

# FLORISTS' PHYSICAL DISTRIBUTION CUSTOMER SERVICES IN THE MARKETING OF ROSES

Kitty Koelemeijer  
Agricultural University  
Department of Marketing and Marketing Research  
Hollandseweg 1, 6706 KN Wageningen  
The Netherlands

## Abstract

Providing customers with excellent customer service creates a competitive advantage. In order to establish this, a 'total chain approach' must be followed, starting with the consumer. In this paper the cut flower logistical chain is partly analyzed by focusing on the consumer. A model of the evaluation of customer service by consumers has been developed. In the model both consumers' perceptions of customer service offered, and consumers' customer service expectations are assumed to affect perception of customer service quality, which, in turn, affects consumer satisfaction/dissatisfaction. Survey analysis of Dutch consumers, with roses as the product under investigation, was used to quantify the relationships in the model with regard to customer service provided by specialist retail florists. The relationships in the model were analyzed by means of regression analysis. The insights in the use of customer service as a marketing instrument, obtained from this study, can be used in order to develop effective service programs throughout the floral distribution channel.

## 1. Introduction

Customer service resulting from logistical operations is becoming a central theme in many sectors of the economy. In agribusiness, the need for fast, reliable movement of the product through the distribution channel is even more urgent, because of the perishability of the product.

### 1.1. Customer service in physical distribution

Customer service in relation to physical distribution implies delivering the right quantity of products, of the right quality, at the right time, and in the right place, during which time and place utility is created (Stern and El-Ansary, 1988) and form-utility is maintained (Perreault, Jr. and Russ, 1976). LaLonde et al. (1988) define customer service as '... a process for providing significant value-added benefits to the supply chain in a cost-effective way'. Both activities during the physical movement of the product, and the consequences for the total marketing operation are considered. Customer service concerns time and place directly. Indirectly customer service in physical distribution has consequences for product quality too.

From the marketing viewpoint, customer service elements can be distinguished on the basis of the marketing mix elements. Examples of customer service elements related to 'distribution' are: out-of-stock situations, speed and reliability of delivery, ordering system, and minimum order size. Customer service related to 'product' concerns quality maintenance, like packing, treatment of the product, and conditioning during storage and transportation. These customer service elements regarding 'distribution' and 'product' result from logistical operations. Marketing mix decisions with regard to 'price' and 'promotions' do not result from, but affect logistical operations. Elements related to 'price' are, for example, quantity discounts, and terms of payment. Elements with regard to 'promotion' give rise to promotional assistance, for example by anticipating large order quantities during promotion activities. Providing information concerning a supplier's logistical performance, and information or advice given by a supplier to a customer concerning that customer's logistical operations - like advice regarding order size- are done with the purpose of reducing costs and/or maintaining the level of availability. Moreover, marketing mix decisions regarding the product, concerning assortment affect logistical operations as well. Providing the customer with information regarding treatment of the product will increase quality maintenance. See Levy (1981) for an overview of customer service elements. Other classifications include LaLonde and Zinszer's (1976) time-based classification of customer service in pretransaction, transaction and posttransaction elements, Levy's (1981) classification on the basis of marketing flows, Wagner's (1977) customer service 'action functions' as opposed to customer service 'reaction functions', and Cunningham and Roberts' (1974) 'convenience' and 'reliability' services, emphasizing both level and stability of customer service offered.

### 1.2. Customer service quality

In addition to a cost-oriented approach, the revenue-generating role of customer service and its use as a competitive tool have increasingly received attention (Bowersox et al., 1986; Kyj, 1987; LaLonde et al., 1988; Levy et al., 1983; Schary and Becker, 1973; Willett and Stephenson, 1969). When developing customer service as a marketing instrument the question to be asked is 'What customer service should be offered in order to improve (or maximize) customers' satisfaction?'. In order to focus logistical operations effectively at consumers' needs, a link between consumer satisfaction and logistical output must be established.

