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PRODUCTS, SERVICES, AND CONSUMER PERCEPTIONS OF SERVICE QUALITY IN THE RETAIL FLORAL INDUSTRY OF TEXAS

A Dissertation

by

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ABSTRACT

Products, Services, and Consumer Perceptions of Service Quality
in the Retail Floral Industry of Texas. (August 1993)
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Surveys were conducted to describe the range of products and services offered by Texas florists and supermarket floral departments. Approximately 50% of Texas supermarkets were offering cut flowers and plants on a regular basis. Florists and supermarket floral departments were compared on the number and kind of floral and floral-related products and services regularly offered. A significant number of supermarket floral departments were carrying a wide range of products and offering a variety of traditional florist services. There were relatively few differences between the florists and floral departments regarding the range of products offered. The florists, however, were providing a broader variety of services.

The florists and supermarkets were also compared on several business management and operations variables. The two retailer groups differed in the percent of perishable floral sales attributed to cut flower products and to plants. Recent and planned service-related changes of the two retailer groups were investigated.

An adapted SERVQUAL instrument was used to measure customer perceptions of floral service quality. Based on their SERVQUAL expectations scores, the florist and supermarket floral customers were very similar. Both customer groups considered reliability to be the most important of the SERVQUAL dimensions, and tangibles the least important dimension.

Based on perceptions scores, the florist customers perceived a higher quality of service from florists than the supermarket customers perceived from floral departments. There were significant differences between the florist and supermarket customer groups on the demographic and floral buying variables investigated. Service quality perceptions and several of the demographic variables were related, suggesting the potential for market segmentation based on service quality perceptions. Conditioned upon further research, the SERVQUAL instrument was judged to be useful for measuring consumer perceptions of floral service quality.

The florist and supermarket customer groups were compared on the relative importance attributed to five floral retailing characteristics. For the florist customers, flower quality was most important, followed by service quality, custom design and flower price, and flower assortment. For the supermarkets, flower quality was most important, followed by flower price and flower assortment, service quality, and custom design.

CHAPTER I

INTRODUCTION

Since the early 1970s, the retail floral industry in the United States has changed dramatically. Mass marketers progressed rapidly in floral retailing, and supermarkets in particular have both expanded the market and taken market share from traditional florists. Many supermarkets have moved far beyond the self-serve, cash-and-carry merchandising with which they had entered the floral market. These changes have increased the product and service purchasing options of floral consumers.

Supermarkets and florists alike have access to basically the same variety and quality of products (e.g. cut flowers, decorative plants, and associated hard goods). What distinguishes one retailer from the next is how, and in what form, those products are presented to consumers. In other words, it is the servicing of customer needs which allows for floral retailer differentiation and market share.

Understanding consumer perceptions of service quality is the first step in establishing and evaluating quality assurance programs, whether at the individual business or industry level. Adjusting that program to better meet consumer expectations may lead to increased sales and profitability. To date, there are no published studies of perceived service quality in the retail floral industry.

The development of survey instruments to measure consumer perceptions of service quality will strengthen the floral industry's ability to measure and monitor the effectiveness of quality assurance programs. Such instruments may be used to discover differences in expectations and perceptions between consumer groups. These differences can indicate service quality shortcomings, thus revealing opportunities for improvement.

The purpose of this research was to describe the products and services of Texas florists and supermarket floral departments, and to investigate consumer expectations and perceptions of the service quality of these retailers. Two separate studies, each utilizing survey methodology, were conducted to achieve the following objectives.

1. To describe the range of floral products and services offered by florists and supermarkets in Texas.
2. To investigate consumers' expectations and perceptions of the service quality of Texas floral retailers.

This dissertation follows the style of HortScience.

A. To measure and compare consumers' expectations of service quality of florists and supermarket floral departments.

B. To measure and compare consumers' perceptions of service quality of florists and supermarket floral departments.

C. To determine the relative importance of the dimensions of floral service quality in influencing customers' service quality perceptions of both florists and supermarkets.

D. To evaluate the effectiveness, reliability and validity of the modified SERVQUAL research instrument.

3. To determine, from a consumer perspective, the relative importance of service and product quality characteristics of florists and supermarket floral departments.

The study of consumer perceived service quality was designed to provide information on how the retail floral industry, industry segments, and individual businesses might better serve their customers. It challenged the assumption that florists provide a broader range of higher quality floral products and services than do supermarkets. Service quality strengths and weakness of florists and supermarket floral departments, from a consumer perspective, were identified.

CHAPTER II

LITERATURE REVIEW

Goods Versus Services

Services differ from goods in several fundamental ways: they are intangible, produced and consumed simultaneously, perishable, and heterogeneous. Tangibility has been defined as the degree to which a product or service can provide a clear concrete image, and a scale for measuring this construct for both goods and services has been proposed (McDougall and Snetsinger, 1990). Intangibility (i.e. lack of physical evidence) has been referred to as the critical product-service distinction from which all other differences emerge (McDougall and Snetsinger, 1990). While goods are objects, devices or other tangible things, services are performances, talents or other intangible efforts or abilities (Berry, 1980). Whereas goods can be seen, tasted, or touched, services lack many tangible cues (Zeithaml et al., 1985).

Being a performance, service production is inseparable from its consumption (Booms and Bitner, 1981; Gronroos, 1978). While goods are usually first produced and then sold, most services are sold first, and then simultaneously produced and consumed (Berry, 1980). For many services the customer must be physically present in order for the service to be rendered, e.g. recreation industries such as ski slopes and bowling alleys.

Services are considered perishable because they cannot be produced and then stored. The inability of marketers to inventory services often results in a struggle to match supply and demand (i.e. costly under utilization and/or overwhelming of capacity) (Sasser, 1976). Due to their perishability, services can not be manufactured to set specifications in advance. Each encounter between service provider and consumer is relatively unique. Inconsistencies in provider and consumer behavior, expectations and perceptions make it difficult to assure uniform quality. The result is a high degree of heterogeneity, or non standardization, in service provision (Knisely, 1979; Langeard et al, 1981).

Nearly all "products" are some combination of both goods/tangibles and services/intangibles. According to Shostack's (1977) Molecular Model, marketed offerings may be either tangible- or intangible-dominant, depending on what type of entity forms the core, or nucleus, of the product. For example, Shostack considers airline travel as clearly intangible-dominant in that it does not result in the ownership of a tangible good. The air travel industry is contrasted with the automobile industry in which a tangible is purchased, and

hence constitutes the nucleus. These two industries both deal in transportation, but provide it to customers in different ways.

Both tangible- and intangible-dominant offerings can, and most often do, have both directly-associated tangible and intangible peripherals (Shostack, 1977). The cosmetology industry, which is intangible-dominant utilizes many tangible goods in the production of its services. In the restaurant industry, which is tangible-dominant, many retailers rely heavily on service for the preparation and presentation of food.

The Floral "Product" Is Both Goods and Services

The retail floral industry is tangible-dominant because consumers pay for ownership of floral and related materials. But as in the restaurant industry, the floral industry has traditionally included high levels of service along with their tangible product. Only in the last few decades have floral consumers been able to purchase flowers at the floral equivalent of fast-food outlets, e.g. mass marketers, such as supermarkets, that sell flowers.

In a recent article exhorting florists to maintain the role of fresh flower specialists, Royer (1992) wrote that [being able to attract a certain market segment] "is determined by what you 'do and how well you do it,' not by what you 'do not do.'" What florists have traditionally done is use service to sell flowers, while the cost of providing the service was figured into the cost of goods and/or overhead. More recently, floral retailers have begun to use service to sell both goods and other services (Davis, 1989).

According to Berry (1986), all retail businesses, including goods retailers, are service businesses. Merely putting a product on the market, making it available to the consumer, is in-and-of itself a service. Carrying products in the variety, style, quantity, etc., which customers need and want is another form of service. Selling the product from a store which is attractive, conveniently located, and well-organized are other aspects of service. Additional services include personal sales assistance, telephone sales, special orders, product customization, and delivery. Florists have traditionally provided all of these services.

All floral retailers, by selling flowers, offer some level of service. According to Berry (1986), "Even so-called 'self-service' retailers are quite labor intensive. This is especially true for highly successful retailers who often differentiate themselves not through goods -- which others carry also -- but through service -- which others have difficulty in matching."

Most mass marketers entered into floral retailing at the self-service level by adding cut flowers and blooming and foliage plants as a means of expanding slim gross margins earned on their staple product lines. As these mass marketers became more familiar with floral

products, and realized profits from them, a number have expanded their offerings of both floral products and services.

In a 1989 survey of supermarket management, it was concluded that 67% of U.S. supermarkets had floral departments. Of the stores with floral departments, 95% carried fresh flower bouquets, 94% sold fresh arrangements, and 85% offered fresh flowers by-the-stem. The floral departments were also classified according to level of service: 43% were limited-service, 24% self-service, 20% extended full-service, and 12% full-service (PMA/FMI, 1990). It appears that supermarket management, having made the decision to sell fresh flowers, opt to differentiate themselves from other floral retailers based on the level of service offered.

These terms (self-service, limited-service, full-service, and extended full-service) are often used to describe floral retailers which offer different levels of service. While commonly used, these terms have no well-defined meaning, though they were defined operationally in the Produce Marketing Association/Floral Marketing Institute study (PMA/FMI, 1990) as follows:

Self-service departments - no staffing by store personnel, area is stocked only. The physical location of the department can move, from time to time, in accordance with seasonal promotions and other needs for space.

Limited-service departments - may have floral employees on limited hours, part time. Physical location in store is designated, and possibly could expand as seasonal demands require.

Full-service departments - experienced personnel employed. Designers capable of making custom designs. Department has a designated location in store. Department offers a complete variety of products, potting soils, containers, and decorative items.

Extended full-service departments - includes all of the elements of a full-service department and, in addition, could include: delivery service, wire service, and handling of weddings, funerals, parties and other occasions. Could also include involvement with catering as well.

Under the PMA/FMI categorization, it may be assumed that nearly all florists would be classified as extended full-service. Furthermore, it may be assumed that nearly all florists carry essentially the same basic array of goods (cut flowers, arrangements and associated hard goods) and offer the same assortment of services (e.g. sales assistance, telephone sales, delivery, wire service, custom designing, etc.). Therefore, florists must distinguish themselves by performing better than does the competition (Adamczak, 1989).

The U.S. Retail Floral Industry

For traditional retail florists in the U.S., 1987 sales totaled just over $4.8 billion. This represented a 23% increase since 1977, after adjustment for inflation (SAF, 1993). During

this 10-year period, cut flower sales decreased from 92.4% to 62.2% of total florist sales, and indoor plant sales decreased from 27.1% to 21.5%. Other floral items, non-floral products, and services appeared to be increasingly important elements of the florists' product mix (Table 2.1).

Table 2.1. Percentage of total sales accounted for by merchandise lines for florists reporting payroll for 1977, 1982 and 1987.[z]

	Percentage of total sales		
Merchandise line	1977	1982	1987
Cut flowers	92.4%	64.9%	62.2%
Indoor plants & floral items	NA	27.1	21.5
Nursery stock/ other lawn & garden	NA	2.8	2.1
Season decorations/artificial trees & plants	NA	NA	6.3
Other merchandise	7.2	4.4	6.9
Non-merchandise receipts	0.5	0.8	1.8

[z]From SAF (1993).

Kress (1987) reported that 38% of the surveyed supermarkets were selling cut flowers in 1982, while 68% were offering them in 1986. During this 4-year period, weekly supermarket floral sales increased by 175%. Also during this time, cut flowers moved from 20.2% of total floral sales to 28.1%, while foliage plant sales decreased from 62.6% to 23.3%.

The PMA/FMI (1990) study revealed that average yearly supermarket floral sales were $104,950, with average weekly sales (excluding major holidays) of approximately $1,920. Most of the supermarkets carried a wide range of floral products, with approximately 48% of floral department sales in fresh flowers. Approximately 36% of the stores offered custom-made fresh flower arrangements (Table 2.2).

From a survey of a "nationally representative" sample of U.S. households, it was found that men and women spent approximately the same amount of money (±$170) on floral products (SAF, 1985). Females tended to make more purchases, making their average transaction price slightly lower than that of males. For both men and women, approximately 38% of floral spending was for floral arrangements, 46% for plants, and 16% for loose or bunched flowers. Men were found to spend slightly more on floral arrangements, while women spent slightly more on plants.

Table 2.2. Percentage of supermarket floral department sales by product type.[z]

	Total sales	Total carrying
Base: Total stores answering	100% (n=2,272)	100% (n=2,272)
Fresh flowers (net)	48%	99%
Fresh flowers-Loose stems	12	85
Fresh flowers-Bouquets	28	95
Fresh flowers-Arrangements	8	94
Custom-made		36
Pre-made		64
Flowering plants	28	97
Foliage plants	13	99
Accessories (net)	6	99
Plant care accessories	2	76
Balloons	3	76
Containers	1	50
Fruit baskets	2	25
Permanent/dried (net)	3	54
Permanent flower arrangements	1	53
Permanent flowers-Stemmed	1	47
Natural and dried materials	1	40
Bedding plants	2	43

[z]From PMA/FMI (1989).

