ASSESSING THE IMPACT OF CUSTOMER SATISFACTION ON CUSTOMER RETENTION

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This article proposes an alternative model for measuring customers' overall satisfaction. Rather than relying on a single measure of overall satisfaction, a customer's overall satisfaction score is developed on the basis of a weighted average of the gap between a customer's importance rating and actual experience for each attribute. The relative importance weight determined based on customer base surveyed during a certain period will play an important role in calculating the overall satisfaction score. The proposed approach should be able to determine customers' overall satisfaction objectively, and provide valuable information in assessing companies' continuous quality improvement efforts toward customer satisfaction.

INTRODUCTION

As today's business environment becomes evermore dynamic and competitive, many companies have put increased importance on measuring and improving customer satisfaction. Companies are making strenuous efforts to both measure customer satisfaction and assess its impact on overall business performance. As such, organizations have exhibited their commitment to customer satisfaction through mission statements, goals/objectives, marketing strategies, and promotional themes. Peterson and Wilson (1992) argue that "virtually all company activities, programs, and policies should be evaluated in terms of their contribution to satisfying customers." The importance of customer satisfaction is also reflected in the 1998 Malcolm Baldrige National Quality Award Criteria. Criteria 3 and 7 recognize the importance of customer-driven quality and companies' relationships with customers that help build trust, confidence, and loyalty.

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One of the reasons why customer satisfaction has been receiving utmost attention from companies is that customer satisfaction has been linked to customer retention, which is key for competitive success. Moreover, repeat purchases are important because they represent loyal customers who contribute to the expansion of market shares (Bolton and Winchell 1989). Satisfied customers also tend to tell their acquaintances something positive about the product or service.

Even though the importance of customer satisfaction has been widely recognized, most customer satisfaction measurements are designed to simply assess the global or net satisfaction with a product or service. Despite the apparent complexity of the customer satisfaction construct, researchers have often used a single-item rating scale of four to seven points between the extremes of "very dissatisfied" and "very satisfied." Even though this type of question is simple to answer and analyze, information generated may not accurately reflect what attributes of the product/service consumers consider most important in achieving satisfaction and how they perceive the performance of each attribute.

The purpose of this paper is to propose an alternative approach for measuring customer

satisfaction. A quantitative model is presented which utilizes a weighted average gap analysis approach to determine overall customer satisfaction. The model incorporates perceived importance of product attributes and the degree of satisfaction with each attribute. In addition, the model classifies customers into categories according to their level of overall satisfaction.

Impact of Customer Satisfaction on Business Performance

Understanding the consequences of customer satisfaction has been a concern of marketing researchers and practitioners for many years. The concern is derived from the generally accepted philosophy that for a business to be successful and profitable it must satisfy customers. Bitner (1990) argues that customer loyalty and retention depends heavily upon customer satisfaction. Similarly, Patterson, Johnson, and Spreng (1997) demonstrate empirically a very strong link between customer satisfaction and repurchase intentions.

The relative costs of customer retention and customer acquisition have enhanced the desire to build and maintain long term relationships with customers. This is especially true in the service sector where customer acquisition costs are generally higher than customer retention costs (Ennew, Binks, and Chiplin, 1994). Therefore, small reductions in customer defection rates should not only produce significant improvements in profitability, but should also enhance market shares for the organization.

Measuring Customer Satisfaction

Customer satisfaction with a product or service refers to the favorability of the individual's subjective evaluation of the various outcomes and experiences associated with using or consuming it (Oliver 1989). Customer satisfaction is commonly defined within the disconfirmation of expectations paradigm (Oliver and DeSarbo 1988; Tse and Wilton 1988). The disconfirmation of expectations paradigm argues that consumers reach satisfaction decisions by comparing actual product/service performance with prior expectations about how the product or service should perform.