In this respect the concept of service quality (Brown and Swartz, 1989; Grönroos, 1978; Meyer and Mattmüller, 1987; Parasuraman et al., 1985; Sasser et al., 1978) -defined as: the extent to which the service level offered matches customer expectations (Lewis and Booms, 1983)- offers useful insights. Service quality has been measured in various ways by different authors. Parasuraman et al. (1986) used 5-point Likert-type scales in order to measure consumers' perceptions and expectations of service separately. They calculated perceived service quality by subtracting the expectation score from the perception score for each item. This approach was adopted by Brown and Swartz (1989). Evaluative scales (good-bad, unsatisfied-satisfied) have been used as well to measure service quality (Grönroos, 1983).

As far as we know, no studies have been published in which customer service was quantified with the purpose of being included as a goal-variable in logistical models. LaLonde et al.

(1988) give an extensive review of the literature on physical distribution customer service. In their study they concentrate, among others, on perceptions of levels of customer service elements offered, and customer service evaluations by distribution intermediaries. In order to determine which customer service elements to offer at what levels, conjoint analysis has been used (Levy, 1981; Levy et al., 1983; Perreault and Russ, 1977). Levy et al. in this way were able to use customer service as a marketing instrument by modeling sales and profits as a function of customer service offered. Customer service offered by floral distributors and mass marketers has been subject of a study by Prince et al. (1990).

We will use consumers' perceptions of customer service quality as a measure of excellence of customer service offered. This measure will be related to consumers's perceptions and expectations regarding customer service elements resulting from logistical operations throughout the chain. Logistical operations result in customer service offered at each echelon of the chain. Insight in the relationships between customer service offered and perceptions of customer service quality, and between perceptions of customer service quality and satisfaction will enable us to control logistical operations in such a way that customer service can be used as a marketing instrument effectively.

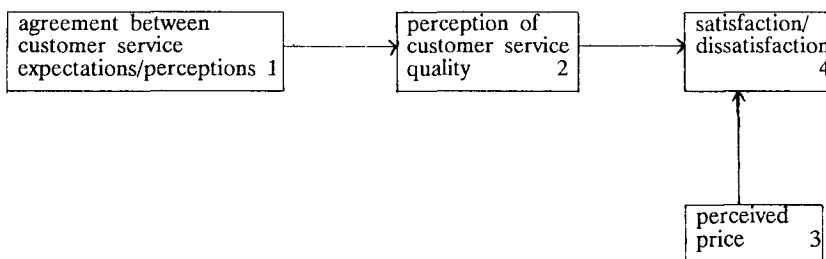
### 1.3. A total chain approach

Efforts are increasingly being directed to optimizing logistical operations throughout the distribution channel. They often aim at minimizing costs while maintaining customer service at a prespecified level. In order to use customer service as a marketing instrument in a cost-effective way tradeoffs between revenues generated and costs involved in offering customer services have to be considered throughout the distribution channel. Logistical operations at a certain stage of the distribution channel can affect customer service offered to the consumer. Therefore, customer service should be analyzed throughout the marketing channel. When the tradeoffs between costs and revenue-generating characteristics of customer service are considered in a total chain approach, an advancement will be made towards controlling logistical operations with customer service both as a constraint and as a goal-variable. Since it is the consumer who ultimately decides which products to buy, analysis of customer service should start with the consumer. In order to maximize consumer satisfaction, customer service in every stage of the distribution channel should be aimed at matching consumers' desires. This part of our research project, which is described in this paper, is focused on the consumer, who will serve as our starting point in the chain.

Our project has been set up to analyze customer service with regard to the physical distribution of roses, in which the first step has been analysis at the retail level. Our research objective was to establish a link between customer service elements resulting from logistical operations and consumer satisfaction/dissatisfaction. For this purpose, a model has been developed. Customer service quality with regard to physical distribution of roses has been measured. The relationship between both consumers' customer service expectations and their perceptions of customer service offered, and perceptions of customer service quality has been quantified. Finally, the ultimate relationship between perceptions of customer service quality and consumer satisfaction/dissatisfaction has been assessed.

