

Waiting in Vain: Managing Time and Customer Satisfaction at Call Centers

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Received December 1st, 2011; revised January 2nd, 2012; accepted January 29th, 2012

The aim was to investigate customers' satisfaction with telephone waiting time using data collected among 3013 customers who were asked for their waiting time satisfaction, information satisfaction, and service satisfaction. The actual queue time was also measured and played a significant but small role on time satisfaction. In order to keep customers satisfied with waiting time, a successful model is an informative satisfactory answer and top of the line service, even when queue times are large. Nevertheless, the model was less useful to predict non satisfied customers. This specific information needs to be integrated when organizations assess customers' time satisfaction.

Keywords: Call Center; Customer Satisfaction; Information Intelligence; Queue Time; Time

Introduction

Information intelligent organizations use their rapid increasing information assets successfully (Evgeniou & Cartwright, 2005). Nevertheless, managers and decision makers tend to only look for information that simply confirms existing beliefs and often disregard all other information (for other barriers to information management see Evgeniou & Cartwright, 2005). For instance, the aspect of time as part of customer satisfaction is often regarded as important in many service situations (for a review see Durrande-Moreau, 1999). Most research has shown that as waiting time increases, satisfaction decreases (Davis & Volmann, 1990), that customers tend to overestimate waiting time (Katz, Larson, & Larson, 1991; Pruyn & Smidts, 1998), and these recalled wait durations have an equal, if not greater, effect on satisfaction than objective waiting time (Katz et al., 1991; Pruyn & Smidts, 1998). At a general level, as perceived or recalled wait duration increases the wait becomes less acceptable (e.g., Antonides, Verhoef, & van Aalst, 2002).

Time management is important because of the increase of service activities in our economic society and because of the increasing value of time for customers (Durrande-Moreau, 1999). The notion of rapid service often guides managers when deciding the work strategy of the organization. Work at call centers, for instance, is often designed around technical solutions that imply some type of work schedule—every second that an agent is not on the phone amounts to precious queue time that must be managed. Nevertheless, these managerial decisions are based on actual time and not recalled time. Managers seem to believe that there is actually a “magic actual time”—crossing over it might lead to customer dissatisfaction. It is plausible to suggest that managers and decision makers might need to know which variables might influence recollections of satisfaction with queue time. Retrospective measures of experience are better predictors, compared to actual experience

(e.g., the exact recollection of waiting time and on-line emotional experience), of future behavior (Kahneman, 2000). Hence, when considering calling again or buying services from the same company customers base their decisions, at least in part, on their previous experiences.

As explained by Kahneman and Kruger (2006: p. 3): “a large literature from behavioral economics and psychology finds that people often make inconsistent choices, fail to learn from experience, exhibit reluctance to trade, base their own satisfaction on how their situation compares with the satisfaction of others and depart from the standard model of the rational economic agent in other ways”. In other words, global and episodic self-reports might not be based on real numbers, such as the actual queue time. For instance, Redelmeier, Katz, and Kahneman (2003) have demonstrated that extreme experiences such as a colonoscopy are more pleasant when it ends less abruptly and less painful, even when such end means a longer procedure. Related to this issue, researchers have also found that people are more willing to wait in line depending on how much they value the service provided by the company (Maister, 1985). In other words, time satisfaction might be influenced by how satisfying the whole service experience is apprehended by the customer.

The Present Study

In this line of thinking, the present article investigates which variables influence customers' satisfaction with the waiting time. Moreover, in order to point out the need of information intelligence, the data used in the present paper is “real life data” (i.e., data that was collected for organizational purposes). Specifically, the present study operationalized customer satisfaction using data collected by a call center in which 3013 customers were asked (automatic survey) if they were satisfied with the service they received, if they were satisfied with the

waiting time, and if they got the information they needed. The actual queue time was also measured.

Actual time was expected to predict whether a customer was or was not satisfied with the waiting time. Nevertheless, the other two measures of satisfaction (i.e., service and information) were expected to play a major role in the prediction of customer satisfaction with waiting time. As stated in the introduction, customers that put a high value on the service provided are prone to wait more. Hence, the influence of actual time was expected to be less important for satisfaction with the waiting time the longer the customer waited. In this issue, the whole sample is divided in four waiting groups, based on actual waiting time, in order to investigate if information satisfaction, service satisfaction, and actual time predicted time satisfaction differently among groups.