Most researchers agree that satisfaction involves evaluation and that evaluation is the result of a comparison process. Typically, the evaluation is based on a cognitive process in which customers compare their prior expectations of product/service outcomes (i.e., product/service performance and other important attributes) to those actually obtained from the product/service (Zeithmal, Berry and Parasuraman 1993). Customer satisfaction results when actual performance meets or exceeds the consumer's expectations. Likewise, if expectations exceed actual performance, dissatisfaction will result.

Traditionally, customers' overall satisfaction with a product or service has been measured by either a simple "yes or no" question, or with the degree of overall satisfaction (from completely dissatisfied to completely satisfied). The primary weakness of this approach is that it fails to recognize the numerous quality attributes of each product/service and customers' varying degree of satisfaction with each attribute. In a typical customer satisfaction survey, product/service attributes such as performance, reliability, durability, serviceability, etc. are often identified as important dimensions of quality. Customers are then asked to rate the degree of satisfaction with these attributes, in addition to repurchase intention.

This paper utilizes such information to obtain a more accurate measure of customers' overall satisfaction from a detailed analysis of expected quality and actual quality. This proposed method extends the basic concept introduced by Bolton and Winchell (1989) by detailing the degree of customer satisfaction and by incorporating the degree of customer's satisfaction with each product attribute. Each customer's overall satisfaction is determined by a weighted average of the gap between a customer's perception and actual experience for each attribute, and the importance of each attribute perceived by the customer. Customers are then classified into predetermined groups with respect to their overall satisfaction

scores. Here, each customer's overall satisfaction is evaluated based on the weighted average score of the gap, which integrates all the available input about a product/service into a single representative measure. The resulting composite score represents the degree of each customer's overall satisfaction. Vavra (1997) argues that many practitioners prefer a composite measure because it is more statistically reliable than any single measure and, especially, it becomes a better choice when companies compare customers overall satisfaction over many different time periods.

This method deviates from the previous approaches in which each customer is categorized into a typical Likert scale (e.g., completely satisfied, ..., completely dissatisfied), and mainly rely upon ratings obtained from the above-mentioned questions. An average repurchase intention for each customer group is also obtained and used to compute a company's overall performance with customer satisfaction during the specified period. This overall composite score is compared with the one of the previous period in order to assess the impact of a company's continuous quality improvement efforts in a certain period.

Customer Satisfaction Measurement Model

Suppose there are *n* customers who respond to a survey which measures customer satisfaction. Assume also that the product has *m* attributes to be evaluated by the customers. The following notations are presented for the purpose of illustration.

Notations:

I_{ij} = Importance rating of the *i*-th attribute by the *j*-th customer. I_{ij} reflects each individual customer's personal expectation, experience, preference and perception.

W_i = Weight (relative importance) of the *i*-th attribute determined on the basis of customer survey. W_i reflects an overall viewpoint of all customers surveyed.

$$\text{That is, } W_i = \frac{\sum_{j=1}^{n} I_{ij}}{\sum_{j=1}^{n}\sum_{i=1}^{m} I_{ij}}$$

A_{ij} = Actual quality rating of the *i*-th attribute by the *j*-th customer.

$G_{ij} = I_{ij} - A_{ij}$, the rating gap of the *i*-th attribute by the *j*-th customer.

φ_j = Overall satisfaction score of the *j*-th customer., i.e.,

$$\varphi_j = \sum_{i=1}^{m} G_{ij} W_i.$$

u = Unit contribution margin per product

p_j = Customer j's repurchasing intention

p_j = 1, if customer j's repurchasing intention is positive 0, otherwise

q_h^k = Proportion of customers whose overall satisfaction scores are classified into *h* at period *k*. (*h* may be categorized into poor, fair, good and excellent, or the degree of satisfaction on a scale, e.g., completely dissatisfied - completely satisfied)

r_h^k = Average repurchase intention rate (%) of group *h* at period *k*

Ψ^k = Weighted average of repurchase intention rate at period *k* (i.e., $\Psi^k = \sum_h q_h^k r_h^k$)

$u(\Psi^{k+1} - \Psi^k)$ = the effect of a company's overall performance on the improvement of customer satisfaction

First, each customer in a survey sample is asked to rate the importance of each product/service attribute, I_{ij}. This importance rating is based on each customer's personal expectation and previous experience that he/she considers important when purchasing a product. Although one may expect that most customers would agree upon the degree

of importance for some attributes, they are likely to disagree on others because of their different perceptions, expectations and experiences.