In addition, both males and females spent approximately one-third of this amount on floral gifts for others, and the remaining two-thirds on products for themselves and/or their homes. Men were found to visit florist shops in person more frequently than did women (3.8 2.8 times per year, respectively). Women, compared to men, more often purchased floral products from supermarkets, garden centers, and/or sidewalk vendors/kiosks (SAF, 1985).

From a survey of supermarket floral department customers, Behe (1985) found that 85% of floral department customers were women. Approximately 69% of supermarket floral customers were married, and 45% had dependents, and nearly 50% had yearly incomes of

less than $30,000. These respondents ranged in age from 18 to 80 years, and 53% had graduated from college or technical school, while 98% were high school graduates.

Behe (1985) also found that more than 60% of the respondents had gone to a supermarket just to buy flowers. Forty-four percent indicated that they made most of their floral purchases at supermarkets; 33% at florists; 8% at garden centers, 6% at nurseries; 5 percent from greenhouses; and 4% from other types of retailers.

Consumer attitudes about supermarkets and florists may influence their buying behavior. Of the supermarket floral customers responding to Behe's (1985) study, nearly 50% said they believed that supermarket flowers were as fresh as those of florists, and more than half considered supermarket flowers to be a better bargain. According to Behe, "More than 60% said the supermarket is a more convenient place to buy flowers. This indicates, however, that convenience is not the most important reason to buy for nearly 40% of the purchasers." In addition, 37% of the respondents thought that florists have more product information than do supermarkets.

In the SAF (1985) consumer study, attitudes towards supermarkets and florists were also investigated. Based on their responses to a set of opinion questions, 23% of male respondents and 22% of the females were classified as "anti-supermarket." These consumers perceived that supermarket floral quality was low, and that they could not get advice about supermarket floral products. Seventeen percent of the men, and zero percent of the women, belonged to an "anti-florist" group. These men thought that florists did not provide desired information or products, and found florists to be rude.

The Importance of Quality

Consumers are expecting increasingly higher levels of quality, and are becoming more critical of the quality of products and services which they purchase (Albrecht and Zemke, 1985; Bertrand, 1989; Lewis, 1989; Takeuchi and Quelch, 1983). Regardless of the product, service or product-service mix being marketed, consumer perceptions of quality are the key not merely for success, but for survival (Anderson and Zeithaml, 1984; Cina, 1990; Szabo, 1989).

Goods manufacturers and retailers, as well as services marketers, are focusing on service quality to achieve and maintain competitive advantage and profitability (Berry, 1986; Garvin, 1983; Leonard and Sasser, 1982; Newport, 1989; Quinn et al., 1988). According to Shetty (1988), poor quality significantly and negatively affects productivity and profitability, while [high] quality has the opposite effect. For many goods-based companies, customer

service and price are frequently the only means of distinguishing themselves from the competition (Cina, 1989). Floral retailers are also looking towards quality, particularly service quality, as a means of maintaining or gaining market share (Clarkson, 1991; Davis, 1989).

What Is Quality?

While it is extremely important to consumers and businesses, a succinct definition of quality is elusive. Consumers, manufacturers, retailers, and marketing researchers all have difficulty articulating the concept of quality (Farsad and Elshennawy, 1989; Monroe and Krishman, 1985; Takeuchi and Quelch, 1983). For the study of quality, a clear definition is imperative. Such a definition must be focused on consumer wants, expectations and perceptions, and pertain to all aspects of a good and/or service (Bertrand, 1989; Marr, 1986).

Goods are more readily evaluated on objective, or mechanistic, criteria than are services. According to Crosby (1979), quality is defined as the conformance to requirements. Garvin (1983) described five approaches to the definition of quality: 1) transcendent, 2) product-based, 3) user-based, 4) manufacturing-based, and 5) value-based. As a measure of quality, the number of internal failures (i.e. faults observed before a product leaves the factory) and external failures (i.e. problems occurring after the product leaves the factory) can be counted (Garvin, 1983).

According to Shetty (1988), product quality involves both product and associated service attributes. Factors upon which to judge product quality include performance, special features, reliability, conformance, durability, aesthetics and perceived quality. Regarding associated services, typical quality-defining attributes include delivery, repair and maintenance, sales contact, technical support, complaint handling, ordering and billing. Shetty also required that quality be defined from a customer's perspective, and include the same criteria that customers use when they judge the relative value of competing products.

It is commonly accepted that the nature of services (i.e. intangibility, inseparability of production and consumption, perishability and heterogeneity) makes judgments of their quality more difficult than for goods (Zeithaml, 1981). Services are judged on subjective, or humanistic, criteria (Holbrook and Corfman, 1985). Evaluations are based on attributes such as courtesy, competence, reputation, interpersonal skills, access/availability, security, physical facilities, personal appearance, responsive service and price (Crane and Clarke, 1988). Holbrook and Corfman distinguished between mechanistic and humanistic quality: "mechanistic [quality] involves an objective aspect or feature of a thing or event; humanistic

[quality] involves the subjective response of people to objects and is therefore a highly relativistic phenomenon that differs between judges."

Quality has been considered a relatively broad value judgment of a product, similar to attitude (Holbrook and Corfman, 1985; Olshavsky, 1985). Parasuraman et al. (1988) supported this view, citing exploratory research in which service quality was found to be an "overall evaluation similar to attitude." A distinction was made between a customer's perception of the quality of a service (a **global** judgment or attitude) and satisfaction (an emotional reaction related to a **specific** transaction) (Howard and Sheth, 1969; Oliver, 1981; Parasuraman et al., 1988). Still, customer satisfaction or dissatisfaction is also considered a function of the disconfirmation arising from discrepancies between prior expectations and actual service performance (Bolton and Drew, 1991; Cardoza, 1965)

Lewis and Booms (1983) stated that "service quality is a measure of how well the service level matches customer expectations. Delivering service quality means conforming to customer expectations on a consistent basis." Parasuraman et al. (1988) found "unambiguous support [for] the notion that service quality, as perceived by consumers, stems from a comparison of what they feel service firms should offer (i.e. from their expectations) with their perceptions of the performance of firms providing the services. Perceived service quality is therefore viewed as the degree and direction of discrepancy between consumers' perceptions and expectations."

Dimensions of Service Quality

Gronroos (1983) discussed two basic dimensions of service quality: technical (what is provided), and functional (how the service is provided). Berry et al. (1985) also suggested two dimensions of service quality: process quality (an evaluation of the performance of a service) and outcome quality (an evaluation of the results of service provision). Swartz and Brown (1989) proposed two basic dimensions of service quality differentiated by what is evaluated after the service is performed (i.e. physical quality, technical quality and outcome quality), and how the service is evaluated during the delivery process (i.e. interactive quality, functional quality and process quality).

Parasuraman et al. (1985) posited ten service quality determinants or dimensions which consumer use in evaluating service quality: tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, and understanding/knowing the customers. In a subsequent study (Parasuraman et al., 1988), the number of service quality

dimensions was reduced to five: tangibles, reliability, responsiveness, assurance and empathy.

The provider's influence on service quality, including that of management and customer-contact personnel, is well documented (Deming, 1982; Solomon et al., 1985; Shostack, 1987; Upah, 1980). Because service production and consumption are inseparable, there is frequently a high degree of provider-customer interaction. Service encounters have been called "moments of truth," because customers form their impressions of the service's quality at that time (Albrecht and Zemke, 1985; Calzon, 1987; Czepiel et al., 1985).

The inseparability of service production and consumption also means that customers often directly and profoundly affect the quality of the service provided to them (Chase, 1978; Parasuraman et al., 1985; Plymire, 1990). There are many opportunities for both the provider's and customer's expectations, perceptions, and behavior to influence the quality of the service (Bateson, 1985; Swartz and Brown, 1989). This is particularly true for services which require high levels of customer involvement. When judging the service's quality, customers may or may not consider their affect upon it. Regardless, such moments of truth greatly impact the consumer's perception of the quality of service they receive (Czepiel, 1985; Gronroos, 1988).

Measuring Quality of Service: SERVQUAL

Of the various methods used to monitor customer's perceptions of service quality, survey research appears to be most typical (Lewis, 1989; Parasuraman et al., 1991). A reportedly reliable and valid instrument for measuring customer perceptions of service quality in service and retailing organizations was developed by Parasuraman et al. (1988). That survey instrument, called SERVQUAL, measures perceived service quality as defined by Parasuraman et al. (1988): the degree and direction of discrepancy between consumers' perceptions and expectations service performance.

SERVQUAL consists of 22 item pairs: one set of 22 items to measure customer expectations of a business which would provide excellent quality of service, and a second section of 22 matching items to measure customer perceptions of a specific business' service performance. Both sections use a 7-point "strongly disagree -- strongly agree" Likert scale. When SERVQUAL is administered, respondents first complete the expectations section, followed by the perceptions items. The "perceived service quality" measure is calculated as difference scores, i.e. perceptions minus expectations, for each pair of expectation and perception items.

Each item pair was assigned to one of five service quality dimensions: tangibles, reliability, responsiveness, assurance and empathy. As a result, a perceived service quality score can be calculated for these dimensions as well as for the individual attributes each item pair addresses. Similarly, an overall measure of service quality can be obtained by computing an average score across all five dimensions (Parasuraman et al., 1988).

Development of SERVQUAL

In exploratory research leading to the development of SERVQUAL, Parasuraman et al. (1985) conducted in-depth interviews with executives and focus group interviews with consumers. These participants were executives and consumers of four different kinds of service businesses: retail banking, credit card, securities brokerage, and product repair and maintenance services.

From this data, the researchers formulated a service quality model which outlines 5 potential gaps in service provision (Figure 2.1). The five gaps were:

1. Consumer expectation -- management perception gap
2. Management perception -- service quality specification gap
3. Service quality specifications -- service delivery gap
4. Service delivery -- external communications gap
5. Expected service -- perceived service gap

Parasuraman et al. (1988) proposed that gap 5, the gap between consumer expectations and perceptions of a firm, is a function of the other four gaps. As such, the magnitude and direction of gaps 1-4 will have an impact on consumers' perceived service quality. SERVQUAL was developed to measure gap 5 (perceived service quality), and can therefore fulfill a diagnostic role.

In addition, the focus groups revealed a set of criteria which consumers use to evaluate services. The criteria included search properties, experience properties (Nelson, 1974), and credence properties (Darby and Karni, 1973). Parasuraman et al. (1988) identified 10 key categories, or service quality determinants, based on this set of evaluative criteria (Figure 2.2). These determinants of service quality include: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer, and tangibles. By affecting both the expectations and perceptions of consumers, these determinants impact perceived service quality.

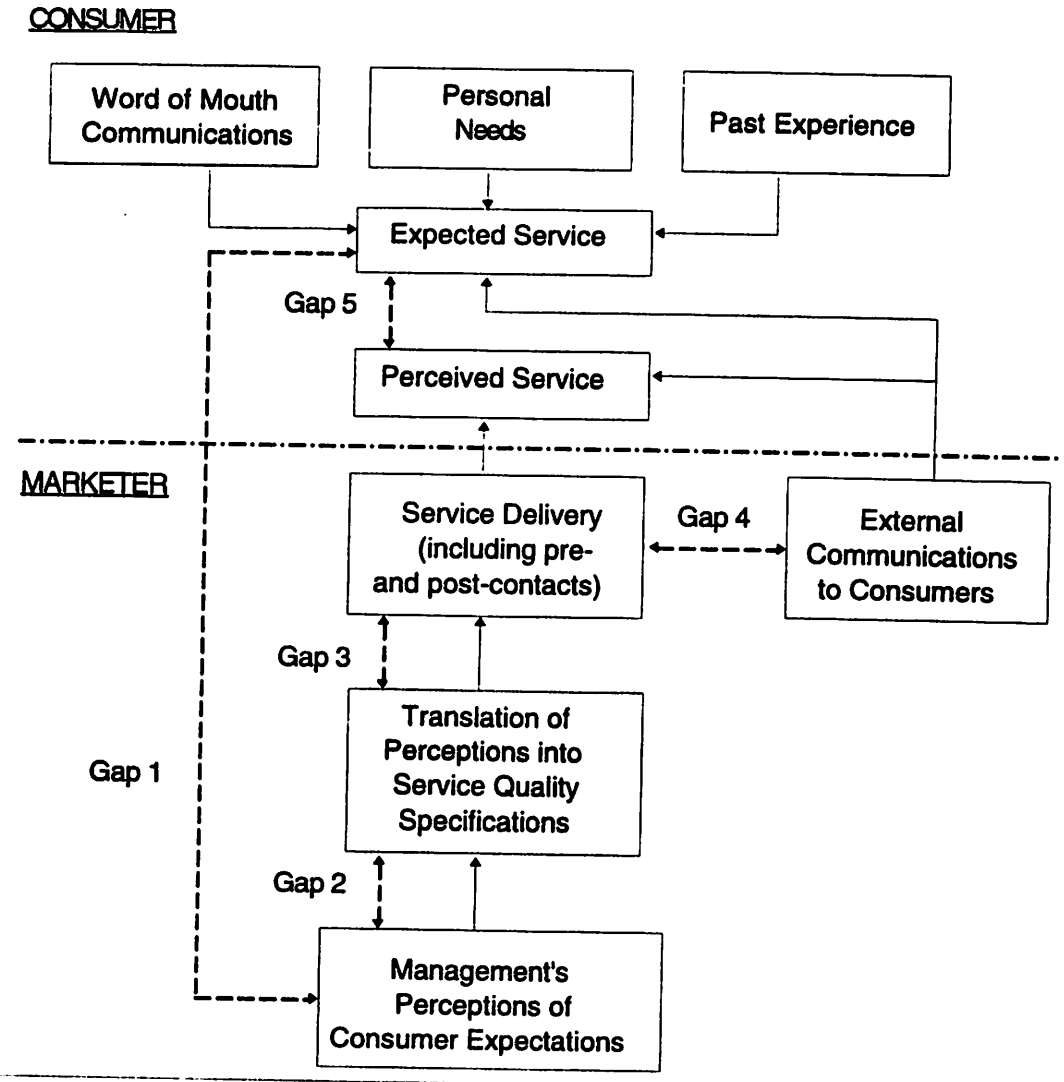

Figure 2.1. Service quality model. (From Parasuraman et al., 1985, Fig. 1, p. 44.)