## 2. Model and data collection

A model has been developed regarding the evaluation of customer service by consumers. It is assumed that perceived customer service quality (2) is determined by the degree of agreement between consumers' customer service expectations and perceptions regarding customer service elements (1). Perception of customer service quality (2) is expected to have a mediating role in forming consumer satisfaction/dissatisfaction (4). Perception of customer service quality (2) is expected to have a mediating role in forming consumer satisfaction/dissatisfaction (4).



The equations involved are:

$$(1) \quad \text{PCSQ} = a_0 + a_1 \text{ACSEP}_1 + \dots + a_n \text{ACSEP}_n$$

$$(2) \quad \text{CS/D} = b_0 + b_1 \text{PCSQ} + b_2 \text{PP}$$

PCSQ perceived customer service quality

ACSEP degree of agreement between customer service expectations and perceptions

CS/D consumer satisfaction/dissatisfaction

PP perceived price

$i$  number of customer service elements,  $i = 1, \dots, n$   $n = 12$

The consumer perceives customer service in connection with the other elements of the marketing mix, like buyer-seller interactions -the service encounter (Czepiel et al., 1988)- and price. In our approach we will take account of this. A review of the literature and qualitative research led to the selection of customer service elements and scale items. Discussions with florists and experts from flower auctions and trade organizations were used to obtain information on the types of customer service activities performed in floral distribution to consumers. Furthermore, interviews with sixty consumers having experience in buying roses were held. In production of roses much attention has been devoted to the effects of treatment and environmental factors on quality characteristics like longevity (Halevy, 1988; Mor, 1989; De Stigter and Broekhuizen, 1988). Other customer service elements which will be relevant with regard to roses are, among others, speed and reliability of delivery, packing which protects the product and looks good, a broad assortment, and friendly personal service.

A structured questionnaire was developed, pretested and modified. Data were collected by telephone interviews from customers of a random sample of specialist florists obtained

from a list provided by the Dutch Flower Board. Only consumers having experience with buying roses were selected. The questions were formulated in a way suitable for telephone interviews. For example, perceptions of customer service quality, and satisfaction/dissatisfaction were assessed on five-point rating scales, a number which appeared to be suitable for telephone surveys. Somewhere in the beginning of the interview subjects were asked to indicate their expected level on a number of customer service elements, at the end of the interview subjects' perceptions of the level of their retailer's customer service elements were indicated. In the period ranging from the latter half of October until December 1988, a final sample of 2,121 interviews were conducted, representing a 93,6% response rate. 1537 Surveys were fully completed and usable for statistical analyses.

Since little is known about the population of consumers who buy roses, the representativeness of the sample has been compared with those of the total Dutch population. Comparison of socio-economic and demographic characteristics of the sample with Dutch census data (Dutch Bureau of Statistics, A.G.B. Panel) indicated that the sample was representative of the Dutch population. Differences with the Dutch population are (Chi-square,  $p < 0.05$ ): consumers who buy roses at florists had a higher education than other consumers, housewives in the 40-54 year age-bracket, breadwinners in the 20-29 year age-bracket, and families without children or with one or two children are relatively overrepresented, singles are slightly underrepresented.

### 3. Results

#### 3.1. Importance of customer service elements

Mean importance ratings for the 18 customer service elements are provided in table 1. These ratings are listed in order of greatest to least importance, as provided by consumers, and indicate the level of importance placed by specialist florist customers on each element when selecting or evaluating retailers with regard to buying roses. Among the five most important customer service elements were: reach full flower on the vase, tenability, personal service, packing for roses to be given as a present, and complaint settlement. Customer service elements hours of opening, packing for roses to be kept in buyer's own house, and selling on credit were found to be of least importance. All customer service elements except selling on credit, and packing for roses to be kept in buyer's own house achieved a mean rating  $> 3.0$ , the midpoint of the importance scale. Moreover, half of the customer service elements achieved mean importance ratings  $> 4.0$  on a five-point scale.