When determining an overall perceived importance rating of each attribute by customers using a survey sample, W_i is computed by recognizing those diversified customer perceptions and expectations. Its main purpose is to determine the relative importance of the many aspects of quality attributes (e.g., durability, reliability, performance, aesthetics, serviceability, etc.) that customers use to assess a company's performance. In general, W_i is determined by calculating the sum of each rating for attribute *i*, and by dividing the sum by the total points of all attributes.
This method of computing W_i is very advantageous in that it may reflect customers' changing perceptions and expectations. Moreover, it can provide customer-driven standards and focus. For example, W_i's obtained in a survey conducted in a certain period may not be the same as the ones obtained in the previous or future periods because of a rapidly changing business environment. Different composition of customer groups, as well as customers' changing expectations and perceptions would cause shifts in importance ratings. In addition, when companies improve the quality of the product/service (or any specific dimension of quality) significantly, or when they introduce much-improved products, customers may recognize these improvements and change their perceptions and expectations accordingly in the next survey.

When strong competition is present, product life cycle is short, and many frequent design changes are made, W_i may be calculated solely based on current customer database. This will reflect current customers' ever-changing needs. W_i can also be obtained from an accumulated customer database over several planning periods. When a product life cycle is relatively long, when there exists weak competition, and when product redesign, refit, new design and technological changes are not frequent, W_i can be obtained from a large sample of previous and current customer bases.

The benefits of computing this measure are numerous. It reflects both cross-sectional and longitudinal aspects of customers needs. Companies can continuously update information about changing customers' perceptions and expectations on the product/service. W_i's will also enable companies to set priorities among the many important customer-identified requirements in the form of importance weights. These priorities aid companies in determining where to allocate limited operational resources effectively and how to make concerted efforts on the attributes considered important by customers.

A_{ij} represents the degree of satisfaction with each attribute and is based on the actual quality received and experienced by customers. A_{ij} can be measured in many different situations (e.g., immediately after purchase, after a certain period, etc.) and the findings will likely be different depending on the particular situation. The proposed model in this paper assumes a post-purchase assessment of attribute satisfaction.

G_{ij} indicates a gap between the importance rating and actual rating assessed by customer *j* for attribute *i*. G_{ij} represents the perceived quality. If the amount of actual quality (A_{ij}) provided is equal to or greater than the expected quality (I_{ij}), the customers perceive positive satisfaction. If the amount of actual quality provided is less than the expected quality, the customers perceive dissatisfaction. That is, if $G_{ij} = 0$, then actually-received quality equals the importance rating, suggesting that attribute *i* met the *j*-th customer's expectation. If G_{ij} becomes negative, it means that the attribute exceeded the customer's expectation, and if G_{ij} becomes positive, then the attribute did not meet the customer's expectation, thereby creating customer dissatisfaction. Positive or negative G_{ij}'s will not only affect the customer's overall satisfaction, but also will play a seemingly significant role in forming the customer's perception toward the product and the company that produces the product in future transactions.

Each customer's overall satisfaction about a given product can be obtained by finding a weighted sum

of G_{ij} and W_i. In general, negative φ_j indicates more favorable customer satisfaction toward a product. Positive φ_j suggests that customer *j* is not satisfied with the product overall. If $\varphi_j < 0$, it indicates an overall satisfaction of customer *j*. Smaller and negative values of φ_j's represent the higher level of a customer's overall satisfaction while higher and positive values of φ_j's indicate overall dissatisfaction. $\varphi_j = 0$ may indicate a neutral position but may not create any customer dissatisfaction. It may mean that the product simply meets the customer's overall expectation. Based on this analysis, one could classify customers into various groups in accordance with φ_j.