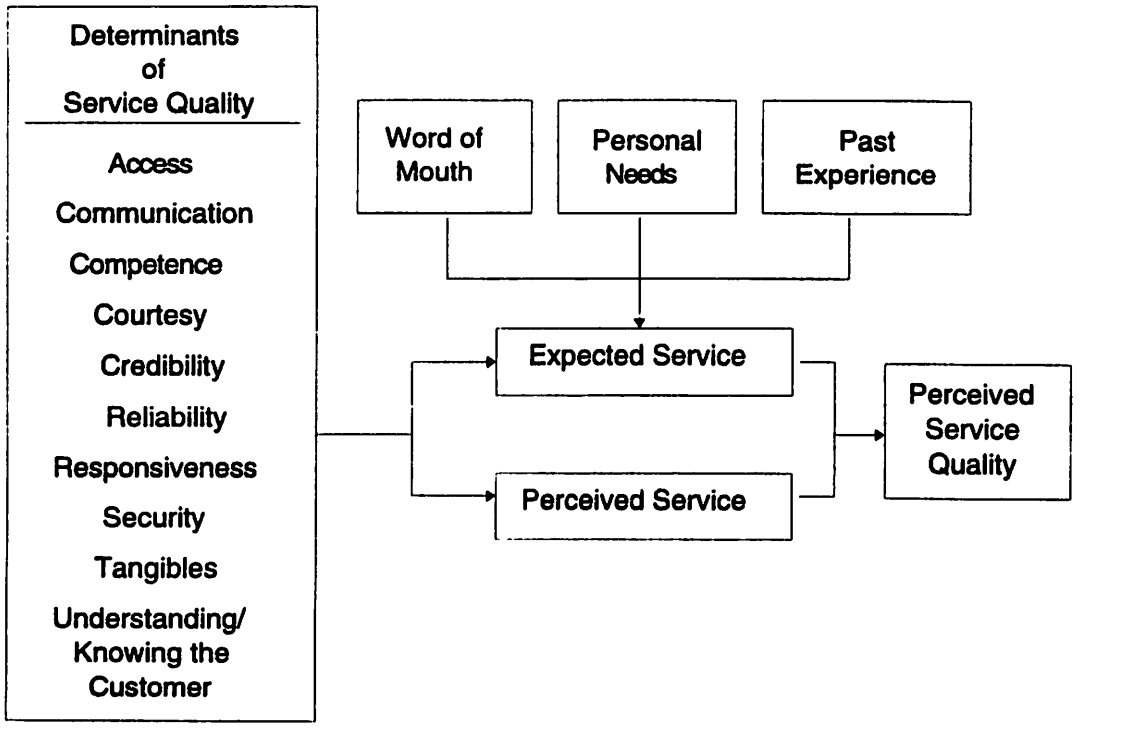

Figure 2.2. Determinants of perceived service quality. (From Parasuraman et al., 1985, Fig. 2, p. 48.)

Expectations are also affected by a consumer's personal needs, past experiences, word-of-mouth communications, and the external communications from service providers (Bolton and Drew, 1991; Katz and Lazersfeld, 1955; Zeithaml et al., 1990). As forms of external communication, advertising and price can signifiantly impact customer expectations (Castleberry and Resurreccion, 1989; Webster, 1991; Zeithaml, 1988).

Based on this exploratory research, Parasuraman et al. (1988) generated 97 expectations-perceptions item pairs, with each pair corresponding to one of the 10 service-quality dimensions. The 97 item instrument was "purified" through a series of survey-data analysis stages (Figure 2.3). The survey was administered to consumers of five different service categories: appliance repair and maintenance, retail banking, long-distance telephone, securities brokerage, and credit cards. The statistical procedures used to refine the instrument included computation of coefficient alpha using difference scores (i.e. perceptions minus expectations) and factor analysis (Cronbach, 1951; Harman, 1967; Parasuraman et al., 1988).

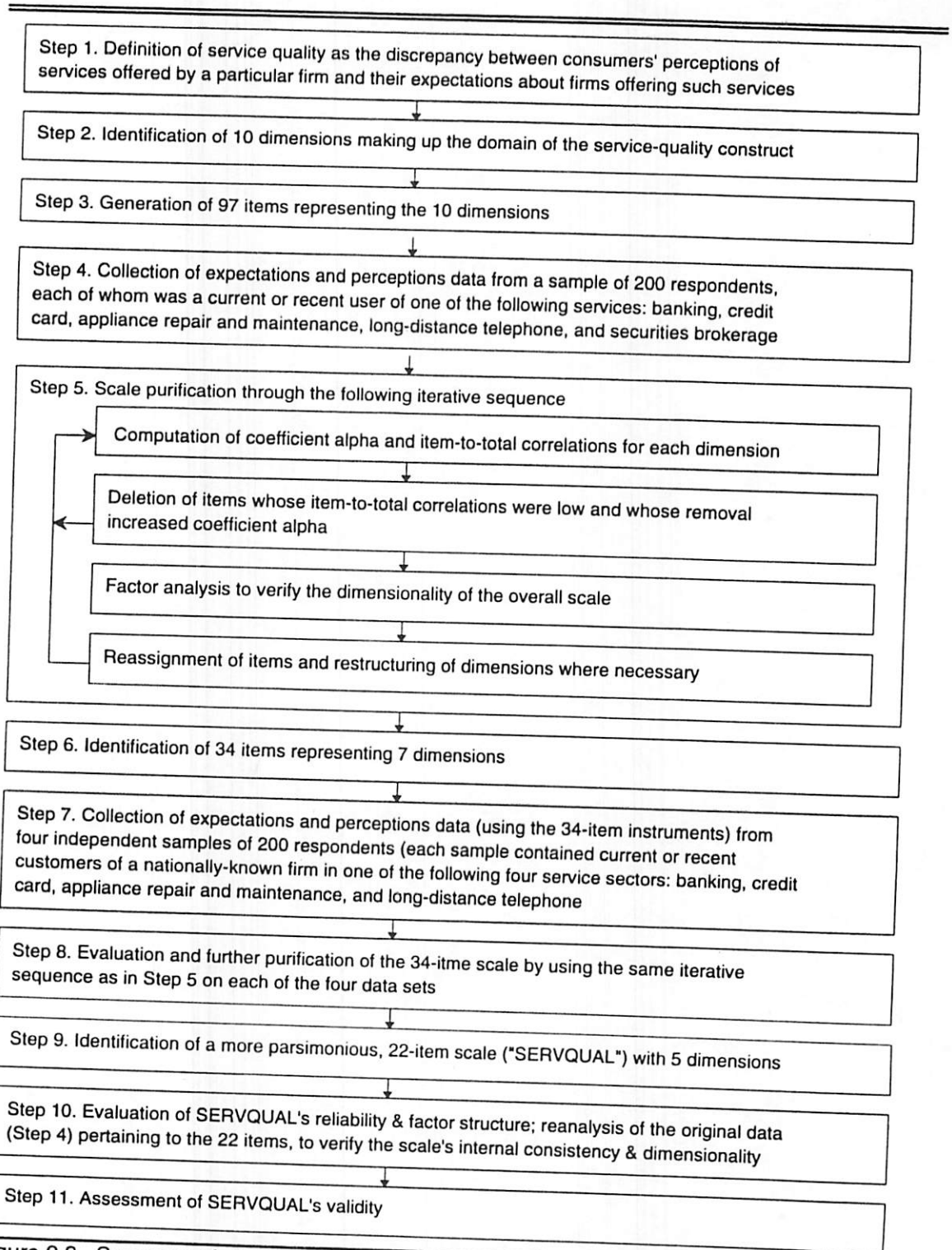

Figure 2.3. Summary of steps employed in developing the service-quality scale. (From Parasuraman et al., 1988, Fig. 1, p. 14.)

The product of this purification process was the 5 dimension, 22 item-pair instrument called SERVQUAL. The results of several different tests added support for SERVQUAL's reliability and validity.

SERVQUAL was designed to be applicable across a broad spectrum of services, including the services associated with goods retailing. Parasuraman et al. (1988) considered it a "basic skeleton" with questions addressing each of the five service-quality dimensions. The developers suggested that this skeleton be "adapted or supplemented to fit the characteristics or specific research needs of a particular organization." Parasuraman et al. (1988) suggested that SERVQUAL may be used for the following purposes:

1. To better understand the service expectations and perceptions of consumers.
2. To track service quality trends, particularly in conjunction with other forms of service quality measurement.
3. To assess a given firm's quality along each of the five service dimensions as well as overall service performance.
4. To determine the relative importance of the various dimensions of service quality.
5. To categorize a firm's customers into several perceived quality segments.
6. To track the level of quality provided by each store within multi-unit companies.
7. To compare a firm's quality performance with that of its main competitors.

Parasuraman et al. (1988) cautioned users of SERVQUAL to limit respondents to current or recent customers since responding to the perception statements requires experience with the firm being evaluated.

Applications and Assessments of SERVQUAL

In a review of the customer service quality literature, Lewis and Mitchell (1990) concluded that SERVQUAL "remains the most reliable tool available for the measurement of service quality in the 1990s." Other applications and reviews of the SERVQUAL instrument have provided further assessment of its theoretical basis and practical usefulness.

Babakus and Mangold (1992) found SERVQUAL to be useful for measuring functional service quality in the hospital setting. In a separate study of hospitals, Reidenbach and Sandifer-Smallwood (1990) used a modified SERVQUAL instrument to measure patient perceptions of service quality in the basic areas of emergency room services, in-patient services, and outpatient services.

Bojanic (1991) determined that a modified application of SERVQUAL proved useful for assessing perceived service quality in small professional services firms. Fick and Ritchie

(1991) investigated service quality in the travel and tourism industry, and described SERVQUAL as useful for: 1) indicating the relative importance of consumer expectations over the various service quality dimensions, 2) making comparisons among dimensions, and 3) determining service quality differences between different firms within the same service sector.

The universality of the 5 SERVQUAL dimensions has been brought into question based on the results of replication studies in different service categories. It has been suggested that the number of dimensions may be vary between service settings (Babakus and Boller, 1992; Carman, 1990), and in different geographic locations (Hedvall and Paltschik, 1989). Babakus and Boller (1992) also suggested that the dimensionality of service quality be investigated for services categorized as continuous/discrete or low/high involvement.

In an application of SERVQUAL to business-to-business motor carrier services (Brensinger and Lambert, 1990), five dimensions were extracted (as in Parasuraman et al., 1988). However, based on eigenvalue selection criteria, only four dimensions were retained. Reidenbach and Sandifer-Smallwood (1990) found that the dimensionality of service quality varied between hospital service functions. In a study of service quality within the goods retailing setting, Finn and Lamb (1991) found that the data did not fit a five-dimensional model. They suggested that customers of goods retailers may base their service quality evaluations on a set of criteria different from the one constituting SERVQUAL.

The use of difference scores in the factor analysis to determine dimensions has been questioned. Vogels et al. (1989) recommended that expectations scores be factor analyzed, and Carman (1990) and Bolton and Drew (1991) used perceptions scores. Babakus and Boller (1992) warned of the "potential activation of psychological constraints" among respondents when they are asked to answer both expectations and perceptions questions concurrently as reported by Cronbach and Furby (1970) and Wall and Payne (1973). Bolton and Drew (1991) pointed out the possibility that the separate measures approach may lead to artificial negative correlation between expectation and difference scores.