#### 3.2. Analysis of perception of customer service quality, and satisfaction

Regression analysis has been used to estimate the model proposed in section 2. Prior to regression analysis principal component analysis was used to uncover the underlying perceived customer service quality dimensions. Two dimensions were extracted on the basis of eigenvalues exceeding one, and the scree plot (Cattell, 1966). The dimensions were varimax rotated and labeled judgmentally. See table 2. for the factor analysis results. The first perceived customer service quality dimension correlated high with the items tenability, quality, and assortment. These aspects are interwoven with the physical product and concern

maintenance of form utility. This important dimension is labeled 'perceived intrinsic customer service quality'. The second dimension is not mainly concerned with the physical product, but rather with time and place utility and buyer-seller interactions. This dimension is labeled 'perceived extrinsic customer service quality'. The two dimensions explain 58.1% of the total variance.

Next, the relationship between perception of customer service quality and the degree of agreement between expectations and perceptions of customer service elements was quantified (equation 1. in section 2.). A dummy regression of perceived intrinsic customer service quality and perceived extrinsic customer service quality respectively, on agreement between customer service expectations and perceptions was done. Respondent's factorscores on each dimension were used as the dependent variable. The agreement between customer service expectations and perceptions was coded as dummy-variables (1 when the expected level on a customer service element matched perception of the level of that customer service element, 0 otherwise). In table 3. the results of the regressions are shown. Agreement between expectations and perceptions regarding choice of colors, of varieties, and of prices appear to be important in forming 'perceived intrinsic customer service quality'. Other customer service elements which affect consumers' 'perceptions of intrinsic customer service quality', like stage of flower at the time roses are bought, food for cut flowers given by the florist, vase life, the removal thorns at the florist's, and delivery (usually in combination with selling on credit), relate to quality maintenance. 'Perceived extrinsic customer service quality' is explained significantly, by agreement between customer service expectations and perceptions on elements concerning time and place utility, like delivery, and/or imply buyer-seller interactions, like packing (including decoration, food for cut flowers, and removing thorns), and advice.

Next, the relationship between consumer satisfaction/dissatisfaction and perceptions of customer service quality, and perceived price was assessed (equation 2. in section 2.). A regression of satisfaction/dissatisfaction on 'perceived intrinsic customer service quality', 'perceived extrinsic customer service quality', and perceived price was done (table 4.). Respondent's summated scores on the satisfaction items were used as the dependent variable. Coefficient alpha reliability of the satisfaction/dissatisfaction scale was 0.80 over all subjects. Analysis showed that no item deletions would improve these values. 'Perceived intrinsic customer service quality' has a significant positive effect on consumer satisfaction. Service interwoven with the product (tenability, quality) is very important in determining consumer satisfaction/dissatisfaction. However, although of slightly less importance, other service components, like buyer-seller interaction, reflected in 'perceived extrinsic customer service quality' have substantial effect on satisfaction as well. Perceived price affects consumer satisfaction negatively, as expected.

#### 4. Discussion

In horticulture a marketing approach is needed in which consumers' needs and desires are determinant (Boag and Hubbert, 1989). A study has been carried out with the purpose of exploring the possibilities of customer service as an instrument with regard to the

marketing of roses to consumers. This study forms part of a project in which customer service is analyzed from a 'total chain' viewpoint. A model has been developed regarding the evaluation of physical distribution service by consumers. With regard to roses, consumers distinguish between 'intrinsic' customer service and 'extrinsic' customer service. The former concerns customer service interwoven with the physical product, the latter concerns mainly buyer-seller interactions. Consumers' scores on both dimensions of customer service quality were moderately explained by the degree of agreement between customer service expectations and perceptions. In this respect especially choice possibilities, stage of flower, food for cut flowers, vase life, and delivery relate positively to perceptions of 'intrinsic customer service quality'. Agreement with regard to customer service elements like delivery, packing, decoration, food for cut flowers, removing thorns, and advice about treatment of roses relate positively to perceptions of 'extrinsic customer service quality'. Both 'perceived intrinsic customer service quality' and 'perceived extrinsic customer service quality' have a positive effect on consumer satisfaction, the former being slightly more important. Perceived price affects satisfaction negatively.