Method

The data used in the present study was collected between 2010 and 2011, at three different times, on a three-month interval, and for a period of three weeks each time. A total of 5000 customers that came in contact with a call center (a mobile company in Sweden) were asked to take part in an automatic survey on customer satisfaction. Customers were chosen at random and asked for their participation before they were put on queue at the beginning of their call. The survey was conducted directly after they received help from the agents. A total of 3013 agreed to participate. No demographic variables were collected. The actual waiting time for each customer was also logged by the same computerized system handling the calls.

Instrument

Customer Satisfaction Survey. Participants were asked the following recorded questions: "Are you satisfied with the service you have received?", "Are you satisfied with the waiting time?", and "Did you get the information you needed?". After each question participants were instructed to press "1" for "yes" and "0" for "no". This type of survey is pretty common when call centers assess customer satisfaction. The reliability of the survey was relatively high (*Cronbach's* $\alpha = .83$).

Results and Discussion

A discriminant analysis was performed, using the whole sample of 3013 customers, with time satisfaction as the dependent variable and service satisfaction, information satisfaction, and actual time as predictor variables. Univariate Analysis of Variance (ANOVA) revealed that customers that were satisfied with the waiting time and those not satisfied with the waiting time differed significantly on each of the three predictor variables (service satisfaction: $F(1,3011) = 253.11, p < .001$; information satisfaction: $F(1,3011) = 483.27, p < .001$; actual waiting time: $F(1,3011) = 144.57, p < .001$). The value of this function was significantly different for time satisfied and time non-satisfied customers (*chi-square* = 697.25, *df* = 3, $p < .001$). The correlations between predictor variables and the discriminant function showed that actual time was negatively correlated ($-.43$). Hence, suggesting that customers that had waited the longer were more likely to be dissatisfied with the waiting time. Nevertheless, information satisfaction (.79) and service satisfaction (.57) were the best predictors for time satisfaction. In

other words, customers were more prone to be satisfied with the waiting time if they also answered being satisfied with both the information and the service received. Overall the discriminant function successfully predicted outcome for 78.40% of cases, with accurate predictions being made for 50.40% of customers that were not satisfied with the waiting time and 85.90% of the customers who were satisfied with the waiting time (see **Table 1**).

In order to tests if the influence of service satisfaction, information satisfaction, and actual time was different as the waiting time increased, four waiting groups (low waiting group, medium low waiting group, medium high waiting group, and high waiting group) were created using the whole sample. A waiting group (low vs medium low vs medium high vs high) between-subjects ANOVA was conducted in order to test differences in actual waiting time. The main effect of waiting group was significant ($F(3,3008) = 5075.36, p < .001$). A Bonferroni correction to the alpha level showed that the waiting groups differed as expected, that is, each waiting group had higher actual waiting time than the group under, but lesser actual waiting time than the group above. Hence, validating the median split division. See **Table 2** for means and differences in waiting time between groups.

A discriminant analysis was performed for each group with time satisfaction as the dependent variable and service satisfaction, information satisfaction, and actual time as predictor variables. The results mapped on the results for the whole sample. In all four groups, customers that were satisfied with the waiting time and those not satisfied with the waiting time differed significantly on each of the three predictor variables (see **Table 3** for details). The value of this function was significantly different for time satisfied and time non-satisfied customers for all four groups (see *chi-square* column in **Table 3**). The correlations between predictor variables and the discriminant function showed that actual time was negatively correlated for medium

Table 1.
Classification results by the discriminant function.

	Are you satisfied with the waiting time?	Predicted group membership		
		NO	YES	Total
Count	NO	321	316	637
	YES	336	2040	2376
%	NO	50.40	49.60	100
	YES	14.10	85.90	100

Table 2.
Means in actual waiting time (minutes) for the four waiting groups.

	<i>N</i>	Range	Mean	<i>SD</i>
Low waiting group	754	0.00 - 1.52	.28*	.41
Medium low waiting group	752	1.53 - 7.37	4.69*	1.64
Medium high waiting group	753	7.38 - 13.40	10.31*	1.69
High waiting group	754	13.42 - 52.17	19.99*	6.10

* $p < .001$ vs all the waiting groups with higher actual waiting time. * $p < .001$ vs all the waiting groups with lower actual waiting time.

Table 3.

Discriminant analysis results for the four waiting groups.