Babakus and Boller (1992), Carman (1990), Fick and Ritchie (1991), and Parasuraman et al. (1991) all questioned the empirical usefulness of the expectations section. In each of these studies, the perceptions scores alone had higher correlation with other dependent measures (e.g. overall quality) than did difference scores (i.e. perceptions minus expectations). Nonetheless, measurement of expectations can play a key role in understanding consumers' perceptions of service quality in different settings. "One does not expect the ambiance of an expensive restaurant at a pizza parlor" (Carman, 1990).

Carman (1990) raised several issues regarding the practicality of administering both the expectations and perceptions section to the same individual. Concluding that expectations were important, Carman suggested the following:

1. Expectations need not be measured along with every administration of the perceptions battery.
2. Difference scores may be measured directly, i.e. in a single-item format such as a "performance was worse- and better-than-expected" scale. Such an item may prove more meaningful to respondents and correlate highly overall perceived service quality (see: Oliver, 1981).
3. The expectations of new customers should be measured [when administration of SERVQUAL is limited to previous customers, as prescribed by Parasuraman et al. (1988), the expectations of new customers are never measured].
4. Information regarding customer familiarity with the service should be collected whenever expectations are measured.

Carman (1990) also stated that a measure of the importance of individual attributes should be included in SERVQUAL-like instruments. Noting that popular attitude theory considers importance very relevant to overall quality evaluation, Carman (1990) offered the following linear compensatory, expectancy value formulation:

$$Q = \Sigma I_i(P_i-E_i)$$

where: Q = overall quality; I = importance of service attribute i; P = perception; E = expectation; and summation over the K service attributes.

Vogels et al (1989) drew the preliminary conclusion that many respondents did not understand the negatively-worded items. In a separate study, Fick and Ritchie (1991) cited consistently lower mean expectation and perception scores for negatively-worded dimensions than for those which were positively-worded. They suggested it likely that respondents were confused by the negatively-worded statements and/or less likely to answer at the extreme ends of the scale for such items. Babakus and Boller (1992) suggested that negatively-worded items have an adverse effect on data quality, and found supporting evidence in the measurement literature (Watson and Johnson-Laird, 1972).

It has been suggested that the 7-point Likert scale be expanded to 9 points to allow for a broader range of respondent expression, particularly for longitudinal studies (Vogels et al., 1989). Similarly, Fick and Ritchie (1991) stated that the 7-point scale "does not appear to

have the ability to distinguish between subtle differences in levels of expectations and perceptions."

The wording and subject of some individual items may need to be modified, as deemed appropriate for the service setting under investigation (Carman, 1990). Items may be added on some dimensions when needed to bolster reliability, particularly when SERVQUAL is applied in different service settings (Carman, 1990). When applicable to the service setting, the inclusion of items evaluating associated physical products has been recommended (Vogels et al., 1989). For multi-service-function firms, Carman (1990) suggested that SERVQUAL be administered separately to customers of each service function.

An attempt has been made to segment consumers on the basis of their service quality expectations through application of a 34-item version of the SERVQUAL instrument. Webster (1989) collected demographic and quality expectations data [using a 34-item version of SERVQUAL (Parasuraman et al., 1986)] from consumers of both professional and non-professional services. It was concluded that, for professional services, the seven tested demographic variables (age, gender, marital status, ethnicity, occupation, education, and income) had a statistically significant effect on quality expectations. However, for nonprofessional services, only a consumer's level education had a significant effect on expectations. Interestingly, this was also found to be an inverse relationship.

The Refined SERVQUAL

Based on the results of several studies involving SERVQUAL, its developers reassessed and refined the original instrument (Parasuraman et al., 1991).[1] Parasuraman et al. (1991) first changed the wording of the expectations items: the "should" terminology was changed to "will" terminology. The instrument was then pre-tested in a survey of telephone customers.

Based on the pre-test results, all negatively-worded items were changed to a positive format. To "more fully capture the dimensions and to incorporate suggestions from managers who reviewed the pre-test questionnaire," one new item was substituted for an original item for both the tangibles and assurance dimensions (Parasuraman et al., 1991).

The original SERVQUAL instrument included a 4-point "overall service quality" measure (Parasuraman et al., 1988); the refined version of this measure involved a 10-point scale. New to the refined SERVQUAL was a direct measure of the relative importance of the

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[1]A copy of the published version of the modified SERVQUAL appears in Appendix A.

five service quality dimensions. Respondents were asked to allocate 100 points among the five dimensions based on importance (Parasuraman et al., 1991).

Also new to the refined SERVQUAL was a set of questions designed to provide a "check" of the instrument's validity. Respondents answered yes or no to questions asking: 1) if they had recently experienced a service problem with the company; 2) if they had experienced a problem, was it resolved to their satisfaction; and 3) whether they would recommend the business to a friend.

The refined SERVQUAL instrument was then used to evaluate the perceived service quality of customers of five service-category firms: one telephone company, two insurance companies, and two banks. Based on these results, the investigators evaluated the refined instrument's reliability, factor structure and validity.

Reliability coefficients for the difference scores for each dimension were high across each sample (0.80 to 0.93), indicating high internal consistency among items within each dimension (Table 2.3). In this study, alpha values were higher for each dimension than were those from the pretest and the original study (Parasuraman et al., 1988).

Table 2.3. Reliability coefficients (alphas) for the SERVQUAL dimensions.[z]

			Final study results				
Dimension	No. of Items	Pretest Results	Tel. Co.	Ins. Co. 1	Ins. Co. 2	Bank 1	Bank 2
Tangibles	4	0.60	0.83	0.80	0.84	0.85	0.86
Reliability	5	0.85	0.88	0.92	0.92	0.92	0.88
Responsiveness	4	0.61	0.91	0.92	0.93	0.92	0.88
Assurance	4	0.81	0.89	0.87	0.91	0.90	0.87
Empathy	5	0.66	0.87	0.85	0.89	0.88	0.87

[z]From Parasuraman et al. (1991, Table 1, p. 423).

The factor anaylsis produced six factors, compared to the five factor solution in the original study (Table 2.4). The tangibles items, which formed one dimension in the original study, split into two dimensions in the replication study. The "split" tangibles dimensions related to: 1) physical facilities/equipment, and 2) employees/communication materials.

Table 2.4. Factor loading matrices following oblique rotation of six-factor solutions for P and Q scores.[z]

	Factor loading							Factor loading					
Items	F1	F2	F3	F4	F5	F6	Items	F1	F2	F3	F4	F5	F6
Tangibles							Tangibles						
P1	**89**	01	00	02	01	00	Q1	**90**	05	00	01	01	04
P2	**93**	02	04	01	02	01	Q2	**76**	10	02	02	02	05
P3	00	**77**	02	00	07	03	Q3	00	**86**	06	01	09	00
P4	17	**60**	12	00	07	01	Q4	04	**86**	08	01	07	02
Reliability							Reliability						
P5	01	01	**82**	11	04	04	Q5	02	02	**83**	06	01	05
P6	01	03	**35**	03	14	47	Q6	02	09	**39**	02	19	03
P7	02	01	**74**	08	13	04	Q7	03	03	**73**	09	07	05
P8	01	05	**88**	09	03	00	Q8	00	05	**90**	07	01	00
P9	09	09	**55**	15	13	14	Q9	06	01	**53**	16	09	14
Responsiveness							Responsiveness						
P10	02	19	**47**	**32**	04	05	Q10	02	07	**36**	**19**	**37**	08
P11	06	07	**28**	**45**	18	13	Q11	01	01	**24**	**31**	**65**	03
P12	07	07	02	**27**	**40**	**32**	Q12	01	03	01	**13**	**79**	06
P13	10	01	05	**34**	**37**	**27**	Q13	04	04	02	**12**	**79**	10
Assurance							Assurance						
P14	08	09	16	14	**50**	19	Q14	03	07	10	07	**73**	08
P15	11	07	31	03	**83**	03	Q15	06	01	24	22	**60**	03
P16	00	31	04	08	**50**	17	Q16	04	08	11	11	**79**	06
P17	11	13	16	15	**43**	11	Q17	01	04	13	07	**67**	02
Empathy							Empathy						
P18	03	04	05	01	01	**85**	Q18	01	02	01	03	04	**79**
P19	12	10	03	11	07	**43**	Q19	04	05	03	04	04	**53**
P20	02	10	09	01	00	**90**	Q20	02	03	09	03	02	**91**
P21	12	11	14	01	09	**66**	Q21	01	07	16	11	10	**63**
P22	11	03	11	03	12	**62**	Q22	06	03	14	04	20	**52**

[z]From Parasuraman et al. (1991, Table 4, p. 430). All numbers in the table are magnitudes of factor loading multiplied by 100. The percentage variance explained by the six factors in the perception (P) and gap score (Q) data set were 74.1% and 69.3%, respectively.

The degree of overlap between the dimension on the revised scale is "somewhat higher" than that found in the original study. Furthermore, when the factor analysis was constrained to five factors, the responsiveness and assurance items loaded onto the same dimension. However, when the data were re-analyzed to allow a sixth factor, the responsiveness and assurance dimensions were relatively distinct. Regarding dimensionality, Parasuraman et al. (1991) concluded that the refined SERVQUAL "still reflects the basic 5-dimensional structure of the original scale with one key exception -- namely, the division of tangibles into two sub-dimensions."

Additional support for the distinctiveness of the responsiveness and assurance dimensions was provided by the results of the question asking respondents to allocate 100 points among the five dimensions (Table 2.5). A paired-sample *t*-test showed a statistically significant difference between responsiveness and assurance in every sample.

Table 2.5. Relative importance of the SERVQUAL dimensions.[z]

	Mean number of points allocated out of 100 points					
Dimension	Tel. Co.	Ins. Co. 1	Ins. Co. 2	Bank 1	Bank 2	All Cos.
Tangibles	12	10	11	11	11	11
Reliability	34	33	29	31	32	32
Responsiveness	24	22	23	23	22	23
Assurance	17	19	20	20	19	19
Empathy	16	16	18	17	16	17

[z]From Parasuraman et al. (1991, Table 5, p. 431). Numbers in some columns do not add exactly to 100 due to rounding.

The overall service quality (OSQ) ratings were used to assess the refined SERVQUAL's validity. The OSQ ratings were regressed on the difference scores along the five SERVQUAL dimensions. The adjusted R^2 values for the different customer groups ranged from 0.57 for the telephone company to 0.71 for one of the insurance companies. Four of R^2 values were statistically significant at $p < 0.01$, and the fifth at $p < 0.05$. These R^2 values indicate that the difference scores were able to explain a considerable amount of the variance in the OSQ ratings, thus supporting the scale's validity (Parasuraman et al., 1991).

Analysis of the weighted average SERVQUAL scores for the 3 validity check questions described above (Problem?, Resolved?, Recommend?) provided additional support

for the refined SERVQUAL's validity (Parasuraman et al., 1991). Table 2.6 presents the weighted average scores for each company's customers grouped according to their responses to these three questions.

Table 2.6. Weighted average SERVQUAL scores for respondents segmented according to the variables problem, resolved, and recommend.[z]

	Problem?		Resolved?		Recommend?	
Company	Yes	No	Yes	No	Yes	No
Tel. Co.	-1.60	-0.75	-1.26	-2.38	-0.64	-2.85
	(159)	(219)	(99)	(49)	(295)	(74)
Ins. Co. 1	-1.98	-0.70	-1.72	-2.73	-1.00	-2.59
	(147)	(184)	(91)	(46)	(284)	(42)
Ins. Co.	-1.72	-0.28	-1.50	-2.54	-0.39	-2.89
	(80)	(180)	(43)	(30)	(235)	(32)
Bank 1	-2.14	-0.92	-1.69	-2.67	-0.85	-2.84
	(128)	(209)	(61)	(61)	(244)	(89)
Bank 2	-1.85	-0.55	-1.41	-2.46	-0.61	-2.55
	(130)	(312)	(66)	(53)	(383)	(58)

[z]From Parasuraman et al. (1991, Table 7, p. 433). Numbers shown in parentheses are sample sizes. The average SERVQUAL scored under "Yes" and "No" are significantly different at ($p \leq 0.01$) in every instance.

Weighted score were calculated for each respondent by multiplying the respondent's mean gap score for each dimension by the dimension's relative importance weight and summing the results across the five dimensions. The less-negative scores in Table 2.6 indicate higher levels of perceived quality. "Respondents answering no to the "Problem?" question, yes to the "Resolved?" question and yes to the "Recommend?" question should perceive higher service quality than other respondents" (Parasuraman et al., 1991). Each difference between yes/no pairs was statistically significant and in the hypothesized direction, thereby providing another indication of the refined instrument's validity.

