PROMISES, PROMISES: INDUSTRIAL BUYER SATISFACTION WITH DELIVERY DELAYS

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ABSTRACT

The satisfaction responses of professional buyers resulting from different waiting situations are studied. These situations include times when delivery is made on time when promised for various lengths of time, and times when the buyer is advised that the original delivery date could not be met and an additional waiting period would be necessary. Drawing from various areas of literature, propositions are made and tested in a role play experiment.

INTRODUCTION

Waiting for the delivery of a product or service is an experience most people have had. Rarely, if ever, does one think of a pleasant wait for delivery. Industrial buyers are also sensitive about delivery delays. Chao (1991) found that delays ranked fifth in importance out of twenty-one items in a survey of industrial buyer concerns.

The waiting experience has drawn academic interest from a variety of areas such as operations management (Chase and Aquilano 1985, Ch. 4 and Hodgkin and Starkie 1978) and sociology (Schwartz 1975). In the field of marketing, a number of studies have contributed to the understanding of waiting and its associated affective responses. For example, Andrus (1986) and Bitner (1990) studied the effect of office atmospherics on waiting dental patients and airline travellers, respectively. Maister (1985) considered the effect of waiting in lines for service, and in particular, the way the waiting time is spent, psychological states during the wait, attribution of cause, and perceptions of justice.

This paper considers the industrial buyer and examines satisfaction resulting from the wait for delivery of a product. It looks at buyer responses to a simple waiting-for-delivery experience as well as situations where unanticipated changes in a delivery promise, both earlier and later, occur.
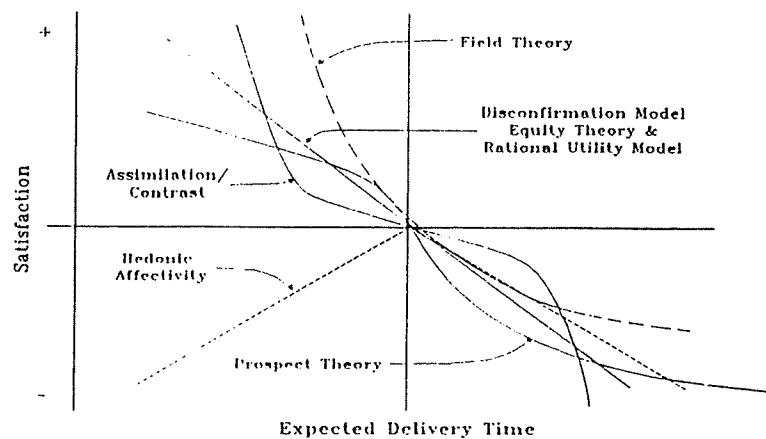
Satisfaction and Waiting

Taylor (1994) studied airline customers with the aim of understanding the negative effects of waiting. Her work emphasized the number of psychological factors that bear on the buyer's satisfaction. Specifically tested were several hypotheses related to perceptions of duration, aversiveness, and service evaluation in response to waits for airline service. Taylor's work suggested that longer waits are related to aversiveness or unpleasantness and result in decreases in perception of service quality. With this relationship and a relationship between perceptions of quality and satisfaction observed by Parasuraman et al. (1986), a relationship between satisfaction and delays seems likely.

Osuna (1985) proposed a model of psychological cost or stress in waiting situations. In the model, stress was proposed to be a nondecreasing function of waiting time in situations of uncertain delivery time. Furthermore, stress levels would stop increasing when the person waiting was informed of certain delivery time. On delivery of the product, stress would drop to a lower, but still higher than original, level. It is this final, post-transaction level of stress that is of interest in this project.

Taylor (1994) and Osuna (1985) have generally considered the satisfaction response function resulting from waiting situations to be downward sloping. However, several variations of satisfaction response curves are suggested in related literature. These are discussed below under the various types of response functions expected.

Linear Relationship. Oliver and Desarbo (1988) described the expectancy-disconfirmation process of satisfaction as stemming from social psychology, where a comparison is made between a perceived level of an attribute and a previously formed expectation. Similarly, Tse and Wilton, (1988) defined satisfaction as "the customer's response to the evaluation of the perceived discrepancy between prior expectations ... and the

Figure 1
Proposed Satisfaction Response Curves for the Delivery Promise Relationship

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Satisfaction

Field Theory

Disconfirmation Model
Equity Theory &
Rational Utility Model

Assimilation/
Contrast

Hedonic
Affectivity

Prospect Theory

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Expected Delivery Time

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actual performance of the product." LaTour and Peat (1979) viewed satisfaction as the sum of the discrepancies between expected and perceived attributes. The relationship between that discrepancy and satisfaction would be continuous and monotonic.

The traditional disconfirmation view, assuming accurate perception, is that the relationship is linear. Another rationale for linearity comes from equity theory. According to Swan and Oliver (1984), "equity theory posits that a buyer will compare his inputs .. to outcomes from the marketer and form a perception of his net gain". In the case of delayed delivery, the waiting customer may view time as a valued resource. Applicability of equity theory to waiting can be seen when time is valued in monetary terms as suggested by the economic approaches such as that of Becker (1965). Time spent waiting could be considered as an investment by the buyer. The waiting customer may also view time as having utility to the seller. Forcing a customer to wait allows the supplier to gain benefits such as flexibility in scheduling, less expensive manufacturing, smoother demand and the ability to serve important customers first.

With such a view of the transaction the buyer may enter into a transaction with the notion that each party will have made an investment in the deal. Since having to wait for the product places

the buyer at a disadvantage relative to the seller, the buyer's dissatisfaction will be proportional to the length of the wait. Consideration of disconfirmation, equity and the notion of rational utility of time (RU) lead to the expectation of a linear relationship, as follows:

Proposition 1A: Satisfaction decreases with increasing duration of wait at a constant rate.

This linear relationship is illustrated, along with other proposed relationships, in Figure 1.