Waiting Group	Information Satisfaction	Service Satisfaction	Actual Waiting Time	Chi-square	Predictive Outcome
<u>Low</u>	$F(1,752) = 518.00^{***}$	$F(1,752) = 133.53^{***}$	$F(1,752) = .74$ ns	$436.39, df = 3^{***}$	92%
<i>r</i>	.94	.47	.03	-	-
"No"					81%
"YES"					93%
<u>Medium Low</u>	$F(1,750) = 120.35^{***}$	$F(1,750) = 98.30^{***}$	$F(1,750) = 9.28^{**}$	$166.02, df = 3^{***}$	84%
<i>r</i>	.80	.73	-.22	-	-
"No"					49%
"YES"					90%
<u>Medium High</u>	$F(1,751) = 67.94^{***}$	$F(1,751) = 30.69^{***}$	$F(1,751) = 7.01^{**}$	$78.76, df = 3^{***}$	77%
<i>r</i>	.90	.61	-.29	-	-
"No"					31%
"YES"					93%
<u>High Waiting</u>	$F(1,752) = 86.72^{***}$	$F(1,752) = 56.70^{***}$	$F(1,752) = 1.85$ ns	$104.14, df = 3^{***}$	73%
<i>r</i>	.88	.71	-.13	-	-
"No"					32%
"YES"					93%

Note: ns = nonsignificant; ** $p < .01$; *** $p < .001$.

low, medium high, and high waiting groups. Hence, suggesting that customers that had waited the longer, in these three groups, were more likely to be dissatisfied with the waiting time. Actual time was not related to time satisfaction for low waiting customers. Indicating that with waiting times being so low, time loosed its value and that satisfaction with information and service were more important. Indeed, information satisfaction and service satisfaction were the best predictors for time satisfaction for all groups. In other words, customers were more prone to be satisfied with the waiting time if they also answered being satisfied with both the information and the service received. Overall the discriminant function successfully predicted which customers were satisfied with the waiting time (see **Table 3**). Nevertheless, as **Table 3** shows the model was less accurate for customers that were not satisfied with the waiting time; perhaps other variables, such as uncertainty, increases as actual time increases. Uncertain waits seem longer than certain waits (Maister, 1985), which in turn might lead to feelings of anxiety and dissatisfaction.

Nevertheless, one limitation in the present study is that only few variables were controlled for. That being said, it is important to acknowledge that the present study indicates that quality service and excellent information is more valuable when customers report recollections of waiting time satisfaction. The specific order in which the variables in the present study (i.e., information satisfaction and service satisfaction) seem to influence time satisfaction might be noteworthy. When customers are asked if they are satisfied with the waiting time, they are assumed to objectively review the waiting time and to integrate it into a mental representation of their whole waiting experience. However, as explained by Schwarz and Strack (1999: p. 63): "individuals rarely retrieve all information that may be relevant to a judgment. Instead, they truncate the search process as soon as enough information has come to mind to form a judgment with sufficient subjective certainty" (see also Schwarz, Kahneman, & Xu, 2009). In other words, the judgment of time satisfaction might be based on the information that is more accessible at that point in time. Strack, Martin, and Schwarz (1988), for example, found that dating frequency was unrelated to life satisfaction when the question about life satisfaction preceded

the dating frequency question, whereas reversing the order of the questions increased the correlation significantly. One possible scenario would be changing the order in which questions are presented to the customers that complete the survey, thus making information accessible accordingly to the model. It is plausible to suggest that, assuming that information and service are good, asking customers for their information satisfaction, service satisfaction, and then asking for their waiting time satisfaction would lead to more customers to feel satisfied with the queue time. Nevertheless, an experimental approach is needed to test this specific suggestion.

Conclusion

The actual time played a significant but small role in customer time satisfaction. The findings suggest that in order to keep customers satisfied with the time, managers and decision makers should concentrate on empowering agents to give an informative satisfactory answer and top of the line service, contradictory to "common sense" this is even more important as queue time increases. In other words, customer satisfaction with time can be achieved by just giving the customer more quality time. However, the present study also suggests that more information is needed in order to influence customers that not feel satisfied with the waiting time in a positive direction. Indeed, almost half of the non satisfied customers were not predicted by the model. Although order effects might improve the prediction power of the model, specific information about non satisfied customers needs to be incorporated in data collected by the organizations. Otherwise, managers and decision makers risk letting customers wait in vain.

"I don't wanna wait in vain for your love. From the very first time I rest my eyes on you, girl, my heart says follow through. But I know, now, that I'm way down on your line, But the waitin' feel is fine: So don't treat me like a puppet on a string, Cause I know I have to do my thing" Bob Marley.

Acknowledgements

As the first author I would like to thank The Royal Society of Arts and Sciences in Gothenburg for their support in the devel-

opment of this article. I would also like to thank Anders Biel and Anver Siddiqui at the department of psychology for their support. The authors direct their gratitude to the managers at the call center for their openness and to the reviewers who helped improve the article.

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