Floral Service Quality

In the academic literature, there are no published studies which directly address service quality in the retail floral industry. However, service levels provided to retailers by

floral wholesalers have been investigated (Prince et al., 1991). The need for research into consumer-related floral service issues has been discussed (Lockshin and Rhodus, 1991; Townsend, 1989). While nearly all studies of quality in the floral industry involved characteristics of tangible goods (Lockshin and Rhodus, 1991), some information germane to service quality can be obtained from floral consumer reports (Scammon et al., 1982; Behe and Hahn, 1985).

CHAPTER III

RETAILER PRODUCTS AND SERVICES

Objective

To describe the range of floral products and services offered by florists and supermarkets in Texas.

Methodology

Instrument Development

A survey instrument was designed to obtain primarily descriptive information regarding Texas floral retailers' products and services. Following a review of the floriculture literature, including the trade press, a list of floral products and services offered by floral retailers was developed. This list was augmented and clarified through discussions with industry experts (e.g. retailers, marketing specialists and academics), and then put into survey format.

The preliminary instrument was of a structured, undisguised format, and consisted of three parts. The first section was an inventory of floral and floral-related products. The respondent was asked to indicate whether or not the retailer carried each product type on a regular basis.

The second section was an inventory of services and service-related characteristics. The respondent was asked whether or not the retailer offered each service item on a regular basis. The third section contained a series of business operations and management questions, including items regarding hours of operation, type of business, number of employees, level and variety of services, and floral sales, etc.

The preliminary instrument was reviewed by both research and industry experts on content, organization and item clarity. Based on these reviews, the instrument was revised and then administered to a judgment sample of five florists and four supermarket floral department managers. In post-administration interviews, these floral retailers were asked for suggestions to improve the instrument, particularly regarding content, format and wording. This information was then used to revise the instrument a final time.[2]

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[2]A copy of the retailer study instrument appears in Appendix B.

Sample Selection and Survey Administration

The population of interest consisted of Texas florists and supermarkets which offered floral products. The sampling frame was the Texas Department of Agriculture (TDA) Class 1A Nursery/Floral Master Class 1A License List from April 1992. The TDA list contained all firms licensed by the State of Texas to purchase nursery and/or floral products wholesale. The licensees included such businesses as florists, supermarkets, convenience stores, discount stores, garden centers, greenhouses, nursery and landscape firms, restaurants, etc.

An initial sample was drawn from the TDA list by selecting every fifth entry, beginning with a random selection. This sample was then narrowed by eliminating those businesses known not to be florists or supermarkets. More specifically, two Texas horticulture industry experts independently reviewed the initial sample, marking those businesses known not to be either a florist or supermarket. An entry was eliminated if both experts identified it as non-applicable. The resulting sample contained 1,025 elements.

A survey form, along with a business-reply envelope, was mailed to each sample element in mid-May, 1992. The out-going envelope was addressed to the "Floral Manager" of the business, and posted with a first-class stamp. One week later, a follow-up postcard designed to encourage response to the questionnaire was sent to each sample element via bulk mail.

Returned instruments were checked for completeness, legibility and consistency. All usable questionnaires were then coded, and the data entered into the computer for statistical analysis.

Results and Discussion

Response Rates

Of the 1,025 questionnaires mailed to floral retailers, thirty questionnaires were returned by the U.S. Postal Service as undeliverable. Eight instruments returned by retailers were determined unusable. A total of 240 usable instruments were obtained, for an overall response rate of 23.4%.

Of the 240 usable returns, 72% were from flower shops or specialty florists (florists), 16.2% from supermarkets, and 11.6% from other types of businesses (Table 3.1).

Table 3.1. Percent of usable instruments from each type of business.

Business type	% of respondents	Cumulative %	n=240
Flower shop	55.8[z]	55.8	
Specialty florist	16.2	72.0	
Supermarket	16.2	88.2	
Retail greenhouse	0.8	90.0	
Garden center	3.7	93.7	
Retail nursery	2.1	95.8	
Other	5.0	100.8	

[z]Column totals not equal to 100 due to rounding.

A response rate for florists was estimated to be 33%. This number was determined by dividing the number of returns from florists by an estimate of the total number of florists in the sample (171/512=0.33). The estimate of the number of flower shops and specialty florists (florists) in the sample (512) was determined by categorizing each sample listing by business type based on the business name.

In the same way, a response rate of 18% was estimated for the supermarkets. This was calculated by dividing the number of returns from supermarkets by the estimated number of supermarkets in the sample (39/213=0.18).

Compared to the estimated florist response rate, that of the supermarkets appeared low (33% versus 18%). To investigate this difference, a telephone survey of supermarkets was conducted in early July, 1992. A random sample of 55 (≈25%) was drawn from the sample list of firms categorized as supermarkets. All 55 stores were telephoned and 51 responses were obtained. (Two of the supermarkets had disconnected numbers with no available alternative listings, and two were refusals.)

For each call, a request was made to speak with the floral manager. If the store had no floral manager, or if the floral manager was unavailable, a request was made to speak with the produce manager. The manager at each store was asked the following questions.

1. Did they recall having received the retailer questionnaire?
2. Did the store have a floral department?
3. Did the store sell fresh cut flowers?
4. Did the store sell blooming or foliage plants?

If a respondent answered yes to either question three or four, they were asked if the store carried the items on a regular basis (as opposed to seasonally and/or for special promotions only). The results of the telephone survey appear in Table 3.2.

Table 3.2. Floral retailing characteristics of supermarkets.

Floral retailing characteristic	% of supermarket respondents Questionnaire received Yes n=37	No n=14	Total n=51
Floral dept. with cuts and plants	62.2[z]	21.4	51.0
Floral dept. with plants only	18.9	14.3	17.6
Seasonal cuts and plants only	5.4	0.0	3.9
Seasonal plants only	13.5	28.5	17.6
No floral	0.0	35.7	9.8

[z]Columns may not total to 100 due to rounding.

Approximately 73% of the managers recalled having received the questionnaire, and the remaining 27% did not. Nine of the managers who recalled having received the questionnaire indicated that it had been completed and returned. It is considered highly unlikely that questionnaires were returned for the stores whose managers did not recall having received the questionnaire.

It should be noted that the managers were **not** asked if they had completed and returned the questionnaire. This and other probing questions were omitted to avoid any undue pressure which might affect the managers' willingness to answer the phone survey questions. And because the mail survey had been anonymous, it was necessary to avoid the impression that known non-respondents were being "tracked down." Such impressions might negatively affect a retailer's willingness to participate in future studies as well.

Of the 14 supermarkets whose managers did not recall having received the questionnaire, only 3 had floral departments which carried both cuts and plants on a regular basis. In comparison, 62% of the other supermarkets had such floral departments, and an additional 20% had floral departments regularly stocked with plants. These results suggested two possible reasons for the low response rate of supermarkets.

1. Nearly a quarter of the supermarket floral/produce managers in the retailer sample may not have received the questionnaire. Since the questionnaire was addressed to the floral manager, those stores not having floral managers may be under-represented.
2. Nearly half of the supermarkets did not have floral departments offering cut flowers and plants on a regular basis. For managers at such supermarkets (floral, produce, or otherwise), completing the rather lengthy questionnaire may have appeared inappropriate and/or not worth the effort. This conclusion was supported by information gained through conversation with the managers who were surveyed by phone.

These results also indicated that the 39 supermarkets which responded to the questionnaire were **not** representative of the broad range of Texas supermarket floral retailers. Rather, they were the more "florist-like" of supermarket floral departments, and thus provided an interesting comparison to florists.

Comparison of Florists and Supermarkets

The florist and supermarket responses were compared using the Pearson chi-square (χ^2) test. When an expected cell frequency in the 2x2 tables was less than five, Fischer's Exact test was applied.

Of the perishable floral and related products investigated, significant differences at P=0.05 were found on two items: ready-made bunches of fresh flowers and bedding plants (Table 3.3). In both instances, a greater proportion of the supermarkets carried the item. A difference at P=0.10 was also found regarding landscape plants, again with more supermarkets offering the product. A remarkable percentage of florists did not regularly carry ready-made designs (20.2%), ready-made bunches (38.2%), and blooming plants (11%).

On average, the supermarkets carried a significantly larger number of perishable floral and related items than did florists (Table 3.4). The maximum number of products was ten for both groups , the minimum for the florists was one, and for the supermarkets, three.

Of the 22 non-perishable floral and related products investigated, a greater proportion of florists carried six of the items: preserved materials by-the-stem, ready-made artificial and/or preserved arrangements, artificial plants, plush, wedding accessories, and ceramics (Table 3.5). A greater percentage of supermarkets carried six other items: gift wrappings, plant containers, potting soils, fertilizers and pesticides, and home gardening tools.

No significant differences were found on the remaining eleven items. Nearly all florists and floral departments were selling balloons.

Table 3.3. Perishable floral and related products regularly offered by florist and supermarket respondents.

	% of respondents		
	Florist n=173	Supermkt. n=39	
Cut flowers by-the-stem	94.2	89.7	P=0.30[y]
Ready-made fresh bunches	61.8	87.2	0.00[z]
Ready-made fresh floral designs	79.8	84.6	0.49[z]
Foliage plants	97.7	97.4	1.00[y]
Blooming plants	89.6	97.4	0.21[y]
Bedding plants (in season)	12.7	64.1	0.00[z]
Landscape plants	6.4	15.4	0.10[z]
Fruit baskets	69.4	71.8	0.77[z]
Gourmet food baskets	46.2	33.3	0.14[z]
Candy	63.0	64.1	0.90[z]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

Table 3.4. Number of perishable floral and floral related products regularly offered by florist and supermarket respondents.

	Florist	Supermkt.	
n	173	39	
Mean	6.2	7.1	P=0.01[z]
SE	0.146	0.294	
Min.	1	3	
Max.	10	10	

[z]Two-tailed probability of pooled variance *t*-test.

All of the supermarkets carried at least three of the items, while the minimum number among the florists was zero (Table 3.6). There was no statistically significant difference between florists and supermarkets on the mean number of non-perishable products offered.

Table 3.5. Non-perishable floral and related products regularly offered by florist and supermarket respondents.

	% of respondents		
	Florist n=173	Supermkt. n=39	
Artificial flowers by-the-stem	77.5	76.9	P=0.94[z]
Preserved materials by-the-stem	61.8	41.0	0.02[z]
Ready-made preserved bunches	53.2	56.4	0.72[z]
Ready-made artificial or preserved arrangements	85.0	71.8	0.05[z]
Artificial plants	73.4	43.6	0.00[z]
Basic containers	85.0	82.1	0.65[z]
Floral design supplies	76.3	61.5	0.06[z]
Greeting cards	65.9	79.5	0.10[z]
Balloons	94.2	97.4	0.69[y]
Plush (e.g. stuffed animals)	87.9	69.2	0.00[z]
Wedding Accessories	63.6	46.2	0.04[z]
Candles	48.0	61.5	0.13[z]
Gift wrappings	45.7	71.8	0.00[z]
Crystal vases	56.1	46.2	0.26[z]
Ceramic vases/containers	77.5	53.8	0.00[z]
Porcelain figurines, china, etc.	36.4	25.6	0.20[z]
Collectibles	41.0	28.2	0.14[z]
Pots/other plant containers	31.8	56.4	0.00[z]
Potting soils	13.9	89.7	0.00[z]
Fertilizers, pesticides, etc.	8.7	76.9	0.00[z]
Tools (e.g. trowels, shovels, etc.)	2.9	35.9	0.00[y]
Statuary, trellises, etc.	5.8	0.0	0.21[y]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

Table 3.6. Number of non-perishable floral and related products regularly offered by florist and supermarket respondents.

	Florist	Supermkt.	
n	173	39	
Mean	11.9	12.7	P=0.31[z]
SE	0.330	0.761	
Min.	0	3	
Max.	20	21	

[z]Two-tailed probability of pooled variance *t*-test.

Similar percentages of florist and supermarket respondents did not guarantee each of the items in Table 3.7 (cut flowers, plants, non-perishables and service). For each of the three product items, the percentages are of those florists and supermarkets that sell the given product. For example, of the respondents who sold cut flowers, 7% of the florists and 3% of the supermarkets did not guarantee them. In other words, of the florists and supermarkets who sold cut flowers, 93% and 97%, respectively, did guarantee their cut flowers.

Of the retailers which sold cut flowers **and** guaranteed them, there was no significant difference between florists and supermarkets regarding the type of guarantee offered (unconditional versus limited). Of those which sold plants and/or non-perishables, and guaranteed these products, there were significant differences in the type of guarantee offered by florists and supermarkets. For both plants and non-perishables, a significantly greater percentage of supermarkets offered unconditional guarantees.