A number of deviations from the linear relationship can also be envisioned. These are discussed in the following sections.

Convex Relationship. According to Lewin's field theory (Kassarjian 1973), future and past events are viewed as less real than present events, and thus have less impact. That rationale has been used to explain waiting consumers' perceptions of service quality; "the closer an individual is to a goal, the more pressing the forces are toward the goal" (Dube-Rioux, Schmitt and Leclerc 1989). Field theory may be applicable to the buyer waiting for delivery. It suggests that the buyer evaluates an incremental increase in the wait for delivery as less dissatisfying, the further in the future the increase occurs. Field theory implies a relationship that is still monotonically downward

sloping, but is nonlinear and convex in terms of the wait for delivery.

> Proposition 1B: Satisfaction decreases with increasing duration of wait at a decreasing rate.

S-shaped Relationship. Another possible reason for nonlinearity in the response to waiting is that buyers may exhibit a "zone of indifference" (Woodruff et al. 1983), which would appear as a flat portion of the downward-sloping curve in the vicinity of the expected delivery. That can be explained by assimilation, whereby buyers tend to cling to prior judgements and assimilate small observed discrepancies. Non-linearity may also result from the opposite effect called contrast, whereby large discrepancies appear to be greater than they are (Anderson 1973, Woodruff et al 1983). Combining the effects of both assimilation and contrast results in an S-shaped downward-sloping curve. Its curvature is shallow to flat in the vicinity of the expected delivery, but increasingly steep for large discrepancies from the expected delivery.

> Proposition 1C: Satisfaction decreases with increasing duration of wait, and the rate of decrease is flattest at the expected delivery.

Reverse S-shaped Relationship. Buyers may respond in the opposite sense to that predicted by the contrast effect. Assume that a discrepancy exists between the actual delivery and the buyer's expected delivery. Prospect theory (Kahneman and Tversky 1979) suggests that any incremental change in delivery would be evaluated in relation to the existing discrepancy. If the discrepancy is large, the incremental change would seem small, and would cause only a small change in satisfaction. Small incremental changes in satisfaction are therefore associated with large delivery discrepancies, and the converse. The resulting satisfaction curve is downward sloping, with its greatest rate of change in satisfaction at the expected delivery. It is also asymmetrical about the expected delivery time. Gains or early delivery would show a flatter slope than losses or late delivery.

> Proposition 1D: Satisfaction decreases with increasing duration of wait, and the rate of decrease is steepest at the expected delivery.

Non-monotonic, Concave Relationship. The preceding relationships were all based on the assumption that early delivery provides more satisfaction than late delivery. For some products, however, disconfirmation can be dissatisfying for either positive or negative discrepancies. The phenomenon has been termed generalized or hedonic affectivity (Anderson 1973, Oliver 1976). If that effect applies to buyers waiting for delivery, dissatisfaction would result from early delivery as well as late delivery. The satisfaction curve would be upward-sloping before the expected delivery and downward-sloping after. Oliver (1976) approximated it by two linear segments, although there is no apparent reason why the curve could not be an inverted U-shape.

> Proposition 1E: Satisfaction is at a maximum at the buyer's expected delivery, and decreases with either positive or negative disconfirmation.

THE ADDITIONAL-DELAY SITUATION

In the event that the originally promised delivery could not be met, the seller would be forced to advise the buyer of the delivery delay giving rise to what Taylor (1994) referred to as a post schedule waiting experience. This introduces another set of potential antecedents to satisfaction which are related to this additional delay. They include the length of the delay as well as the time at which the buyer is informed of the additional delay. All three of the independent variables could thus have an effect on the satisfaction level experienced by the buyer.

Main Effects

a. **Response to Length of Additional Delay (W2).** Response functions, similar to those discussed above with regard to initial delays can be envisioned for the waiting period after an additional delay. These may be variously shaped but will likely be downward sloping. This project will study only the first such additional wait

because, although subsequent delays are likely to be increasingly serious, they will also be decreasingly probable. Thus from disconfirmation, equity theory as well as the RU model, a main effect of length of additional wait will be seen.

P2: The satisfaction levels will be lower with longer additional delays.

b. Response to Notification Timing (NT).

Prospect Theory. Assuming that delays can be treated as costs, prospect theory might have implications for promise schedules. According to prospect theory, because equivalent losses are generally perceived to be larger than gains, pessimistic estimates of deliveries should be used. Also, the trend of decreasing marginal values suggests that, if repeated promises must be made, they should be made before the reference point has had a chance to move back up the curve. In other words, later changes in the delivery promise, once the original information is assimilated, are more damaging than earlier promises as Thaler (1985) suggested.

Prospect theory was extended by Thaler (1985) in a model of consumer behavior which draws from both cognitive psychology and microeconomics. Like Kahneman and Tversky, Thaler was concerned with gains and losses but he considered the particular case of multiple gains and losses and the form of delivery of them. Drawing on Prospect Theory, it was shown that multiple gains should be segregated to maximize their perceived value, while multiple losses should be integrated to minimize theirs. Mixed gains demand integration. Mixed losses require segregation. If the gain is relatively small, yielding a silver lining effect, segregation is prescribed. If it is large, in a case of cancellation, integration is recommended. This framing effect was shown to apply to expected conditions as well.

If Thaler's work can be applied to delays, it would suggest that for a given length of delay, the minimum perceived value of the delay, and hence maximum satisfaction, will be attached to a delay by making one promise rather than multiple promises.

While the dynamics of the changing reference point were not considered by Kahneman and Tversky (1979), Thaler appeared to imply that the frame or reference point returns to the origin very quickly between multiple transactions. This explains why segregated losses are valued as greater than integrated losses. Curiously, while many of Thaler's examples dealt with instantaneous present time scenarios, some did not. In these cases, the reference point was still assumed to have moved to the origin for subsequent stages of the train of events. This seems to indicate that the reference point changes rapidly. This would suggest that rather than risk the additive effect of several highly unpleasant delivery promises, a single more pessimistic estimate might be preferred as it would, presumably, generate less dissatisfaction.

