somewhere in between. Poiesz and Bloemer (1991) suggested that it would be more appropriate to see expectations as zones rather than as discrete points on a scale, indeed Berry and Parasuraman suggested that the zone of tolerance mediates between customers' desired level of service and an adequate level of service.

Berry and Parasuraman (1991) also defined the zone of tolerance in terms of the customer's evaluation of *in-process service performances*. "The zone of tolerance is a range of service performance that a customer considers satisfactory. A performance below the tolerance zone will

engender customer frustration and decrease customer loyalty. A performance level above the tolerance zone will pleasantly surprise customers and strengthen their loyalty".

This process of evaluation may not be straightforward because it entails the evaluation of the series of transactions or encounters within the service process (Swan and Combs 1976, Johnston 1987). Tse and Wilton (1988) argued that this process is complex because it is comprised of many "simultaneous interactions that may involve more than one comparison standard - a process of multiple comparisons (which might occur either simultaneously or sequentially)". This view of satisfaction as the result of a developmental process is also supported by Oliver and DeSarbo (1988) and Erevelles and Leavitt (1992). Swan (1992) too recognised this process although he claimed that the literature "has not provided much in the way of detail on the processes involved in the production and consumption of services".

The importance of the zone of tolerance is that customers may accept variation within a range of performance and any increase in performance within this area will only have a marginal effect on perceptions (Strandvik 1994). It is only when performance moves outside of this range that it will have any real effect on perceived service quality. The following propositions attempt to extend our understanding of the zone of tolerance and to describe the potential effects of service encounters outside the zone of tolerance.

PROPOSITIONS AND IMPLICATIONS

P1   There are three interlinked zones of tolerance

Poiesz and Bloemer (1991) suggested the need for an in-process evaluation zone that links expectation zones and outcome zones. It is proposed that the zone of tolerance can be used as the unifying construct between expectations, performance and outcome, see figure 1.

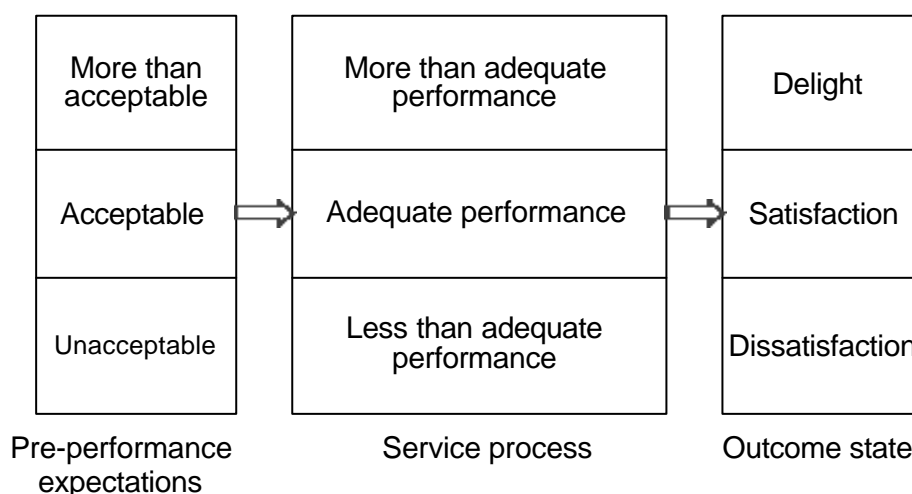| More than acceptable	More than adequate performance	Delight
Acceptable	Adequate performance	Satisfaction
Unacceptable	Less than adequate performance	Dissatisfaction
Pre-performance expectations	Service process	Outcome state

Figure 1   Three zones of tolerance

It is assumed that customers enter a service process with a consciously or sub-consciously held view of what constitutes an acceptable, less than acceptable and more than acceptable level of service, based upon prior experiences, the organisation's image, or secondary data sources. What constitutes each of these levels may be a very specific notion comprising a clear set of "requirements" or it may be an inexplicit and unstated set of beliefs. Even when a customer has not purchased or used a particular service before, it is likely that he/she will have some, albeit fuzzy, notion as to what might be acceptable or unacceptable. Those expectations which are considered to be acceptable are within the customer's expectation zone of tolerance and may range anywhere on the scale between ideal and minimum tolerable.