Table 3.7. Product and service guarantees of florist and supermarket respondents.[z]

Item			% of respondents Florist	Supermkt.	
Cut flowers	No guarantee		6.9 n=173	2.7 n=37	P=0.47[x]
	Guarantee	Unconditional Limited	46.0 54.0 n=161	58.3 41.7 n=36	P=0.18[y]
Plants	No guarantee		3.0 n=169	7.9 n=38	P=0.16[x]
	Guarantee	Unconditional Limited	41.5 58.5 n=164	62.9 37.1 n=35	P=0.02[y]
Non-perishables	No guarantee	None	19.4 n=170	17.9 n=39	P=0.83[y]
	Guarantee	Unconditional Limited	50.0 50.0 n=137	75.0 25.0 n=32	P=0.01[y]
Service	No guarantee	None	13.3 n=173	15.4 n=39	P=0.73[y]
	Guarantee	Unconditional Limited	56.0 44.0 n=150	75.8 24.2 n=33	P=0.04[y]

[z]For the cut flower, plant and non-perishable product guarantees, only those respondents that regularly carried the item were included in the analysis.
[y,x]Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

All respondents were included in the analysis of service guarantees. Similar percentages of florists and supermarkets did not guarantee their service. Of the retailers which did guarantee service, a larger proportion of supermarkets had unconditional guarantees than did florists (76% vs. 56%).

The nearly 100 services and service-related characteristics items are summarized in Table 3.8. Statistically significant differences were found on eight of these eleven summary items. The proportion of florists was greater than that of supermarkets on six items: telephone sales assistance, selection guides, delivery, wire service, custom design, and rentals. Supermarkets exceeded florists on the "open 24 hours-a-day all week" and "open 7 days-a-week" items. The three statistically non-significant items were in-store sales assistance, 24 hours-a-day ordering, and membership in a 1-800 marketing organization.

The observed supermarket percentages on several of the items are of particular interest. For example, 92% indicated that they offer in-store sales assistance, and 56% would serve customers by telephone. In addition, 87% of the supermarkets provide at least some custom design service and 41% offered delivery.

Table 3.8. Summary of services and service-related characteristics of florist and supermarket respondents.

	% of respondents		
	Florist n=173	Supermkt. n=39	
In-store sales assistance	97.1	92.3	P=0.17[y]
Telephone sales assistance	96.0	56.4	0.00[y]
24 hours-a-day ordering	32.4	17.9	0.08[z]
Selection guides	92.5	53.8	0.00[z]
Delivery	99.4	41.0	0.00[z]
Wire service	86.1	20.5	0.00[z]
Member of 1-800 organization	15.0	12.8	0.72[z]
Custom design	98.8	87.2	0.00[y]
Rental(s)	83.2	25.6	0.00[z]
Open 24 hours-a-day all week	0.0	35.9	0.00[y]
Open 7 days-a-week	7.5	100.0	0.00[z]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

Among the respondents that provided telephone sales assistance, significant differences were found between florists and supermarkets on two directly related items (Table 3.9). A far greater percentage of florists had a telephone directory listing under "florist/flowers" than did supermarkets. Similarly, nearly 35% more of the florists had toll-free numbers for their long-distance customers. Nearly a third of both the florists and floral departments were making it possible for customers to order flowers 24 hours-a-day.

Table 3.9. Telephone service attributes of florist and supermarket respondents that offered telephone sales.

	% of respondents		
	Florist n=166	Supermkt. n=22	
Listing under "florist/flowers"	91.6	27.3	P=0.00[y]
1-800 number for customers	63.3	22.7	0.00[z]
24 hour-a-day ordering	33.7	27.3	0.54[z]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

As mentioned above, a much greater proportion of the florists utilized selection guides than did supermarkets (93% vs. 54%, Table 3.8). However, of those respondents that did have selection guides, there were no differences between the two retailer groups regarding the origin of the guides (Table 3.10). Nearly all of these florists and supermarkets used guides that had been produced out-of-shop, and approximately one-half of both groups were taking advantage of custom, in-house selection guides.

Table 3.10. Selection guide origin for florist and supermarket respondents that utilized selection guides.

	% of respondents		
Selection guides	Florist n=160	Supermkt. n=21	
Produced out-of-shop	99.4	100.0	1.00[y]
Produced in-shop	47.5	52.4	0.67[z]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

All of the respondents accepted payment by cash or check, and nearly equivalent percentages of florists and supermarkets allowed customers to use anytime bank cards (Table 3.11). A small proportion of both retailer groups issued in-store credit cards, while a significantly greater number of florists accepted major credit cards. Similarly, more florists would set up in-store charge accounts for their patrons and allow installment payments.

Table 3.11. Payment options offered by florist and supermarket respondents.

	% of respondents		
	Florist n=173	Supermkt. n=39	
Cash/check	100.0	100.0	
Major credit cards	86.7	53.8	P=0.00[z]
Anytime banking cards	21.4	20.5	0.90[z]
In-store charge accounts	89.6	15.4	0.00[z]
In-store credit cards	7.5	5.1	1.00[y]
Installment payments	44.5	0.0	0.00[z]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

The two retailer groups were quite similar in their customer satisfaction efforts (Table 3.12). For example, nearly equal percentages of florists and supermarkets (≈90%) had a return/exchange policy. Relatively few of the retailers conducted customer satisfaction surveys, while a greater proportion did telephone customers to make certain they were satisfied. There was a statistically significant difference between florists and supermarkets regarding complaint handling procedures. Eighty-two percent of the florists had established guidelines for dealing with complaints, compared to 95% of the supermarkets.

There was a significant difference between the proportion of florists and supermarkets which offered delivery (99% vs. 41%, Table 3.8). There was also a significant difference in delivery area and timing options between those florists and supermarket respondents that did offer delivery (Tables 3.13). The retailer group and delivery area variables were related, and it appeared that florists generally had larger delivery areas than did supermarkets. While nearly equal percentages of florists and supermarkets (≈55%) offered the broadest delivery area, 25% of the supermarkets had the smallest range, compared to 5% of the florists.

Table 3.12. Customer satisfaction efforts of florist and supermarket respondents.

Customer satisfaction effort	% of respondents Florist n=173	Supermkt. n=39	
Return/exchange policy	86.7	89.7	P=0.79[y]
Established complaint handling procedure	81.5	94.9	0.04[z]
Satisfaction checks by phone	36.4	28.2	0.33[z]
Customer satisfaction survey	13.3	12.8	0.94[z]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

Table 3.13. Delivery area and options of florist and supermarket respondents that regularly offered delivery.

		% of respondents Florist n=172	Supermkt. n=16	
Delivery area	County-wide	54.1	56.3	
	City-wide	40.7	18.8	P=0.00[z]
	More-restricted area	5.2	25.0	
Delivery options	Same day	97.7	93.8	P=0.36[y]
	Timed	64.0	62.5	0.91[z]
	7 days-a-week	24.4	37.5	0.25[z]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

Of the respondents which offered delivery, there were no statistically significant differences between the retailer groups regarding the three delivery timing options investigated. Statistically, equal proportions of florists and supermarkets offered same-day, timed, and 7 days-a-week delivery.

A much larger percentage of florists offered wire service compared to supermarkets (86% vs. 21%, Table 3.8). For the respondents which did offer wire service, a comparison of florists and supermarkets on the number of wire service memberships appears in Table 3.14. The small sample size of supermarkets that offered wire service should be considered when the statistics in Table 3.14 are interpreted.

Table 3.14. Number of wire service memberships of florist and supermarket respondents that offered wire service.

Number of wire service memberships	Florist n=149	Supermarket n=8	
1	26.87	75.0	
2	32.2	0.0	
3	24.8	12.5	
4	11.4	12.5	
5	4.0	0.0	
6	0.7	0.0	
M-W U mean rank	120.7	43.7	P=0.00

There was a significant difference between the florists and supermarkets on the number of wire service memberships. In general, florists belonged to a larger number of wire services. For florists, the numbers ranged from one to six, and approximately equal numbers belonged to one, two, and three organizations. Sixteen percent of the florists belonged to 4 or more wire services. The number ranged from 1 to 4 for the supermarkets, and six of the eight respondents belonged to only one wire service.[3]

Ninety-nine percent of the florists offered at least some design customization, compared to 87% of the supermarkets (Table 3.8). The results of a series of more-detailed questions regarding custom floral design services appear in Table 3.15. Only those respondents who indicated that they offered at least some custom design were included in this analysis. The percentages of florist and supermarket respondents that offered general custom design were not statistically different (97% and 100%, respectively). A greater proportion of the florists (≥95%) custom-designed wedding, sympathy, and/or party flowers. Of the supermarkets, 88% and 85% customized wedding and sympathy flowers, respectively. In addition, 77% of the supermarkets would design party flowers to customer specifications.

There were no significant differences between the proportions of florists and supermarkets on the drop-in consultations, custom drawings, and fresh examples items. On all ten of the remaining items, florist percentages were significantly different (and generally two to four times greater) than those of supermarkets. Twenty-seven percent of the supermarkets offered on-site design service, and 15% provided full on-site servicing.

[3]Statistics regarding the specific wire service and 1-800 marketing organization memberships of the retailer groups appear in Appendix C, Tables C1 and C2.

Table 3.15. Custom design-related attributes and offerings of florist and supermarket respondents that offered custom design.

Custom design offering/attribute	% of respondents Florist n=171	Supermkt. n=34	
General occasion design	97.1	100.0	P=0.59[y]
Wedding design	99.4	88.2	0.00[y]
Sympathy design	94.7	85.3	0.06[y]
Party/reception design	97.1	76.5	0.00[y]
On-site designing	76.6	26.5	0.00[z]
Scheduled appointments	84.2	41.2	0.00[z]
Drop-in consultations	73.1	82.4	0.26[z]
On-site consultations	76.6	11.8	0.00[z]
Separate consultation room	42.1	17.6	0.01[z]
Custom drawings	27.5	23.5	0.63[z]
Fresh examples	39.2	23.5	0.09[z]
Detailed proposals	67.8	20.6	0.00[z]
Written contracts	44.4	14.7	0.00[z]
Set-up and take-down	77.8	14.7	0.00[z]
Full on-site servicing	68.4	14.7	0.00[z]
Coordinate with other services	68.4	23.5	0.00[z]
Complete events planning	43.9	17.6	0.00[z]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

There were no significant differences between the retailer groups on six of the eleven communication services (i.e. advertising) items (Table 3.16). A much larger percentage of florists employed window displays (86%) than did supermarkets (36%). Regarding newspaper, radio, and particularly television, significantly larger percentages of supermarkets employed these media.

On three of the four public relations efforts investigated (open house, educational presentations, and charity contributions), the proportions of florists significantly exceeded those of supermarkets (Table 3.17). There was no significant difference between the retailer groups on the classes/workshops item.

Table 3.16. Advertising media of florist and supermarket respondents.

Advertising media	% of respondents Florist n=173	Supermkt. n=39	
Holiday/occasion reminders	58.4	43.6	P=0.09[z]
Outdoor signs or banners	66.5	53.8	0.14[z]
Window displays	85.5	35.9	0.00[z]
Direct mail ads	45.1	38.5	0.45[z]
Catalogues	15.6	10.3	0.39[z]
Newspaper ads	64.7	84.6	0.02[z]
Radio ads	35.8	56.4	0.02[z]
Television ads	6.9	41.0	0.00[z]
Coupons	26.0	33.3	0.35[z]
Contests	15.6	23.1	0.26[z]
Other	9.2	5.1	0.54[y]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

Table 3.17. Public relations efforts of florist and supermarket respondents.

Public relations effort	% of respondents Florist n=173	Supermkt. n=39	
Open house	48.6	15.4	P=0.00[z]
Educational presentations	29.5	12.8	0.03[z]
Classes or workshops	19.1	10.3	0.19[z]
Charity contributions	88.4	61.5	0.00[z]

[z] Observed significance level of difference between column percentages in each row using the χ^2 test.

There were no statistically significant differences between the retailer groups on either of the two parking attributes (Table 3.18). Eighty-four percent of the florists, and 92% of the supermarkets, indicated that they had sufficient parking during periods of high demand. Approximately 95% of both retailer groups considered their parking to be conveniently located.

Table 3.18. Customer parking attributes of florist and supermarket respondents.

Parking attribute	% of respondents Florist n=173	Supermkt. n=39	
Sufficient at high demand	84.4	92.3	P=0.20[z]
Conveniently located	94.2	94.9	1.00[y]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

Of the rental items investigated, 99% of the florists and 87% of the supermarkets offered at least one (Table 3.8). Significant differences between florists and supermarkets were found on all rental items, with the florist percentages considerably higher in each instance (Table 3.19). For example, 57% of the florists rented foliage and/or blooming plants, compared to 15% of the supermarkets. The highest percentages for both retailer groups were on the rental of props such as candelabra or stands. The only item which none of the supermarkets would rent was an aisle cloth.

Table 3.19. Product rental offerings of florist and supermarket respondents.

	% of respondents Florist n=173	Supermkt. n=39	
Vases/containers	59.5	10.3	P=0.00[z]
Foliage/blooming plants	57.2	15.4	0.00[z]
Artificial plants	49.7	2.6	0.00[z]
Artificial/preserved designs	48.6	7.7	0.00[z]
Props (candelabra, stands, etc.)	74.6	23.1	0.00[z]
Aisle cloth	29.5	0.0	0.00[y]
Other rentals	9.2	0.0	0.05[y]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

Relatively small percentages of florists and supermarkets offered any of the three "other services" investigated (Table 3.20). Interior plantscaping and interior decorating services were offered by 20% and 15% of florists, respectively. Only 5% of the supermarkets

offered either of these two services. Eight percent of the florists were involved in landscaping, while none of the supermarkets provided this service.