The consumer experiences a florists' logistical performance mainly indirectly, via product quality and assortment. This is reflected in the customer service elements used in this study. In order to include customer service in logistical models as a goal-variable, a link between objective measures of a supplier's logistical performance, and customers' perceptions must be established. This will be done in subsequent research, which is in progress. Customer service elements important to customers must be included when research is done on the relationships between florists and their suppliers -wholesalers and/or flower auctions-, between wholesalers and flower auctions, and between flower auctions and producers. Suppliers will take account of customers' needs perceived by translating them, thereby including their own specific demands. Analyses of the relationships between and over subsequent phases in the chain are in progress. With the results obtained we will be able to develop effective customer service programs throughout the floral distribution channel by controlling the logistical process.

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Table 1. Mean importance ratings for 18 customer service elements<sup>a</sup>

Customer service element	
Reach full bloom on the vase	4.75 (0.55)
Tenability	4.74 (0.54)
Personal service	4.65 (0.63)
Packing for roses to be given as a present	4.62 (0.68)
Complaint settlement	4.61 (0.69)
Stage of flower at the time roses are bought	4.35 (0.84)
Advice about treatment	4.23 (1.01)
Choice of colors	4.15 (0.91)
Food for cut flowers	4.04 (1.15)
Choice in prices	3.97 (0.99)
Number of roses in a bunch	3.96 (1.01)
Choice in varieties	3.95 (0.92)
Delivery	3.74 (1.20)
Possibility to buy roses separately	3.73 (1.32)
Removing thorns	3.49 (1.36)
Hours of opening	3.11 (1.15)
Packing for roses to be kept in own house	2.59 (1.25)
Selling on credit	1.68 (1.07)
Price	3.91 (1.03)

<sup>a</sup> Importance of customer service elements: 1 = very unimportant, 5 = very important; n = 1,537. Standard deviations are given between brackets.

Table 2. Factor analysis results of perceived customer service quality

Factor	1	2
Tenability	<u>0.86</u>	0.11
choice possibilities	<u>0.52</u>	0.11
Quality	<u>0.82</u>	0.25
Packing	0.18	<u>0.69</u>
Personal service	0.19	<u>0.74</u>
Service	0.11	<u>0.79</u>
% variance explained	40.9	17.2

Table 3. Estimated relationships between perceived customer service quality and agreement on customer service expectations and perceptions<sup>a</sup>

Independent variables	perceived intrinsic customer service quality		perceived extrinsic customer service quality	
	beta	significance	beta	significance
Choice of colors	.21	.000	n.s.	-
Choice of varieties	.11	.000	n.s.	-
Choice of prices	.12	.000	n.s.	-
Stage of flower	.10	.000	n.s.	-
Food for cut flowers	.10	.000	.07	.005
Vase life	.09	.000	n.s.	-
Delivery	.08	.002	.14	.000
Removing thorns	.06	.004	.07	.008
Sell on credit	.06	.009	n.s.	-
Packing	n.s.	-	.11	.000
Decoration	n.s.	-	.09	.001
Advice about treatment	n.s.	-	.05	.042
Number of roses in a bunch	n.s.	-	n.s.	-
Adjusted R <sup>2</sup>	.16		.07	
Significance F	.000		.000	

<sup>a</sup> Only significant path coefficients ( $p < 0.10$ ) are shown.

Table 4. Regression results of satisfaction/dissatisfaction<sup>a</sup>

Independent variables	satisfaction/dissatisfaction	
	beta	significance
Perceived intrinsic customer service quality	.55	.000
Perceived extrinsic customer service quality	.49	.000
Price	-.13	.000
Adjusted R <sup>2</sup>	.53	
Significance F	.000	

<sup>a</sup> Only significant path coefficients ( $p < 0.10$ ) are shown.