As a customer enters and is processed through the various transactions or encounters in a service process, those pre-performance expectations are modified as a result of dis/satisfaction with individual transactions. Each of these may be judged, consciously or sub-consciously, to be adequate, more than adequate or less than adequate against the customer's view of what might be acceptable, unacceptable or more than acceptable. Adequate performance is defined as being within the performance zone of tolerance.

These evaluations of performance lead to an assessment of satisfaction with the overall service. The overall outcome is a state of satisfaction, dissatisfaction or delight. This outcome will in turn affect attitudes, behaviour and future purchase intentions as well as the customer's overall impression of the relative inferiority/superiority of the organisation and its services, in other words, its service quality (Bitner and Hubbert 1994). An outcome which is neither dissatisfying nor delighting is defined as being within the customer's outcome zone of tolerance.

Whilst the role of marketers is to influence customers' expectations, the role of operations is to manage, and indeed manipulate, customers' perceptions of the service during the service process in order to gain the desired outcome. And, by so doing, influence customers' future expectations and purchase intentions. The remaining propositions consider ways in which this might be achieved.

> P2   *The width of the expectation zone of tolerance is inversely proportional to the degree of involvement*

Involvement, a term first popularised by Krugman (1965), concerns a customer's perceived importance of a purchase situation (Engel et al 1993). A customer may perceive a purchase to be important for a number of reasons. There may be some perceived risk involved in the purchase or some particular emotional involvement with the purchase or for other reasons it may be of significant interest. The greater the involvement, the more effort will be put into the purchase decision (see, for example, Foxall 1990, Assael 1992). The greater effort will involve a greater search for information, and a greater perceived difference between the available products or services, and a greater awareness about the product or service and its consumption (Engel et al 1993).

The link with satisfaction and dissatisfaction, though not spelled out in the consumer behaviour literature, is that the higher the degree of involvement the greater the customer's sensitivity to satisfaction and dissatisfaction. A customer making a service purchase with little involvement, or little information about the service, could have a very wide zone of tolerance. One with great

involvement, and knowledge of the service, could have a narrow band of tolerance. This point is supported by Berry and Parasuraman (1991) who contested that the width of the zone of tolerance is different for each quality factor and they suggested that, in general, reliability was the most important factor and therefore had the narrowest zone of tolerance.

This potential variation in not only the levels of customers' expectations but also the width of the zones provides difficulties for operations managers in understanding, and then meeting, the needs of customers:

> *P2a   A high level of involvement increases the likelihood of outcomes outside the outcome zone of tolerance*

If the expected zone of acceptable outcomes is narrow, because of a high level of involvement, then the performance zone of tolerance is also narrow. This would imply that customers will be highly sensitive to the service experience suggesting that the satisfactory outcomes zone will also be narrow. There is therefore a greater likelihood of outcomes outside the (outcome) zone of tolerance, see figure 2.

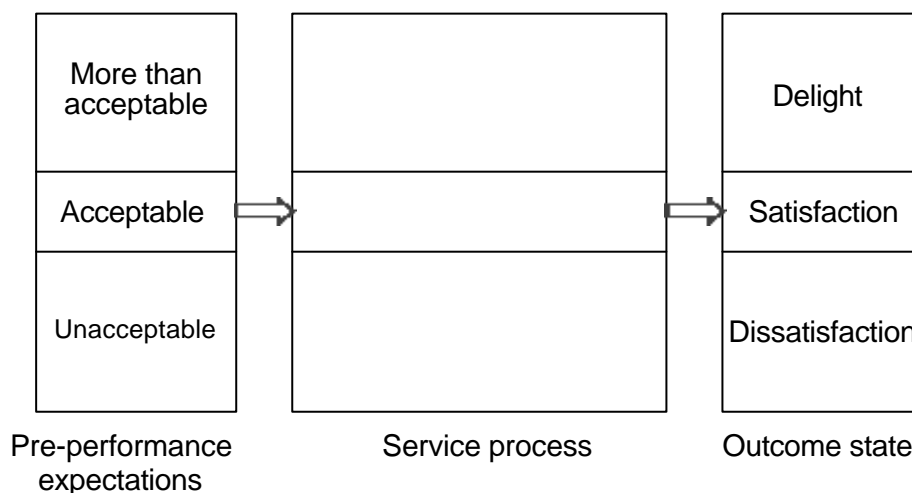| Pre-performance expectations	Service process	Outcome state
More than acceptable		Delight
Acceptable		Satisfaction
Unacceptable		Dissatisfaction

Figure 2   High involvement, narrow zones of tolerance

In the case of an airline flight, for example, a person with no previous experience of flying and envisaging a high risk factor might have very narrow bands of tolerance. He or she may become dissatisfied that no explanation is given for every bump in the air or each unexpected mechanical sound. On the other hand, every piece of information or reassurance provided may lead to a feeling of great satisfaction and relief.