Table 3.20. Other services offered by florist and supermarket respondents.

Service	% of respondents Florist n=173	Supermkt. n=39	
Interior plantscaping	20.2	5.1	P=0.03[z]
Interior decorating	15.0	5.1	0.10[z]
Landscaping	8.1	0.0	0.08[y]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

As a summary measure of service provision, respondents were scored on the number of core floral service items they offered. The core services were 22 items considered to have been most often associated with full-service retail floristry. The list included:

- In-store sales assistance
- Telephone sales assistance
- Payment by major credit card
- In-store charge accounts
- Cut flower guarantee
- Plant guarantee
- Non-perishables guarantee
- Service guarantee
- Returns/exchanges
- Delivery
- Timed delivery
- Wire service
- General custom design
- Custom wedding design
- Custom sympathy design
- Custom party design
- On-site design
- Consultation appointments
- Proposals or contracts
- Set-up and take-down
- Coordination with other service providers
- Prop rental

The mean core services scores of 19 and 12 for the florist and supermarket groups, respectively, were significantly different (Table 3.21). The scores ranged from a low of eight to a high of 22 for the florists , and from 1 to 21 for the supermarkets.

The florist and supermarket groups were also compared on the mean number of years of selling flowers (Table 3.22). There was a statistically significant difference between these means, with the florists averaging 18 years in the flower business, while the supermarkets averaged 10.0 years.

Table 3.21. Core services scores for florist and supermarket respondents.

	Florist	Supermkt.	
n	147	34	
Mean	18.7	11.7	P=0.00[z]
SE	0.262	0.778	
Min.	8	1	
Max.	22	21	

[z]Two-tailed probability of separate variance *t*-test.

Table 3.22. Number of years selling flowers for florist and supermarket respondents.

	Florist	Supermkt.	
n	171	32	
Mean	18.24	10.00	P=0.00[z]
SE	1.423	1.158	
Min.	1	3	
Max.	90	30	
M-W U mean rank	105.0	86.0	

[z]Two-tailed probability of separate variance *t*-test.

The florist and supermarket respondents were compared on several items related to hours of operation. None of the florists were open 24 hours-a-day, 7 days-a-week, but 36% of the supermarkets were. Only 7.6% of the florists were open 7 days-a-week, compared to 100% of the supermarkets (Appendix C, Table C3).

On average, the supermarkets were open 131 hours per week, and approximately 19 hours each day of the week. The florists averaged 51 hours per week, 9 hours Monday through Friday, 6 hours on Saturday, and less than one hour on Sunday (Appendix C, Table C4).

Further comparison was made between those florists and supermarkets not open 24 hours-a-day, 7 days-a-week. There were no statistically significant differences between these groups regarding being open on any given day of the week, with the exception of Sundays (Table 3.23).

There were significant differences between the retailer groups regarding days of the week open >8 hours; the percentage of supermarkets exceeded that of the florist for each day. Approximately 80% of the florists were open >8 hours on any given weekday. Eighteen percent of the florists were regularly open>8 hours on Saturdays, and only 3% on Sundays (Table 3.23).

Table 3.23. Days of week open and days of week open more than 8 hours for florist and supermarket respondents not open 24 hours per day, 7 days per week.

		% of respondents		
		Florist n=170	Supermkt. n=25	
Monday	Open	98.2	100.0	P=1.00[y]
	Open >8 hours	80.0	100.0	0.01[y]
Tuesday	Open	100.0	100.0	
	Open >8 hours	80.6	100.0	0.01[y]
Wednesday	Open	100.0	100.0	
	Open >8 hours	80.6	100.0	0.01[y]
Thursday	Open	99.4	100.0	1.00[y]
	Open >8 hours	79.4	100.0	0.01[y]
Friday	Open	99.4	100.0	1.00[y]
	Open >8 hours	81.2	100.0	0.01[y]
Saturday	Open	97.1	100.0	1.00[y]
	Open >8 hours	17.6	100.0	0.00[x]
Sunday	Open	7.6	100.0	0.00[y]
	Open >8 hours	2.9	100.0	0.00[y]

[z,y] Observed significance level of difference between column percentages in each row using the χ^2 test and Fischer's Exact (two-tailed) test, respectively.

Ninety-four percent of the florists and 28% of the supermarkets indicated that they extended business hours during periods of high demand (Appendix C, Table C5).

Significant differences were found between the florist and supermarket respondents on the average number of full-, part-, and full-time-equivalent floral employees. The mean number of full-time floral employees for the florists was 2.6, compared to the average of 0.9 for the supermarkets (Table 3.24). The maximum number of full-time florist employees was 21, and the minimum was zero. For the supermarkets the maximum was 3 full-time floral employees, and the minimum was zero.

The average number of part-time floral employees for the florist and supermarkets were 1.9 and 1.1, respectively, and this difference was statistically significant (Table 3.24). The minimum number of part-time floral personnel was zero for both groups. The maximum number of part-time floral employees for the florists was 24. None of the supermarket floral departments had more than seven part-time floral employees.

Table 3.24. Number of full-time and part-time floral employees for florist and supermarket respondents.

	Number of employees			
	Full-time		Part-time	
	Florist	Supermkt.	Florist	Supermkt.
n	172	39	171	39
Mean	2.61	0.92	1.90	1.05
SE	0.189	0.113	0.190	0.191
Min.	0	0	0	0
Max.	21	3	24	7
M-W U mean rank	118.2	52.4	111.3	80.1
	P=0.00		P=0.00	

Three percent of the florists indicated that they had no full-time floral employees, compared to 23% of the supermarkets. Of the florists which did have full-time floral employees, the average number was 2.7. For the supermarkets which had full-time floral personnel, the average number was 1.2 (Table 3.25).

For the florists which did have part-time floral employees, the average number was 2.5. For the supermarket floral departments that had part-time employees, the average number was 1.4 (Table 3.25). This difference in number of part-time floral employees between florists and supermarkets was also statistically significant.

The average number of hours per week per part-time floral employee did not differ significantly between retailer groups. Part-time florist employees averaged 18 hours per week, and those of supermarkets averaged 16 hours (Table 3.26).

Table 3.25. Number of full-time and part-time floral employees for florist and supermarket respondents which had full-time and part-time employees, respectively.

	Number of employees			
	Full-time		Part-time	
	Florist	Supermkt.	Florist	Supermkt.
n	167	30	132	29
Mean	2.69	1.20	2.45	1.41
SE	0.191	0.101	0.223	0.219
Min.	1	1	1	1
Max.	21	3	24	3
M-W U mean rank	107.5	51.8	87.8	50.1
	P=0.00		P=0.00	

Table 3.26. Hours of work per week for part-time employees of florist and supermarket respondents which had part-time employees.

	Florist	Supermkt.	
n	115	28	
Mean	17.66	16.29	P=0.43[z]
SE	0.749	1.682	
Min.	2	1	
Max.	36	34	

[z]Two-tailed probability of pooled variance *t*-test.

The number of full-time equivalent employees was calculated for each of respondent with the following equation:

$$x + a_i(y)/40$$

where: x=number of full-time employees
a_i =average number of hours/part-time employee/week for each retailer group
y=number of part-time employees
40=weekly hours of a full-time employee

Full-time employees were assumed to have worked 40-hour weeks. Based on the mean rank test, the number of full-time equivalent employees was significantly different for the two groups. The average number of full-time equivalent employees for the florists was 2.5 while that of the supermarkets was 1.4 (Table 3.27).

Table 3.27. Number of full-time equivalent floral employees for florist and supermarket respondents.

	Florist	Supermkt.	
n	132	39	
Mean	2.47	1.35	
SE	0.259	0.166	
Min.	0.88	0.41	
Max.	24.53	5.85	
M-W U mean rank	100.4	37.4	P=0.00

The number of full-time equivalent employees per 40 hours of being open per week was calculated for each respondent ("employee-workday ratio"). For the florists, this ratio ranged from 0.6 to 16.4, with an average of 2.7 (Table 3.28). The supermarket employee-workday ratios varied between 0.1 and 2.8, with a mean of 0.43. There was a significant

difference between the florist and supermarket groups on the employee-workday ratio using the mean rank test.

Table 3.28. Employee-workday ratios for florist and supermarket respondents.

	Florist	Supermkt.	
n	132	39	
Mean	2.68	0.43	
SE	0.174	0.069	
Min.	0.63	0.10	
Max.	16.35	2.79	
M-W U mean rank	104.7	22.8	P=0.00

[z]Calculated as (no. of full-time equivalent employees)/(total no. of hours open per week)/40 hours.

A categorical response item was used to determine the estimated 1991 floral sales of each respondent (Table 3.29). There was no statistically significant difference between the mean ranks of the florist and supermarket groups. The largest percentage of both groups was found in the ≤$49,000 category: 38% of florists and 40% of supermarkets. For the florists, the second highest level of response was in the $100,000-249,999 range, while for the supermarkets it was the $50,000-74,999 category. None of the supermarket sales were greater than $500,000; however, 3.8% of the florists exceeded this value. Two of the 155 florists (1.3%) that responded to this item indicated sales in excess of $1 million.

Respondents were asked to indicate the percentage of their floral sales which were conducted in-store, over the telephone, and from wire service orders. For the florists, the average was 28.8%, which was significantly different from the supermarket mean of 91.6% (Table 3.30). Significant differences were found on the other two variables as well, but with florists having the higher values. On phone sales, florists averaged 52.7%, while the supermarket value was 7.3%. The florist mean sales from wire service orders was 18.5%, compared to 1.1% for the supermarkets.

While all respondents had in-store sales, only a percentage of each group offered telephone assistance and/or wire service. For respondents which conducted sales by phone, the florist mean phone sales were 53.5% (Table 3.31) This was significantly different from the supermarket mean of 11.1%. For those retailers that offered wire service, the average percentages of floral sales from wire orders were 21.0% for florists and 5.4% for supermarkets. The small sample size of supermarkets that offer wire service should be noted.

Table 3.29. Estimated 1991 floral sales for florist and supermarket respondents.

Floral sales category	% of respondents Florist n=155	Supermkt. n=35	
≤$49,000	38.1	40.0	
$50,000-74,999	9.0	25.7	
$75,000-99,999	14.8	11.4	
$100,000-249,999	22.6	20.0	
$250,000-499,999	11.6	2.9	
$500,000-749,999	0.6	0.0	
$750,000-999,999	1.9	0.0	
≥$1,000,000	1.3	0.0	
M-W U mean rank	98.29	83.13	P=0.126

Table 3.30. Percentage of floral sales conducted in-store, by telephone, and from wire service orders for florist and supermarket respondents.

	% of floral sales					
	In-store		Telephone		Wire service	
	Florist	Supermkt.	Florist	Supermkt.	Florist	Supermkt.
n	161	38	161	38	171	38
Mean	28.83	91.58	52.65	7.33	18.52	1.09
SE	1.689	2.32	1.712	1.96	1.09	0.453
Min.	0.0	30.0	0.0	0.0	0.0	0.0
Max.	100.0	100.0	100.0	60.0	70.0	10.0
Mean rank	82.3	174.8	117.2	27.2	115.2	35.5
	P=0.00		P=0.00		P=0.00	

Table 3.31. Percent of sales conducted by telephone and from wire orders for florist and supermarket respondents that offered telephone sales and wire service, respectively.

	% of floral sales			
	Telephone		Wire service	
	Florist	Supermkt.	Florist	Supermkt.
n	155	21	142	7
Mean	53.53	11.12	21.00	5.43
SE	1.693	3.228	1.080	1.716
Min.	0.0	0.0	0.0	0.0
Max.	100.0	60.0	70.0	10.0
M-W U mean rank	97.7	20.5	79.8	16.1
	P=0.00		P=0.00	

Respondents were also asked about their 1991 perishable florals sales (i.e. from loose or bunched fresh flowers, ready-made fresh arrangements, custom fresh designs, blooming plants and foliage plants). They were requested to indicate the percentage of their total perishable florals sales attributable to each of the five product categories.

Significantly different percentages between florists and supermarkets were found on four of the five product categories: loose/bunched cut flowers, custom designs, and both blooming and foliage plants (Table 3.32). The highest average percentage for florists was 35% from custom designs, and the lowest average percentage was 11.6% from cut flowers.

For the supermarkets, blooming plants and foliage plants both constituted an average of 26% of floral sales. Custom designs represented the lowest average percentage for the supermarkets at 11%. There was no significant difference between the retailer groups on percent of sales from ready-made arrangements.

Table 3.32. Percent of perishable florals sales (dollar value) from loose or bunched fresh flowers, ready-made fresh arrangements, and custom-made fresh designs for florist and supermarket respondents.