Kahneman et al. (1986), however, in their study of perceptions of fairness demonstrated that reference points adjust more slowly, tending to lag actual conditions. This supports the notion that changing reference points can have an effect in the satisfaction judgement that varies over time.

The timing of when the customer is notified of the additional delay would thus appear to be important. Thaler's approach to prospect theory with its changing reference points, as well as equity theory, suggest that the earlier customers are notified of an additional delay the more satisfied they will be.

Field Theory. From field theory it appears that the timing of the notification of additional delay will be a significant factor. The closer one is to the promised delivery time the more dissatisfying will be the effect of additional delay.

Equity Theory. Equity theory would also suggest that the timing of the notification of delay may have an effect on satisfaction with the additional delay. Again, time before notification could be perceived by the buyer to have value to both buyer and seller. To the buyer, this time could be used to "get used to" the new delivery schedule even if no actual plans are made. This time could be perceived by the buyer as valuable to the seller in that it reduces constraints on scheduling.

Prospect theory, Field theory and Equity theory thus suggest that a main effect of

notification timing will be seen:

P3A: The later the time of notification of additional delay, the lower will be the satisfaction with the transaction.

Alternatively, the RU model would suggest that timing of notification will have no effect on level of satisfaction.

P3B: Time of notification and satisfaction with a transaction will not be related.

c. Response to Initial Wait (Initial Delay - W1). A negative main effect of initial wait length could be predicted. The disconfirmation perspective as well as the RU model would suggest a reaction to W1 as it extends total waiting time. Equity theory would predict a similar response as the buyers weigh their investment in the transaction. Thus, from disconfirmation theory, equity theory and the RU model.

P4A: A main effect of initial wait length will be seen whereby longer W1 will result in lower satisfaction.

Compliance Studies. Foot-in-the-door (FITD) (Freedman and Frazer 1966) and Low-ball (Cialdini et al. 1978) methods of gaining compliance appear to have some relevance to the multiple delay situation. Delays may be thought of as requests for the buyer to wait, and voluntary compliance could be assumed to be related to satisfaction or, at least, lack of dissatisfaction. A feature common to both the compliance studies and the subject of waiting is the fact that they both occur over a period of time.

In the case of FITD, a small request is made first, followed by a larger request. This technique has been shown in several studies, including Freedman and Frazer (1966) and Tybout et al. (1983), to increase voluntary compliance with the second request.

An important difference between FITD and the multiple delay situation is the relative size of the requests. For multiple delays the first request will usually be larger than the second while the reverse is often the case in FITD. Fern et al. (1986) found that compliance with the second request increased as the size of the first request increased. Thus the two phenomena may still be comparable. The study also found that the delay between requests is not significant, and that a change in the requester did not affect compliance. These findings support the notion that this effect may apply to the waiting situation.

Explanations for this effect have been varied. Originally, Freedman and Frazer (1966) attributed it to a feeling of involvement in the situation by the respondent. Since then, selfperception theory (Bem 1972) has been used to explain the phenomenon but, as Beaman et al. (1983) pointed out, the explanation may only be partial. More recently, information availability has been used (Tybout et al 1983). In it, favorableness of the last-in information has been shown to affect the rate of compliance of the second request.

Tybout et al. (1983) warned that the FITD effect may only apply to situations where the respondent is favorably disposed toward the request in the first place. This suggests that in the case of delays, strongest results would be found in friendly relationships.

The low-ball compliance technique, reportedly prevalent among car dealers, involves allowing a buyer to make an active decision to buy based on a very low price. After the decision is made, price advantages are removed for various reasons and presumably the buyer will remain with the original decision. Cialdini et al. (1978) studied this phenomenon and noted similarities to FITD. They make a distinction between the two processes however. They maintain that in the low-ball procedure, the initial request is the target behavior while, with FITD, it is not. If delivery promises are considered as a request to wait and if additional delays are regarded as different from initial waiting periods, FITD may still apply to the waiting situation. The principle difference between FITD effect and a successful low-ball process would appear to be in the nature of the buyer's response. In the former, an active response would be expected in the choice to comply with another request. This could be interpreted as higher satisfaction than with an alternative. In the result of a low-ball situation the response would be passive in the failure to withdraw from a transaction. This only implies a satisfaction level not lower than the alternative.

The FITD studies found that compliance increases with larger initial requests. This suggests the longer the initial promised waiting period (W1), the higher will be the final satisfaction level.

P4B: A main effect of initial wait length will be seen whereby longer W1 will result in higher satisfaction.

Interactions in the Additional Delay Situation

W1 X W2. From equity theory it seems likely that dissatisfaction associated with additional delays may also be a function of the length of the initial wait. For example, the losing parties, the customers who are faced with additional delays, may be less tolerant of increases in waiting time if they have already waited "long enough". This interaction is shown in Figure 2.4.

P5A: An interaction will be found between length of initial wait and length of additional delay. For a given length of additional delay, the slope of the dissatisfaction response curve will be steeper for a long initial wait than for a short one.

The compliance literature, on the other hand, suggests that in this case, the longer the initial wait (the larger the initial request), the more tolerant the buyer may be of further delays.

P5B: An interaction will be found between length of initial wait and the slope of the response function associated with additional delay. Length of initial wait will be related to smaller slopes in the additional delay response function.

Alternatively, the RU model would predict that satisfaction would be a function of total waiting time only, and would not be influenced by the length of the initial wait.

P5C: No interaction will be found, the response function will be the same whether caused by initial or additional delay.

Notification Timing X W2. Equity theory

suggests that the longer the initial wait, the less tolerant the buyer may be of further delays.