> *P2b   A low level of involvement increases the likelihood of outcomes within the outcome zone of tolerance.*

A customer with a wide zone of expected tolerance, because of a low level of involvement, will have a wide zone of performance tolerance which suggests that only extreme actions within the service process will be noticed and contribute to either high levels of satisfaction or dissatisfaction. That is, there is a greater likelihood of outcomes within the (outcome) zone of tolerance, see figure 3.
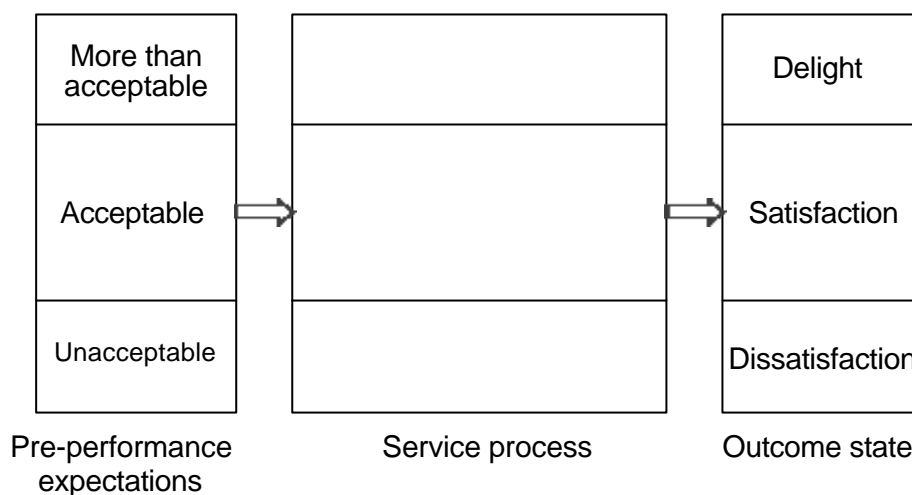
More than acceptable		Delight
Acceptable		Satisfaction
Unacceptable		Dissatisfaction
Pre-performance expectations	Service process	Outcome state

Figure 3   Low involvement, wide zones of tolerance

Consider, for example, passengers who have little "involvement" with the service as they know what to expect, because of previous experiences, or from secondary data sources or because the activity is not seen to be "high risk". In such cases, airline passengers may be less concerned about the lack of information about the bumps and noises and may even read the newspaper or sleep through the emergency briefing.

It is suggested, based on propositions 2a and 2b, that operations managers need to assess customers' likely degree of involvement in the service, before the service takes place. If the intention of the organisation is to satisfy, rather than "delight", having customers with wide zones of tolerance may be ideal. In such cases, the organisation should have mechanisms in place to identify customers with high involvement, and then try to widen their bands of tolerance by putting them at ease, providing them with information and reassurance. If the intention of the organisation is to delight customers, then a narrow zone of tolerance may be of benefit to increase the likelihood of a highly satisfactory outcome. The difficulty is that the customer may also be sensitive to poor performance so any likely problems in the service process need to be eradicated.

P3   Performance within the zone of tolerance may not be noticed

A recent study by Liljander and Strandvik (1993), using conjoint analysis on four variables in satisfaction creation, concluded that the zone of tolerance can be interpreted as a kind of inertia regarding behavioural responses to disconfirmation of expectations. This inertia suggests that customers "expect" that their level of "expectations" will be met and if there is nothing that happens during the process to take their mental state through either of the thresholds they will emerge in a