Typically, creating smaller intervals of φ_j (e.g., -1.5 to -1 vs. -2 to -1), would generate more detailed information about customer satisfaction. The number of customers who belong to each group is identified along with its proportions over the total sample. For each group, then, an average repurchase intention is computed and finally, a company's overall performance with customer satisfaction at a certain period (i.e., Ψ^k) is obtained. In the next period, a new weighted average may be obtained and the impact of the change could be measured by utilizing $u(\Psi^{k+1} - \Psi^k)$. The sequential process required to calculate the effect of performance on customer satisfaction is presented below in detail with a numerical example.

Step 1. For period k, from the given values of I_{ij} and A_{ij}, obtain G_{ij} and compute W_i, the relative importance of attribute *i*.

Step 2. For each customer, an overall satisfaction score is computed for a certain period. That is, for each customer j, compute φ_j at period k as discussed before.

Step 3. Using the information obtained in Step 2, each customer is classified into a predetermined satisfaction group in accordance with *h* (e.g., -2 to –1, -1 to 0, 0 to 1, 1 to 2, etc.) For instance, if an interval of -1 to -2 indicates a degree of complete satisfaction, and a customer's φ_j is -1.28, then the customer belongs to this group.

Step 4. For each group *h*, identify the percentage of customers who belong to *h* (i.e., q^k_h). If, for example, 50 customers belong to a group (-1 to -2) in a sample size of 100, then q^k_h becomes 20 percent .

Step 5. For each group *h*, the average repurchase intention is computed. If repurchase intention is answered based on a "yes or no" question, then repurchase intention can be obtained by finding the proportion of customers who say "yes" out of the total number of the customers who belong to group *h* (e.g., if 45 out of 50 customers in the example in Step 4 indicated that they are willing to repurchase, then repurchase intention becomes 45/50 = 0.9). If repurchase intention is based on the percentage, an average repurchase intention of the group can be easily calculated.

Step 6. Finally, obtain Ψ^k . This indicates a company's overall performance with customer satisfaction during period *k*.

Step 7. For period $k + 1$ repeat steps 1 through 6, and obtain Ψ^{k+1} .

Subsequently, calculate $u(\Psi^{k+1} - \Psi^k)$. This will measure the effect of a company's overall performance on the improvement of customer satisfaction occurred during the time period between *k* and $k + 1$.

Illustrative Example

Tables 1 and 2 illustrate Steps 1 to 6. Suppose three customers (A, B, & C) responded to a survey and provided the information shown in Tables 1. Also, assume that there are five key product quality attributes to be evaluated. A detailed numerical example is illustrated and explained in the notes. Even though this example is based on three customers, this method can be extended to the larger sample size. By computing each customer's overall satisfaction, one can identify a proportion of each customer group whose overall satisfaction

TABLE 1
An Illustrated Example (Steps 1 ~ 3) At Period k

Quality Attributes	Importance Rating (I_{ij})			Weight (W_i)	Actual Quality (A_{ij})			Gap (G_{ij})		
	A	B	C		A	B	C	A	B	C
Performance	10	10	9	0.207	8	8	10	2	2	-1
Price	9	10	8	0.193	10	9	10	-1	1	-2
Durability	9	10	10	0.207	8	7	10	1	3	0
Servicability	10	10	10	0.214	8	8	10	2	2	0
Appearance	8	10	7	0.179	8	8	9	0	2	-2
Repurchase Intention (p_j)					0	0	1			

Note:

1. Each rating is based on a scale of 1 to 10 (10 being the highest, and 1 being the lowest)
2. Computation of W_i's: the relative importance of each attribute identified from the customers.
   $W_1 = (10+10+9)/(10+9+9+10+8) + (10+10+10+10+10) + (9+8+10+10+7) = 29/140 = 0.207$
   $W_2 = 27/140 = 0.193$, $W_3 = 29/140 = 0.207$, $W_4 = 27/140 = 0.214$, $W_5 = 25/140 - 0.179$
3. Computation of each customer's overall satisfaction:
   - Customer A = (0.207)(2) + (0.193)(-1) + (0.207)(1) + (0.214)(2) + (0.179)(0) = 0.856
   - Customer B = (0.207)(2) + (0.193)(1) + (0.207)(3) + (0.214)(2) + (0.179)(2) = 2.014
   - Customer C = (0.207)(-1) + (0.193)(-2) + (0.207)(0) + (0.214)(0) + (0.179)(-2) = -0.951
4. Each customer is classified into three groups (h = 1, 2, 3): Group 3: Dissatisfied (i.e., $\varphi_j > 0$) Group 1: Satisfied (i.e., $\varphi_j < 0$) and Group 2: Neutral (i.e., $\varphi_j = 0$). Note that customers A and B are assigned to Group 3 (dissatisfied) and Customer C is assigned to Group 1 (satisfied).

TABLE 2
An Illustrated Example (Steps 4 ~ 6) At Period k

h	1				2				3			
	($\varphi_j < 0$)				($\varphi_j = 0$)				($\varphi_j > 0$)			
$q^k h$	n = 50				n = 30				n = 20			
	0.5				0.3				0.2			
$r^k h$	Yes	45	No	5	Yes	2	No	9	Yes	8	No	12
	0.9				0.7				0.4			
Ψ^k	0.74											

Note:

1. Assume that 100 customers (n = 100) are surveyed at period k. Suppose that after computing overall satisfaction scores, 50 customers belong to Group 1 (h = 1), 30 customers belong to Group 2 (h = 2), and 20 customers belong to Group 3 (h = 3). Also suppose that h is classified into three categories as defined above.
2. The company's overall performance with customer satisfaction during period k becomes:
   $\Psi^k = 0.5(0.9) + 0.3(0.7) + 0.2(0.4) = 0.74$

scores are classified into h at period k. Also by analyzing each group's average repurchase intention, it is possible to calculate the weighted average for each period, Ψ^k. Steps 4 through 6 are illustrated in Table 2. The same steps can be repeated for the period $k + 1$ in order to measure the effect of the company's efforts toward customer satisfaction. The impact on business performance can be obtained by multiplying $(\Psi^{k+1} - \Psi^k)$.

CONCLUSION/MANAGERIAL IMPLICATIONS

In today's highly competitive environment, a firm must identify what is important to customers, inform customers that you intend to deliver what is important to them, then deliver what you promise (Kurtz and Clow 1993). In other words, the key to any successful organization is customer satisfaction. Customer satisfaction is a subtle yet complex phenomenon which is critical for customer retention. Customer satisfaction is being shaped continually by repeated experiences with a company's products and services over the product lifetime.

Customer satisfaction is also an essential performance metric. Customer satisfaction creates customer retention which, in turn, should increase a company's profitability. An important challenge facing marketing executives is deciding on what level of customer satisfaction will allow their organization to remain competitive, yet at the same time keep costs down enough to make a reasonable profit.

This study proposes a quantitative model in which a customer's overall satisfaction is measured and classified using a comprehensive analysis of survey data. A company's overall performance on the improvement of customer satisfaction is also assessed.

A customer's overall satisfaction score was developed by incorporating important product quality attributes as well as the degree of satisfaction with each attribute. This composite score not only represents a customer's overall satisfaction but also identifies the relative importance of each attribute. The relative importance weight along with actual performance ratings helps companies determine where and how to concentrate improvement efforts, thereby providing companies with economic justification and prioritization for management actions.

Typically, few companies assess their efforts to improve customer satisfaction on a constant and continuous basis. This study attempts to address this issue by examining how a company's performance with customer satisfaction can be measured with respect to the proposed approach. For this purpose, the suggested method allows companies to obtain an average repurchase intention rate during a certain period, which can be used in evaluating a company's performance toward customer satisfaction. Future research should attempt to validate the proposed method by applying the framework into real word examples and including customers' preference on competitors' products or services.

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