P6A: An interaction will be found between timing of notification and the slope of the response function associated with additional delay. Length of initial wait will be related to larger slopes in the additional delay response function.

Again, the RU model predicts no effect.

P6B: No relationship will be found between the timing of notification and additional wait response function.

ADVANCED-DELIVERY SITUATION

Main Effects

Main effects are predicted in the advanced delivery condition for the same reasons as in the additional delay condition.

P7: A main effect will be seen for initial wait where longer initial wait will result in lower satisfaction.

P8: The greater the improvement in delivery, the higher will be the satisfaction.

P9: Earlier notification of advancement will result in higher levels of satisfaction.

ADDITIONAL-DELAY VERSUS NO-ADDITIONAL-DELAY

To better understand the effect of additional delay, comparison must be made between satisfaction resulting from situations in which no additional delay has occurred and those where delivery has been delayed. In order to avoid confounding of the effect of number of delays, total waiting time should be constant across comparisons.

Aversion to Changes

The cognitive psychology literature indicates a preference for cognitive economy (Tversky and

Kahneman 1974). Cialdini (1988) notes a natural desire to avoid conscious thought. This suggests that there will be an increment of dissatisfaction associated with the simple existence of an additional delay and the cognitive effort expended in consideration of changed plans.

Equity Theory

In the situation of waiting for delivery, buyers may view waiting as an investment or expense in a transaction on both sides. Having this wait increased will upset the balance of the deal as it was made and, according to equity theory, decrease the level of satisfaction of the losing party.

An extension of the delivery time could be seen to take away value from the buyer in two ways. First, the opportunity cost of the waiting time will vary depending on how it is spent. Second, utility will be lost by not having the desired product.

The seller, on the other hand, could be perceived, by the buyer, to gain value from delivery delay in the form of increased flexibility in scheduling.

From the cognitive economy and equity theory perspectives then:

P10A. Late deliveries with multiple delays will result in lower levels of satisfaction than those with only one delay.

On the other hand, Maister (1985) described a "halo effect" with regard to the service encounter. The mood established in the early stages will presumably carry through the balance of the transaction. This would suggest that an optimistic (short) promise early in a waiting period will generate a positive mood and reduce the negative reaction to an additional delay later.

As well, the compliance literature might suggest a higher resulting satisfaction associated with a multiple delay situation as opposed to one characterized by a single delay, thus:

P10B. Late deliveries with multiple delays will result in higher levels of satisfaction than those with only one delay.

The Rational Utility Model

The RU model suggests that the buyer would be sensitive to total waiting time. In other words, barring unusual economic costs beyond simple utility of ownership, the buyer would not be sensitive to additional delays.

P10C. No difference will be seen in satisfaction levels whether additional delay occurs or not.

ADVANCED DELIVERY VERSUS NO ADVANCEMENT IN DELIVERY

The changing reference point literature, including the work of Thaler (1985) in prospect theory, suggests that the buyer's reference point will change or be reinforced with a long initial promise which will yield higher satisfaction when deliveries are improved.

P11A: For a given total waiting time, deliveries which are improved will yield higher levels of satisfaction than those which are not.

The rational model would predict no difference. As well, other mechanisms may come into play. For example acceptance of original delay time may result in little response to improvements.

Table 1
Summary of Propositions - Initial Waiting Period

P1A: Satisfaction will decrease in a linear fashion with initial wait length.

P1B: Satisfaction will decrease with increasing wait length but at a decreasing rate.

P1C: Satisfaction will decrease with increasing length of wait but the rate of decrease will be less near the buyer's expected time of receipt.

P1D: Satisfaction will decrease with increasing length of wait and the rate of decrease will be greatest near the buyer's expected time of receipt.

P1E: Satisfaction will be at a maximum when delivery occurs at the buyer's expected time of receipt.

Table 2
Summary of Propositions - Rescheduled Delivery

ADDITIONAL DELAYS
MAIN EFFECTS
W2
P2: Longer W2 will yield lower satisfaction.

NT
P3A: Later NT will yield lower satisfaction.
P3B: NT and satisfaction are not related.

W1
P4A: Longer W1 will yield lower satisfaction.
P4B: Longer W1 will yield higher satisfaction.

INTERACTIONS
W1 X W2
P5A: Longer W1 will yield a more negatively sloped response to increasing W2.
P5B: Longer W1 will yield a less negatively sloped response.

NT X W2
P6A: Late NT will result in more negatively sloped response.
P6B: No effect of NT will be seen on W2 response slope.

ADVANCED DELAY
MAIN EFFECTS
W1
P7: Longer W1 will result in lower satisfaction.

W2
P8: Larger improvement in delivery will result in higher satisfaction.

NT
P9: Earlier NT will result in higher satisfaction.

Table 3
Summary of Propositions - Comparison of Multiple Delay to Single Delay Situations

P10A: Late deliveries with multiple delays will result in lower satisfaction.
P10B: Late deliveries with multiple delays will result in higher satisfaction.
P10C: No difference will be seen in satisfaction levels between single and multiple delay situations.
P11A: For a given total waiting time, deliveries which are improved will yield higher levels of satisfaction.
P11B: For a given total waiting time, improvements in delivery will not increase satisfaction.

P11B: For a given total waiting time, improvements in delivery will not increase satisfaction.

All hypotheses are summarized in Tables 1, 2, and 3.

THE STUDY

Respondents consisted of purchasing managers, drawn from the membership of the Purchasing Managers Association of Canada (PMAC). The managers were asked to assume the role of a buyer involved in the purchase of an office copier. Each received one of several hypothetical delivery scenarios (see Appendix 1 for example) that collectively represented a range of waiting variables.

Role play scenarios have been used in the study of buyer satisfaction (Oliver and DeSarbo 1988, Bitner 1990). Furthermore, the caveats suggested by Sawyer (1977) when using a role-play experiment were taken into account.