state of neutrality at the end of the service, i.e. their expectations have been met, though neither exceeded nor negated, see figure 4. It should be noted that the evaluation zones are being used here like a control chart to monitor a customer's perceptions with individual transactions during the service process.
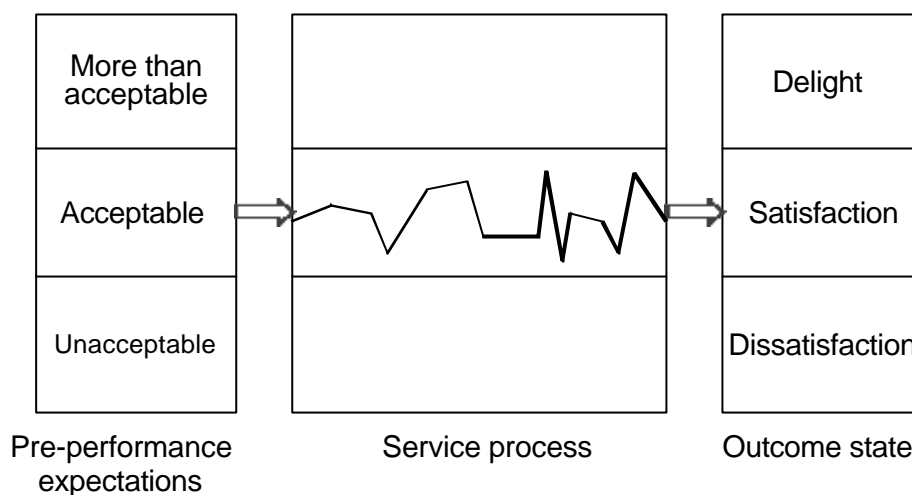

Figure 4   Outcomes within the zone of tolerance

Woodruff et al (1985) suggested that indifferent performance is probably a common occurrence and that only perceived experience outside this area elicits positive or negative feelings about the experience. Olshavsky and Miller (1972) also suggested that when perceptions are close to the norm they remain within a latitude of acceptable performance. It is only when the distance from the norm is great enough that performance is perceived as different from the norm. The difference causes disconfirmation (positive or negative). The critical point is that if the service performance is as expected it is possible that customers may not become aware of the quality of the service.

Trying to ensure that transaction outcomes are within the zone of tolerance may be an appropriate strategy for some organisations. The key task for such organisations might be to ensure that no negative incidents can or do take place whilst not necessarily seeking opportunities to push customers' perceptions above the higher threshold. Any highly satisfactory experiences may raise expectations for future service which may not be met leading to a greater likelihood of dissatisfied customers.

> *P4   Sufficient incursions above the zone of tolerance threshold will result in a highly satisfying outcome (delight).*

As a customer progresses through the service system, activities that cause the customer to notice especially poor or especially good service, i.e. transactions which cross either threshold, will be consciously noticed by the customer.

If there are sufficient incursions above the threshold of the zone of tolerance, the customer will judge the overall standard of the service to be better than expected (satisfaction), see figure 5. Kennedy and Thirkell (1988) noted that customers are willing to absorb some positive (or negative) disconfirmation before expressing them in terms of net satisfaction (or dissatisfaction).
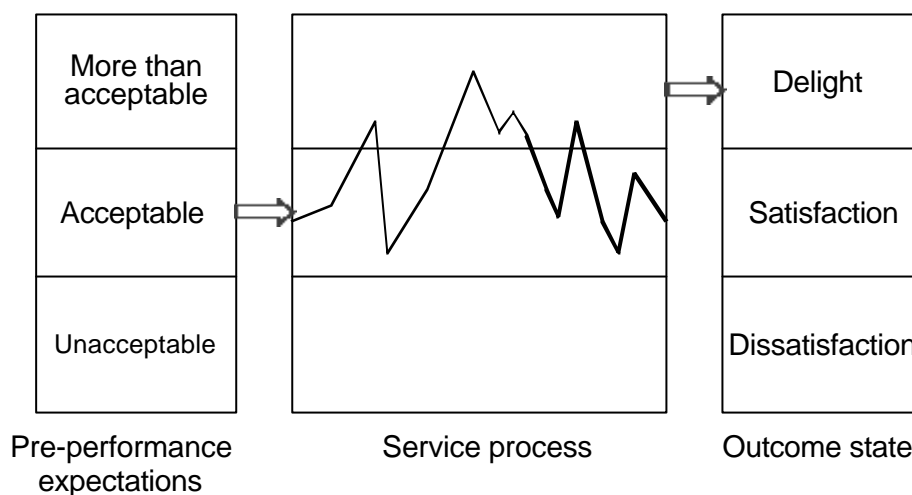

Figure 5   A highly satisfying process

In some service organisations, a leisure park, for example, it might be appropriate to design-in points at which customers' feelings will be driven through the upper threshold to produce a "delighted" state. It is possible that just a small number of these transactions within an overall satisfactory experience, may lead to delighted customers. At Alton Towers, the UK's leading theme park, a number of attractions, including jugglers, clowns and unicyclists, are gathered near the exit later in the afternoon, to "delight" the crowd. Their purpose may not only be to entertain but also to provide memorable positive transactions at the final critical stage in the process.

> *P5   Sufficient incursions below the zone of tolerance threshold will result in a dissatisfying outcome.*

If there are sufficient incursions below the threshold of the zone of tolerance the customer will judge the overall standard of the service to be unsatisfactory, see figure 6.
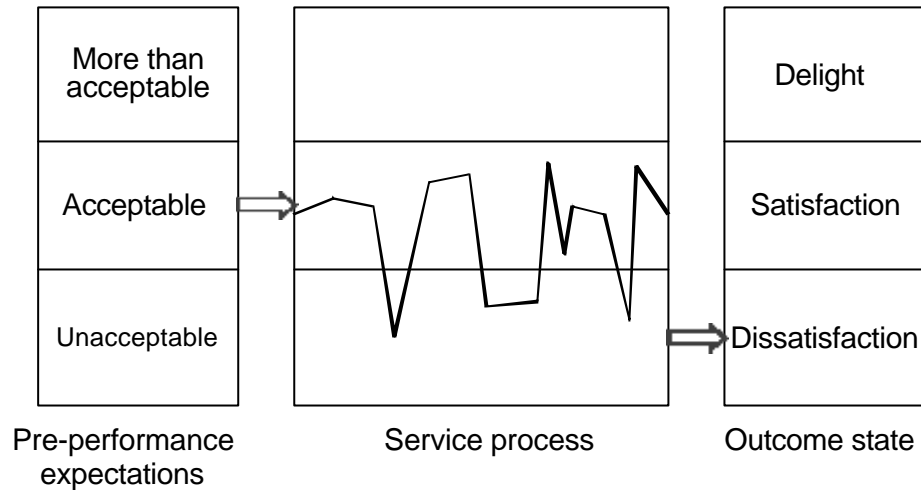
Figure 6   A dissatisfying process

A key task for operations staff is then to isolate and remove those transactions that might have a negative effect. The point is that not all potentially negative transactions need to be removed because some may be too costly or too unpredictable to remove. The critical point is that operations managers need to be aware of just how many negative experiences can be absorbed by their customers. In industries where cost is critical or investment to improve the service is not available, the relationship between customers' tolerance and cost of removing failpoints may need to be investigated and understood.

> *P6   Some dissatisfying and satisfying transactions may be compensatory*

It is possible that some dissatisfying transactions will be compensated for by satisfactory transactions, see figure 7 (see also Kennedy and Thirkell 1988). The final outcome will reflect some degree of balance between dissatisfactory and satisfactory transaction outcomes.
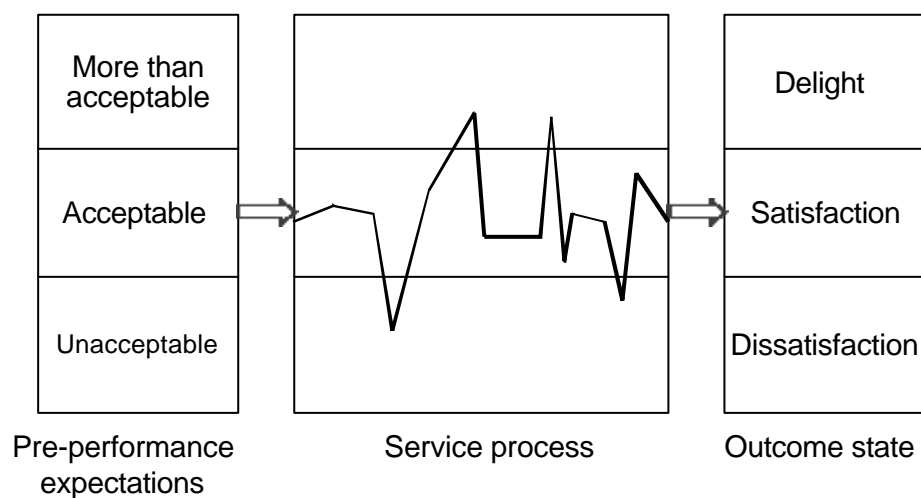

Figure 7   A compensatory process

From an operations point of view, if there are weak points or failpoints in a service system that are maybe too expensive or difficult to remove, the service designer or operator could try to compensate for them by including a number of high spots in the process. How many and where they should occur might be difficult to judge, though. In leisure and education industries, for example, holidays and courses are often designed to have a high spot at the end not only to ensure the event ends well but also maybe to mask or compensate for any earlier failpoints.