Manipulations

The combinations of the various manipulation resulted in a combination of two experiments, a 1 X 7 and a 2 X 2 X 2 design as shown in Appendix 2 whose objectives were to explore two delivery situations:

1. The 1x7 cell block in Appendix 2 represents the promised delivery situation when the delivery is on time. The duration of initial waiting period is manipulated in the scenarios with promised times ranging from 0 to 42 days.

2. The 2x2x2 block in Appendix 2 represents the situation when the delivery is not on time and an additional delay must be endured. Three variables are manipulated in this section of the design. Specifically, the manipulations were as follows.
   a. two notifications:
      1. prompt = "later that day" (the day the order is placed
      2. delayed = "the day before you (originally) expected to take

delivery"
b. revised deliveries:
    1. late = additions of either 7
    days or 14 days
    2. early = reductions of either 7
    days or 14 days
c. length of initial delivery
    1. 14 days (the buyer's expected
    delivery)
    2. 28 days

Measures

The dependent variable in the study was buyer satisfaction with the transaction after the transaction is completed. Day (1984 in Westbrook and Oliver 1991) points out the difference between satisfaction and attitude where satisfaction is a "postchoice evaluative judgement concerning a specific purchase selection". An affective component of satisfaction has also been identified with satisfaction and in fact Cadotte et al (1987) "conceptualized satisfaction as an emotional response to the judgmental disparity between product performance and a corresponding normative standard" (Westbrook and Oliver 1991). To measure buyer satisfaction with the delivery outcomes described in the scenarios, managers were asked to think specifically about the transaction described in the scenario. They then rated a set of nine scales on global satisfaction (Westbrook 1980), evaluative assessment, and affect (Cadotte, Woodruff and Jenkins 1987). The satisfaction measure consists of the arithmetic mean of the nine scaled items which attempt to measure different aspects of satisfaction.

A self-administered questionnaire was designed and pretested. It was then mailed to a sample of 1258 members of the Purchasing Managers Association of Canada, stratified by gender and SIC code.

RESULTS

With 631 respondents, the response rate was just over fifty per cent after a reminder mailing. Non-response bias was assessed by comparing successive waves (Armstrong and Overton, 1977). The results from the initial mailing were compared to those from the reminder mailing on several variables. T-tests revealed no significant differences.

The test for reliability produced a coefficient alpha of 0.95. Convergent and nomological validity were supported by significant correlations with measures of attitude, service quality, service satisfaction, and behavioral intention.

On-Time Delivery

The experimental design manipulated the duration of the delivery promise over seven values ranging from "the next day" to 48 days. Replies to this part of the experiment were received from 238 purchasing managers, each of whom responded to one of the seven delivery scenarios. The cell sizes ranged from 28 to 43 with a mean of 34 respondents.

An analysis of variance was performed on the satisfaction- by-delivery measures and a significant main effect [$F(1,231)=4.51$, $p=.000$) was observed. The mean satisfaction scores were plotted, and a downward sloping curve is observed as shown in Figure 2.

Trend analysis using orthogonal polynomials was performed on the data (Keppel 1982 p134). Consistent with the ANOVA result above, a significant linear term [$F(1,231)=20.74$, $p=.000$) is observed, thus supporting Proposition 1A. The relationship between buyer satisfaction and the duration of the delivery appears to be linear.

The location of the response curve is not as expected however. Rather than having a neutral response at the expected delivery duration, the average responses for all treatment groups were in the positive satisfaction range.

The analysis also reveals a quadratic term that is only marginally non-significant [$F(1,231)=3.85$, $p=.051$). The plot of the means indicates that any non-linearity tends to be concave. That would be inconsistent with the convex shape predicted by Proposition 2. A concave tendency is consistent with the shape that is predicted by Proposition 5 however. The results might therefore be interpreted as providing weak evidence of the relationship implied by Proposition 5. The concave tendency is not strong enough to provide lower levels of satisfaction for deliveries that are shorter than the expected delivery. Perhaps if the scenario had employed a more time-sensitive