> *P7   Several satisfying transactions will be needed to compensate for a single dissatisfying transaction.*

Brandt and Reffett (1989) suggested that customers are more likely to notice bad service than good service. They suggested that "good" service may go unacknowledged and unnoticed by customers because "good" service is the expected outcome of a service delivery system. Customers, however, do notice, and may be dissatisfied by, poor service as it is not usually expected nor wanted. They suggested that when poor service occurs, customers become aware of service quality. "It is only when they experience problems that customers give service quality any attention at all." While the converse may also be true, there is some support for the suggestion that unsatisfactory transactions may have a greater impact on overall outcome than highly satisfactory ones (see also Levitt 1981, Haywood-Farmer and Nollet 1991). In terms of the compensation process, it is proposed that several highly satisfactory transactions will be needed to compensate for each unsatisfactory transaction, see figure 8.
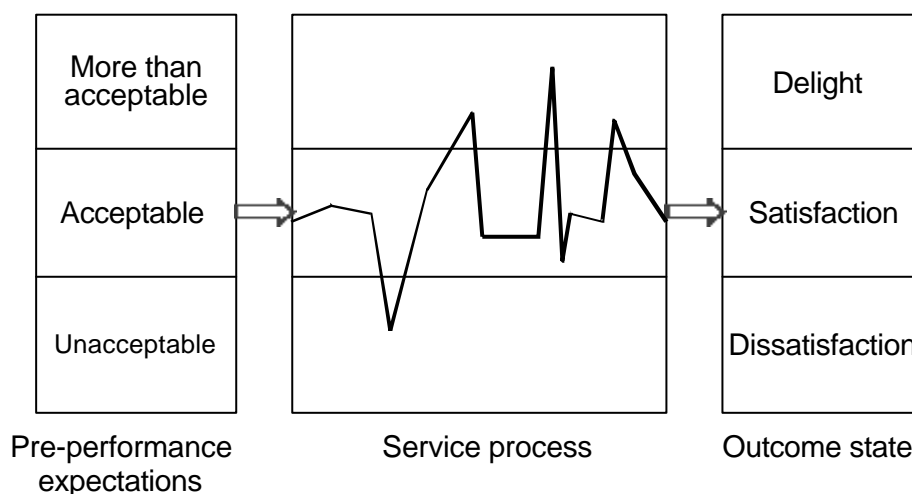

Figure 8   A weighted compensation process

The important point here for operations managers is the need to pay particular attention to the removal of dissatisfying transactions as these may outweigh a smaller number of highly satisfying ones. It is more important to seek out failpoints and remove them than it is to add "delight" factors into the process.

P8   A failure in one transaction may raise the dissatisfaction threshold

It is further proposed that not only will a dissatisfying (or highly satisfying) transaction have an effect on the overall assessment of quality but it may also have an impact on the width of the zone of tolerance.

A failure in a single transaction may add a negative score towards the overall assessment of the service and also sensitize customers to negative aspects of the service. Customers may become more aware of, and indeed actively seek out, other negative experiences. An initial dissatisfying transaction will therefore have the effect of raising the lower threshold, i.e. amending the customer's expectation thresholds during the service thus making a dissatisfactory outcome more likely, see figure 9.
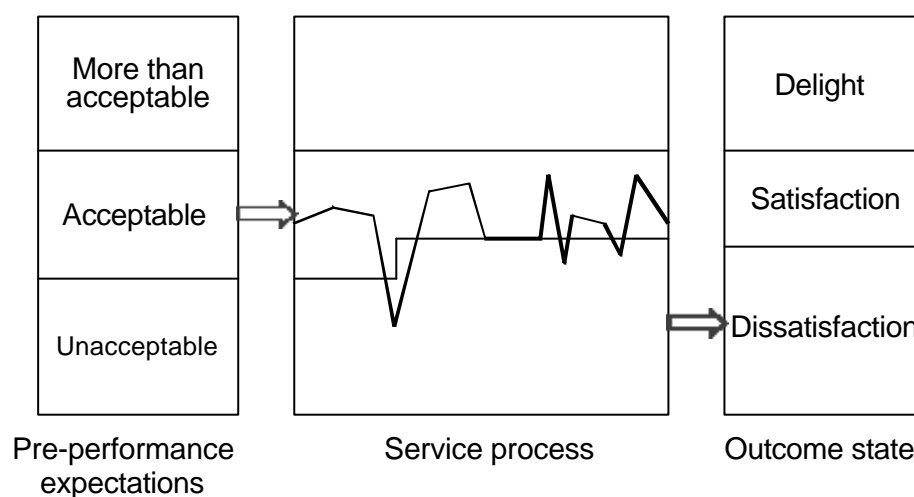