Figure 2
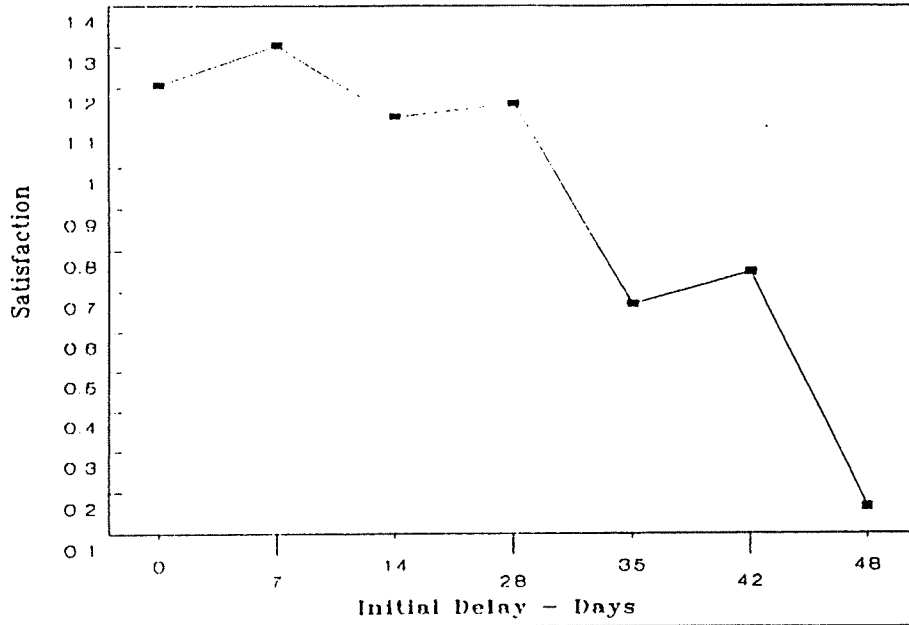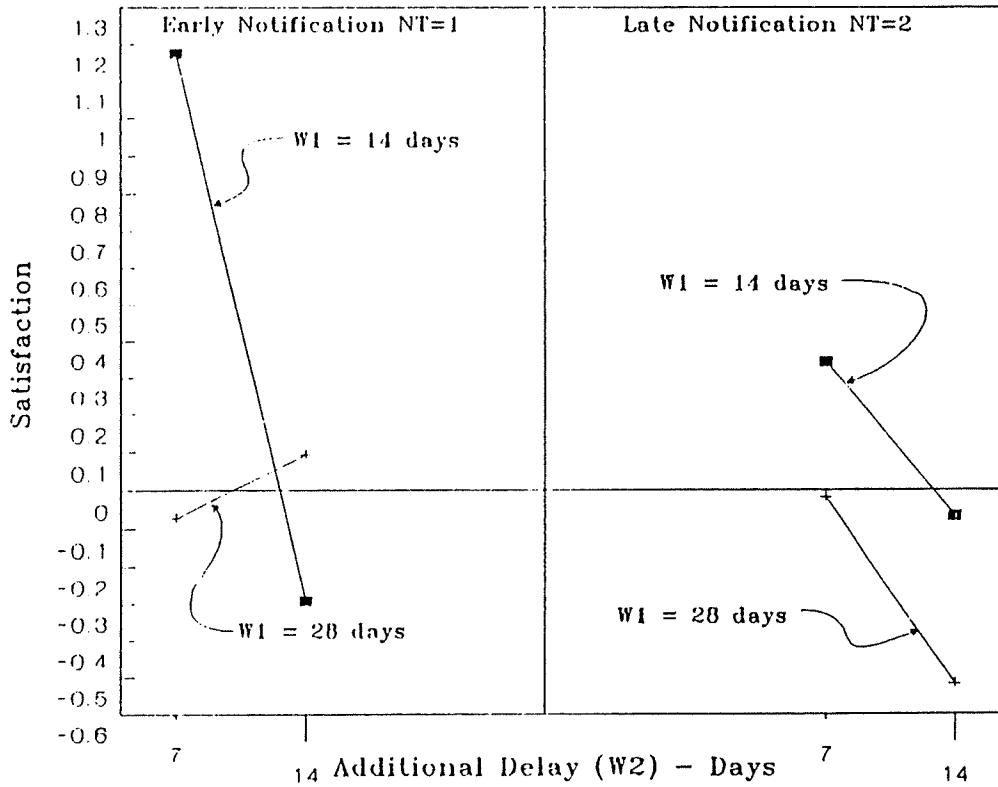**Satisfaction With Initial Wait - No Additional Delay**

Figure 3
Three-Way Interaction - Additional-Delay Situation

product, such as flowers for a wedding or concrete for a construction project, the concave tendency would have been more pronounced.

Revised Delivery (Additional Delay)

The responses from the purchasing managers who received these scenarios resulted in an average cell size of 26.2 responses.

An analysis of variance of the purchasing managers' satisfaction measures was done for the late revised deliveries. The results reveal significant main effects for the duration of the delivery promise (W1)[$F(1,255)=9.25$, p=.003], the duration of the revised delivery (W2)[$F(1,255)=16.48$,p=.000], and the timing of the notification (NT)[$F(1,255)=4.72$, p=.031]. Satisfaction is low with a delivery promise that is long, a revised delivery that is late, and a notification that is delayed. Those findings are all consistent with prior expectations.

A significant two-way interaction is also seen between the duration of the revised delivery and the duration of that originally promised (W1xW2)[$F(1,255)=9.06$, p=.003]. In this interaction, satisfaction was relatively low for all except those with the short initial delay and the short additional delay. A revised delivery caused a greater decrease in satisfaction for buyers who were given a short delivery promise than for buyers who were given a long delivery promise.

A greater insight into the mechanism can be gained by looking at the unexpected three-way interaction [$F(1,255)=10.47$, p=.000] shown in Figure 3.

Here it can be seen that buyers who are notified promptly, and given short initial delays and short additional delays were the most satisfied of all the groups by a considerable margin. In fact, they were as satisfied as those given short initial delays and no additional delay at all.

Earlier Delivery

A similar analysis was done for the delivery revisions that made the delivery earlier than promised. However, the only significant finding was the same main effect for the duration of the initial delivery promise that was also found in the other analyses. There was no evidence of the

increase in satisfaction that had been expected because the revision shortened the wait. Nor did notification timing seem to have any effect on buyer satisfaction in that situation.

To investigate further, satisfaction levels for on-time versus revised deliveries were compared for scenarios having the same total waiting time. For late revisions, the reduction in satisfaction was significant for total waits of 35 days and 28 days, and it was only marginally non-significant for a total wait of 21 days. But waits shorter than these, representing early revisions, caused no significant changes in satisfaction. This suggests that late revisions reduce buyer satisfaction, but early revisions leave it unchanged.

Thus, the findings from the revised-delivery analysis imply that late delivery is dissatisfying for two reasons: because of the need to reschedule, and because of the need to wait longer than promised. Sellers should try to avoid having to make delivery revisions, but if they become necessary, the buyer should be notified as promptly as possible.

DISCUSSION

With these results, the propositions presented earlier can be tested as hypotheses.

No Additional Delay

From these results a number of effects are suggested about the no-additional-delay condition. Only a significant linear component was seen for buyer satisfaction. The level of reported satisfaction varied with the difference from expected delivery time as predicted by equity theory, disconfirmation theory as well as the rational utility model (H1A, see Table 1). But the rate of change of the decrease in satisfaction did not vary with this difference. In other words there was no evidence to support a prospect theory prediction (H1D) that deviations far from expected (reference point) would be regarded as having a smaller impact than those near. Assimilation/ contrast theory (H1C) was not supported either; there was no flattening of the response curve in the region of the expected delivery time. Neither was the field theory proposition (H1B) supported. Increases in delivery later than expected were not

seen to be less serious than those earlier than expected, in fact there was some tendency in the opposite direction. This all points to the suggestion that buyers in this situation are able to make rational satisfaction judgements without distortions in perceptions of delays.

A slight downward curve can be seen in the data when plotted. The effect at first appears to be different from that proposed by Oliver (1976) as hedonic affectivity (H1E) in that the curve observed is monotonic. While the component was barely non-significant, it does suggest the possibility that two different mechanisms may be at work in the satisfaction judgement process; one dominating in the earlier-than-expected situation and another for later-than-expected delivery. With such an effect the buyer would be seen to be less delighted by early deliveries than disappointed with late ones.

When considered in terms of the explanation of two different mechanisms of satisfaction judgement, the hedonic affectivity response explanation should not be entirely discounted. The effect is marginal, and there are offsetting arguments for consideration of its significance. It is therefore offered only as a possibility.

Interestingly, satisfaction was reported to be significantly greater than zero when the product was promised and received at the expected time. This suggests the importance of other attributes and the expectation of their receipt in determining satisfaction level.

Additional Delay

A main effect for additional wait length (W2) supports hypothesis H2 (see Table 2). That hypothesis drew from equity theory, as well as the disconfirmation literature, to predict a downward sloping response to additional delay. This effect appears similar to the effect of W1 in the no-additional-delay condition.

The main effect of notification timing (NT) supports hypothesis H3A. That hypothesis drew from equity theory, as well as the changing reference point theories, and predicted lower satisfaction with later NT. There were no costs associated with late notification. The rational reaction of no main effect predicted by hypothesis H3B, however, was not seen.

The main effect of initial wait (W1) supports hypothesis H4A. That hypothesis drew from equity theory, which holds that people will look back on how they were served in the first portion of the transaction to determine how satisfied they are with the second portion. The hypothesis also drew from the RU model approach because the buyers have to wait longer for the product. The prediction by the Foot-in-the-Door literature is not supported.

One significant two-way interaction was observed between initial wait and additional wait. The rate of decrease of satisfaction in response to a longer additional delay is steeper for those who were told initially they would have to wait for a short period as compared to those who were told they would have to wait for a long period.

This appears to support hypothesis H5B which draws from the compliance literature but a clear case for a FITD effect is not made. The direction of the interaction effect is consistent with FITD whereby the decrease in satisfaction associated with the long initial wait time is smaller than that associated with the short initial wait time. But an effect should be seen in both short and long additional delay conditions, whereby a long initial wait length would produce higher satisfaction. This effect was not seen. Failure to recognize this represents a deficiency in Hypothesis H5B.

Interestingly, other two-way interaction effects were not seen. Where, in hypothesis H6A, equity theory was used to predict less tolerance for additional delay when notification was late, this effect was not observed. While there was a main effect of NT on satisfaction level, there was no effect of NT on the average rate of decrease of satisfaction with length of additional delay.

Some insight into the effect can be seen in the three-way interaction that reveals the significant two-way interaction to be primarily due to the high level of satisfaction reported in the W1=2, W2=1, NT=1 cell and low levels in all the other cells. Buyer satisfaction was reported to be highest when all three independent variables were favorable and is seen to drop rapidly when any one of them was unfavorable. Post hoc comparisons of cell means were made using Scheffe's and Tukey's method as recommended by Tabachnik and Fidell (1983). They show this particular cell to be significantly different from all the others.

The level of satisfaction seen in this one additional-delay cell, where all variables were favorable, was very close to that of the non-delayed situation. This suggests the possibility of successful use of the low-ball technique by a seller to make a sale and not jeopardize future business by reducing satisfaction.

Figure 3 shows the nature of this interaction. Buyers who were told they would have to wait a short time but were advised early of a delivery extension, were most sensitive to length of additional delays. Those who were told they had to wait a long time initially and then who were extended, were least sensitive to the length of delivery extension with almost no reaction at all. When notification was late, buyers in both categories of initial wait length were sensitive to additional delay approximately equally. Long initial delays did tend to result in less satisfied buyers although the effect was marginal.

The overall response pattern in the three-way interaction appears to point to an explanation of the response of the buyers to the entire transaction. The buyers may take an equity perspective of the whole transaction and judge whether they have been fairly treated. An unfavorable level of any one of the independent variables could result in a judgement of unfairness. Early NT, in particular could be regarded as a sign of concern and consideration on the part of the seller.

Advanced Delivery

A main effect was observed only for initial wait length. This supports H7 (see Table 3) which drew from disconfirmation theory, equity theory and the RU model. Longer W1 resulted in lower satisfaction. This suggests that the satisfaction level results from either total waiting time or a reaction to the initial promise. The latter supports the idea proposed by Maister (1985) that negative events experienced early in a transaction will have a "halo" effect and determine the way later events are perceived. Note that this has an opposite effect to FITD.

Hypotheses H8 and H9, proposing main effects for the other two independent variables were not supported. The lack of a main effect for W2 undermines the total waiting time argument presented for W1 above.

The differences between the results of the advanced delivery and additional delay conditions also suggest that there may be two very different mechanisms at work. In the advanced delivery situation, it seems that the buyer accepts and plans for a given delivery, and that delivery determines the final satisfaction level. Improving the delivery, whether notified about it early or late, does not improve satisfaction, possibly because the promised date has been accepted or assimilated.

Effect of Rescheduling

The existence of late delivery for a given waiting time does reduce the resulting satisfaction level. This supports hypothesis H10A which draws from equity theory and the notion of cognitive economy. The FITD effect, suggested by the compliance literature, does not appear to work in this situation.