Figure 9   The effect of a transaction failure

The important point is that service transactions that previously may have gone unnoticed may now manifest themselves as dissatisfying experiences as the customer has become more negatively disposed toward the service.

If a customer experiences a long delay before boarding a flight or encounters reception staff in an hotel that have lost the booking, the customer may be more likely to be concerned about having no choice of hot dishes on the flight or a single hair in an otherwise clean bath. If this is the case, operations managers need to be aware of activities in the process, even those for which they may not be responsible, that may have had an effect on customers' thresholds. Furthermore, there is a need to understand how the thresholds can be returned to more normal levels.

P9   Success in one transaction may lower the satisfaction threshold

Conversely, a success in one transaction may sensitize the customer to notice other successes thus lowering their upper threshold and making a highly satisfactory outcome more likely, see figure 10. Transactions that might previously have been seen as satisfying may now be seen as delighting as the customer has become more positively disposed toward the service.
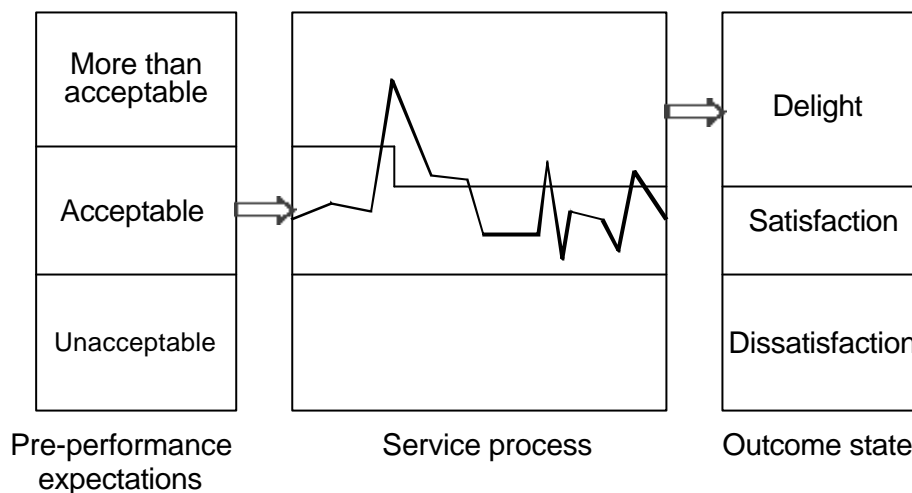

| Pre-performance expectations | Service process | Outcome state |

Figure 10   The effect of a transaction success

This would suggest for organisations seeking to delight the customer that a "high spot" at an early stage in the process may help to dispose positively the customers to the good parts of the service. Hotel managers know only too well the need to ensure a smooth and efficient reception of guests, since this may be one of precious few direct encounters with staff and reception occurs at an early stage in the service process.

SERVICE QUALITY STRATEGIES

The key point of this article has been to suggest that the boundaries of a customer's zone of tolerance are dynamic and may be adjusted during the process of service delivery. As overall satisfaction (or service quality) is the result of satisfaction with a series of transactions occurring during the service process, operations staff have the opportunity to influence not only the customer's satisfaction with each part of the process but also customers' thresholds of tolerance for subsequent parts of the process. It is important for organisations to recognise their ability to manage customers' tolerance, and therefore satisfaction and dissatisfaction, through transactions.

Whilst some of the literature seems to be concerned with how to delight customers, it must be recognised that many organisations are content just to satisfy them. These two strategies may require somewhat differing approaches to the design and management of the process of service delivery and satisfaction creation.