An advancement in delivery schedule, holding total waiting time constant, did not improve satisfaction, as the changing reference point literature would predict.

Discussion Summary

Overall, the mechanisms for satisfaction judgement can be seen to be complex and involves simultaneous consideration of a number of factors. The hypotheses drawing from equity theory appear to be consistently supported however. It would appear that aspects of equity and fairness weigh heavily in the satisfaction judgement.

The notion of equity in the transaction also fits with the unexpected 3-way interaction observed but the interaction illustrates further how buyers make their satisfaction judgement. It appears that it only takes one deficiency on any dimension to create an unhappy customer.

The relatively high satisfaction levels of the respondents in the one additional delay group, compared to the no additional delay group remain unexplained and should be the focus of future research.

Implications For Management

From this analysis several implications for

management are apparent. Three caveats for those sellers whose objectives are to provide delivery promises that maintain a high level of buyer satisfaction are presented below.

Caveat 1: Don't promise an unrealistically short delivery just to get the order, in the expectation that the buyer will meekly accept a subsequent revision. The ultimate satisfaction will be lower than it would have been if a realistic delivery had been promised.

Caveat 2: Don't promise an unrealistically long delivery just to be safe, in the expectation that the buyer will be delighted by any subsequent delivery reduction. The initial dissatisfaction will be proportionate to the length of the promise, and any subsequent delivery reduction will not be of much help.

Caveat 3: Don't delay notifying the buyer that a revision will be necessary, in the expectation that the buyer will appreciate the greater certainty made possible by the delay. The only notification that is more dissatisfying than a late-delivery revision is one that is delayed.

On a more positive note, the findings provide a persuasive argument for making delivery promises that are neither unrealistically short nor long, and which therefore do not need to be revised. Getting it right the first time requires that the task of making delivery promises be executed with the same care as is given to the other marketing-mix decisions. If that requires more management time and other resources, so be it. The alternative is to squander buyer satisfaction, a resource that most sellers cannot afford to waste.

CONCLUSION

This study has examined the effect of delivery on buyer satisfaction in the context of the purchase of an office copier. Several characteristics of the purchase were manipulated including the duration of the delivery promise, the timing of a possible delivery revision, and the duration of the revision.

Mixed support was observed for several theories that predicted results but there seemed to be general support for equity theory across various purchase situations. The satisfaction judgement in the industrial purchase seems to depend heavily on the perception of equity and fairness in the transaction. The process by which these perceptions figure in the satisfaction process, and the limits of the effects of them should be the focus of future research.

Appendix 1
Scenario with all Manipulations

A. You are the purchasing manager for a mid-sized manufacturing firm which produces component parts for the auto manufacturers.

B. You have to purchase a new photocopier to replace an aging but still serviceable, unit in your department. The existing copier is experiencing many small breakdowns. This is impairing office efficiency. Copy quality is deteriorating rapidly and you find that most of your staff go to other departments to copy anything that will be sent out of the department. While you have several buyers reporting to you, they are primarily concerned with on-going production as well as maintenance and repair purchasing. You prefer to have some involvement in larger single expenditures and in new vendor selection so you decide to handle this yourself.

C. You have not purchased a photocopier in some time but you have some familiarity with office equipment supply and market conditions in general. You know that a copier with the features the controller wants should take about 14 days to receive.

D. You familiarize yourself with the current supply situation. You narrow your choices down to three units which seem to offer good value for the price, ready availability, after sale service, a suitable warranty and the right combination of features which will improve office efficiency. They are all in a very narrow price range around $10,000.

E. You finally select one of the three as being the best all round choice and place your order. According to the factory sales representative demand for this type of copier has recently been very high:

F. (Initial Delay)
a. but they happen to have one in stock and will ship it tomorrow
b. but it will be shipped in 7 days
c. but it will be shipped in 14 days.
d. therefore it will not be shipped for 21 days
e. therefore it will not be shipped for 28 days
f. therefore it will not be shipped for 35 days
g. therefore it will not be shipped for 42 days

Appendix 1 (cont.)

G. (Timing of Notification - for no additional delay go to I)
i. Later that day,
ii. On the (n-1, 14th or 20th) day, the day before you expect to take delivery, you receive a telephone call.

H. (Length of Additional Delay)
The sales representative apologizes and explains that they made a mistake when they promised you the delivery date and that your copier is back-ordered. They expect, however, to be able to ship it:
1. 7 days later than previously promised
2. 14 days later than previously promised.

I. (Delivery)
During the wait for delivery, your purchasing agents, as well as the secretaries, complain about the problems the old copier is causing. Without further incident, on the: a. next, b. 7th, c. 14th, d. 21st, e. 28th, f. 35th g. 42nd day the photocopier arrives. It is installed in the office and you do not hear any serious complaints in the month following the delivery. You have occasion to use the machine yourself and it seems to do the job.

J. (Current Situation)
Just before a general staff meeting the marketing manager mentions to you that the sales department will be needing a new copier soon which prompts you to think about the last purchase.

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Appendix 2
Experiment Design

Figure 6.1 MAIN EXPERIMENT DESIGN Initial Delay (W1)								
Reschedule Condition	Addn'l Delay Length (W2)	0	7	14	21	28	35	42
Block 1 No Reschedule - Delivery when promised	N/A	X	X	X	X	X	X	X
Block 2 Early Notification "later that day" NT = 1, W2 > 0	7			X		X		
	14			X		X		
Late Notification "the day before you expected to take delivery" NT = 2, W2 > 0	7			X		X		
	14			X		X		
Early Notification NT = 1, W2 < 0	-14*			X		X		
	-7*			X		X		
Late Notification NT = 2, W2 < 0	-14*					X		
	-7*			X		X		

- * W2 < 0 indicates advanced delivery condition
- X indicates cells in experiment
- Notification Timing (NT) is categorized as early (1) and late (2) in the main experiment analysis

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