Strategy 1 -   Satisfy the customer

This strategy is concerned with keeping customers' perceptions within the zone of tolerance by ensuring that there are no negative disconfirmatory experiences whilst not actively seeking to generate positively disconfirmatory experiences. This strategy is appropriate for those organisations which define service quality as meeting customer expectations. Many organisations may actively seek not to have positive disconfirmation outcomes as such outcomes may heighten customers' expectations for future service beyond the capabilities of the organisation thus increasing the likelihood of dissatisfaction on a future occasion.

This outcome may be achieved in a number of ways. First, a satisfactory outcome is more likely if customers enter the systems with a wide zone of tolerance. The width of the expectation zone of tolerance may be affected by the marketing stance of the organisation and may be difficult for operations to influence, particularly in high involvement situations. Here, the key role is for marketing to try to ensure that customers have wide zones of tolerance and for operations to identify and deal with those customers with high levels of involvement.

A second activity is ensuring that transactions within the service do not have a negative or positive impact on quality. A key task for operations staff is then to identify, isolate and remove those transactions that might have a negative or positive effect on satisfaction. By ensuring that nothing exceptional happens during the process, customers should emerge with their expectations confirmed. The down-side is that they may never become conscious of the level of service quality provided.

An alternative approach might be to monitor the potential negative and positive transactions and try to ensure some compensatory process. However, the risk in allowing incursions above or below the thresholds might be to narrow the zone of tolerance during the process. Some factors or transaction outcomes may sensitize the customer to look for more negative or positive outcomes thus having the effect of levering up or down the thresholds. This would decrease the likelihood of an outcome within the zone of tolerance.

Any negative transactions that do occur in the process, despite all design efforts, need to be compensated for at the next stage in the process. "Recovery" of the situation may not be necessary, as this might lead to a "delighted" customer. It might be more appropriate to provide only compensatory transactions.

It will also be important not to have any potentially delighting transactions early in the process as this may sensitize the customer to look for positive transactions and result in a highly satisfactory outcome.

Strategy 2 -   Delight the customer

This strategy is appropriate for those organisations which define service quality as delighting the customer. It is concerned with trying to ensure that there are no negative experiences but also with trying to exceed expectations by creating some positive transaction outcomes.

If customers' incoming zones of tolerance are usually narrow, then a critical design issue is to identify and remove all potential failpoints. Generating positive disconfirmation in such cases will be easier than in cases where the zone is wide. It might also be appropriate to try to create a highly satisfying transaction outcome very early in the service process. This might have the effect of lowering the upper threshold and sensitizing the customer to notice other successes, making an overall highly satisfactory outcome more likely.

Whether the zone is wide or narrow, it will be necessary to design-in positive transactions throughout the process to ensure that customers' perceptions will be driven through the upper threshold to produce a highly satisfactory outcome.

Because of the potentially greater effect of negative experiences it is essential, for this strategy, that there are recovery systems in place to turn the potentially dissatisfying situations into highly satisfying ones.

Table 1 summarises the main requirements of these two strategies.

	Satisfy	Delight
Ideal width of zone of tolerance	Wide	Narrow
Required service performance	Adequate	Exceptional
Positive transactions	Unnecessary	Required
Negative transactions	Require compensation	Require recovery
Early in the service process	No negative transactions	Positive transactions

Table 1   Satisfying and delighting the customer

CONCLUSION

Whilst marketers have a key role in influencing pre-experience expectation thresholds, operations managers have an important role in managing customers' perceptions during the service process. This activity is difficult because of the dynamic interrelationships between transaction outcomes and dis/satisfaction with the overall service. Managers not only have the opportunity to influence the customer's satisfaction with each part of the process but should also recognise that they may also affect, and therefore adjust, customers' thresholds of tolerance for subsequent parts of the process. Managers need to be able to identify and understand the service process transactions that cause perceptions to move through either threshold and also those activities that will affect the thresholds. Once these are understood, through careful tracking and research, then operations managers will have the tools to improve their management of customer perceptions during the service process and influence better the final outcome.

This work has identified a number of ways that customers' perceptions of service quality can be managed during the process of service delivery. However, a number of important unanswered questions remain. It is unclear how this process evolves or how customers trade-off transaction outcomes to create an overall assessment of service quality. Also, why should customers in some situations compensate for a poor transaction whereas in others they become more sensitized to it? Is this a function of the level of involvement? What is the relationship between success or failure during the process and the amount of change in the level of the thresholds? How easy is it to manipulate customers' feelings and thresholds during the process? One point that is far from clear is how dependent or independent are the effects of one transaction from the other transactional outcomes further down the process.

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