	% of floral sales					
	Loose or bunched cut flowers		Ready-made fresh arrangements		Custom-made fresh designs	
	Florist	Supermkt.	Florist	Supermkt.	Florist	Supermkt.
n	146	34	146	34	146	34
Mean	11.6	21.2	19.9	15.6	35.4	10.6
SE	1.025	2.603	1.421	1.765	1.887	1.314
Min.	0	0	0	0	0	0
Max.	60	60	80	50	100	28
Mean rank	82.6	122.3	90.3	83.0	102.6	38.8
	P=0.00		P=0.39		P=0.00	

	% of floral sales			
	Blooming plants		Foliage plants	
	Florist	Supermkt.	Florist	Supermkt.
n	146	34	146	34
Mean	14.2	26.3	19.0	26.3
SE	0.787	2.510	0.924	2.770
Min.	0	10	0	5
Max.	70	70	75	80
Mean rank	81.1	130.9	85.7	111.2
	P=0.00		P=0.01	

The three fresh flower categories were combined, as were the two plant categories, to investigate the relative positions of flowers and plants. There remained a significant difference between the retailer groups on the combined categories (Table 3.33). For the florists, the fresh flower products constituted an average 67% of sales. Plants made up an average 53% of the supermarkets' sales.

Table 3.33. Percent of floral sales (dollar value) from fresh flowers (loose/bunched, ready-made arrangements and custom designs combined) and from plants (blooming and foliage combined) for florist and supermarket respondents.

	% of floral sales			
	Fresh flowers		Plants	
	Florist	Supermkt.	Florist	Supermkt.
n	146	34	146	31
Mean	66.9	47.4	33.2	52.6
SE	1.393	3.577	1.390	3.577
Min.	0	0	0	15
Max.	100	85	100	100
M-W U mean rank	100.4	48.0	80.6	132.9
	P=0.00		P=0.01	

Two items indicated the degree (depth and breadth) of service provision: a level of service item with five response categories, and a variety of services scale with 7-points. These items were cross-tabulated and the cell frequencies for both retailer groups were calculated (Table 3.34).

The florists clustered at the upper end of both scales (the lower-right corner of Table 3.34). Ninety-three percent of the florists had indicated level of service categories four and five, and 92% were at or above "five" on the variety of services scale. The supermarkets were more widely distributed along both scales. The retailer groups were significantly different on both variables, with florists having the greater mean rank in both instances.

There were both florist and supermarket responses at each level of service and variety of service. However, in the cross-tabulation, the respondents clustered along a diagonal line from the low-low to the high-high corner, suggesting a positive correlation between level and variety of service.

Table 3.34. Percentage of florist and supermarket respondents in each level of service, variety of service, and cross-tabulation category.

Level of service	Group	Variety of services: Self-service only 1	2	3	4	5	6	Broadest range 7	Row totals[y]
Self	Florist[z]	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
	Supermkt.	7.7	2.6	7.7	2.6	2.6	0.0	0.0	23.1
Limited	Florist	0.6	0.6	1.8	0.6	0.0	0.0	0.0	3.5
	Supermkt.	0.0	2.6	2.6	7.7	2.6	0.0	0.0	15.4
Basic	Florist	0.0	0.0	0.6	1.2	0.0	0.6	0.0	2.9
	Supermkt.	0.0	0.0	0.0	17.9	2.6	0.0	0.0	20.5
Full	Florist	0.0	0.0	0.6	1.8	17.0	24.8	17.0	60.8
	Supermkt.	0.0	0.0	0.0	2.6	17.9	7.7	10.4	38.5
Extended	Florist	0.0	0.0	0.0	0.6	3.0	6.7	21.8	32.2
	Supermkt.	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.6
Column totals[x]	Florist	0.6	1.2	3.0	4.2	20.4	32.3	38.3	
	Supermkt.	7.7	5.1	10.3	30.8	25.6	7.7	12.8	

		Florist	Supermkt.	
M-W U mean ranks	Level of service	117.9	51.0	P=0.00
	Variety of service	114.7	55.6	P=0.00

[z]Florist n=165; supermarket n=39
[y]Florist n=171; supermarket n=39
[x]Florist n=167; supermarket n=39

Spearman's rank correlation (ρ) between level and variety of service was calculated for both retailer groups (Table 3.35). The coefficients were positive, and significant, for both groups. For florists, ρ equaled 0.50. The supermarket value of 0.82 indicated a much tighter correlation between level and variety of service compared to that for florists.

Table 3.35. Correlation between level of service and variety of services for florist and supermarket respondents.[z]

Florists	Supermarkets
0.50	0.82
n=165	n=39
P=0.00	P=0.00

[z]Spearman's rank correlation coefficient (ρ).

Relationships were investigated between both level and variety of services and six other variables: years selling florals, employee-workday ratio, percent of floral sales: in-store, percent of floral sales: telephone, and percent of perishable florals sales: custom design. For both retailer groups, summary statistics were calculated for each of these six variables for each level of service and each variety of service category (Appendix C, Tables C6-C15). Spearman's rank correlation coefficient was calculated between the level and variety of service variables and each of these six variables separately for both florist and supermarket respondent groups (Table 3.36).

Eighteen of the 24 correlations were statistically significant at P=0.05, and an additional two at P=0.10. None of the ρ's exceeded 0.45. Overall, the correlations for the supermarket group were stronger than those of the florists. There were statistically significant correlations between both level and variety of services and years selling florals for both florist and supermarket groups. However, all of these were relatively weak.

The strongest correlations were found between hours open per week and both level and variety of service for the supermarket group (ρ=0.45 and ρ=0.44, respectively). These same variables were not at all correlated for the florist group.

Within the florist group, the strongest correlations were between employee-workday ratio and both level and variety of service (both ρ equaled 0.25). In comparison, the supermarket ρ's involving these variables were 0.38 and 0.34, respectively

For both groups, the negative correlations between both level and variety of service and percent of floral sales conducted in-store were matched by positive coefficients involving percent of floral sales conducted by phone.

The relationships between level and variety of service and percent of perishable floral sales from custom design was most interesting. For the florist group, these variables appeared not to be related. For the supermarkets, however, mild correlations were observed.

Pearson's correlation coefficient was calculated between percent of perishable floral sales from custom design and years selling florals, employee-workday ratio, percent of floral sales: in-store, and percent of floral sales: telephone for florist and supermarket groups (Table 3.37). For both retailer groups, no correlation between custom design and years was discerned. Statistically significant, positive correlations were found between custom design and employee-workday ratios for both florist and supermarket groups (0.19 and 0.38, respectively). The percent of floral sales conducted in-store was mildly, and negatively, correlated with custom design for both groups (-0.26 and -0.36, respectively). For both retailer

groups, the coefficients involving percent of floral sales conducted in-store were of the same magnitude as those for percent of floral sales conducted in-store, but positive.

Table 3.36. Correlation between level of service and variety of service and years selling florals, hours open per week, employee-workday ratio, percent of floral sales: in-store, percent of floral sales: telephone, and percent of perishable florals sales: custom design for florist and supermarket respondents.[z]

	Level of Service		Variety of service	
	Florist	Supermkt.	Florist	Supermkt.
Years selling florals	0.12 n=170 P=0.06	0.20 n=32 P=.01	0.15 n=165 P=0.03	0.30 n=32 P=0.05
Hours open per week	0.00 n=168 P=0.48	0.45 n=39 P=0.00	0.01 n=165 P=0.47	0.44 n=39 P=0.00
Employee-workday ratio	0.25 n=166 P=0.00	0.38 n=39 P=0.01	0.25 n=163 P=0.00	0.34 n=39 P=0.02
% of floral sales: in-store	-0.14 n=160 P=0.04	-0.17 n=38 P=0.15	-0.15 n=156 P=0.04	-0.40 n=38 P=0.01
% of floral sales: phone	0.14 n=160 P=0.04	0.12 n=38 P=0.24	0.15 n=156 P=0.03	0.36 n=38 P=0.01
% of perishable floral sales: custom design	0.07 n=144 P=0.28	0.32 n=34 P=0.03	0.01 n=142 P=0.44	0.24 n=34 P=0.08

[z]Spearman's rank order correlation coefficient.

Table 3.37. Correlation between percent of perishable floral sales from custom design and years selling florals, employee-workday ratio, percent of floral sales: in-store, and percent of floral sales: telephone for florist and supermarket respondents.[z]

	Florist	Supermkt..		Florist	Supermkt..
Years selling florals	0.04 n=144 P=0.32	-0.09 n=28 P=0.32	% of floral sales: in-store	-0.26 n=140 P=0.00	-0.36 n=34 P=0.02
Employee-workday ratio	0.19 n=142 P=0.01	0.38 n=34 P=0.01	% of floral sales: telephone	0.28 n=140 P=0.00	0.39 n=34 P=0.01

[z]Pearson's correlation coefficient.

Two items concerning change in the number/variety of services offered were included in the questionnaire. On the first item, respondents were asked if, during the previous three years, their company had significantly increased the number of services, decreased this number, or made no significant changes (Table 3.38, row totals). The florist and supermarket groups were statistically different based on the mean ranks of responses to this item. None of the supermarkets had reduced services, and only 2% of the florists had. Two-thirds of the supermarkets had increased services, and the remaining third had made no changes. The opposite was true for the florist group.

Table 3.38. Service changes for florist and supermarket respondents.

Recent service change	Group[z]	Service plans: Increase services	Service plans: No change	Service plans: Decrease services	Row total[y]
Increased services	Florist	14.4	16.8	0.0	31.0
	Supermkt.	33.3	33.3	0.0	66.7
No change	Florist	8.4	56.9	1.2	66.7
	Supermkt.	5.1	28.2	0.0	33.3
Decreased services	Florist	0.0	1.8	0.6	2.4
	Supermkt.	0.0	0.0	0.0	0.0
Column totals[x]	Florist	24.4	73.8	1.7	
	Supermkt.	38.5	61.5	0.0	
M-W U mean rank			Florist	Supermkt.	
	Recent service change		111.1	73.3	P=0.00
	Service plans		109.0	93.0	P=0.06

[z]Florist n=167; Supermkt. n=39.
[y]Florist n=168; Supermkt. n=39.
[x]Florist n=172; Supermkt. n=39.

The second change-in-services variable concerned the company's plans for the future (Table 3.38, column totals). Each respondent was asked to indicate if their company's plans were to significantly increase services, decrease services, or to not make any significant changes. The results of a mean ranks comparison of the retailer groups indicated a significant difference at P=0.06. None of the supermarkets had plans to reduce services, and only 2% of the florists had. Sixty-two percent of the supermarkets did plan to increase services, while the remainder planned no changes. Of the florists, 24% planned to add services and 74% planned no change.

The cross-tabulation of the service change variables provided additional information about the retailer groups. Fifty-seven percent of all the florists were in the no change-no change cell. Of the florists which had recently increased their services, slightly less than half planned additional increases while the remainder planned no change. The few florists that had decreased services either planned no change or further reductions.

The 67% of supermarkets that had recently expanded services were evenly split between further increases and no change. Of the supermarkets which had not made any recent changes, approximately 15% planned future increases while the remaining supermarkets planned to maintain their current level.

To gauge recent service change in more detail, this variable was cross-tabulated with the variety of services categories (Table 3.39). For respondents in any given variety of services category, those that had recently increased their services may be new entrants to their current variety of services category. Movement in the opposite direction would be indicated by those in the "decreased services" cells.

Table 3.39. Percentage of florist and supermarket respondents in each variety of services/recent service change category.

Variety of services		Group[z]	Recent service change: Increased services	No change	Decreased services	Row totals[y]
Self service only	1	Florist	0.0	0.6	0.0	0.6
		Supermkt.	2.6	5.1	0.0	7.7
	2	Florist	0.0	1.2	0.0	1.2
		Supermkt.	2.6	2.6	0.0	5.1
	3	Florist	0.0	3.1	0.0	3.0
		Supermkt.	5.1	5.1	0.0	10.3
	4	Florist	0.6	3.7	0.0	4.2
		Supermkt.	20.5	10.3	0.0	30.8
	5	Florist	5.5	11.7	1.8	20.4
		Supermkt.	20.5	5.1	0.0	25.6
	6	Florist	9.2	23.3	0.0	32.3
		Supermkt.	5.1	2.6	0.0	7.7
Broadest range	7	Florist	15.3	23.3	0.6	38.3
		Supermkt.	10.3	2.6	0.0	12.8
Column totals[x]		Florist	31.0	66.7	2.4	
		Supermkt.	66.7	33.3	0.0	

[z]Florist n=163; Supermkt. n=39.
[y]Florist n=171; Supermkt. n=39.
[x]Florist n=168; Supermkt. n=39.

Of the 31% of supermarkets in variety of services category 4, approximately two-thirds had recently increased their services. Similarly, of the 26% of supermarkets in variety of services level 5, approximately 80% had recently increased services. And of the 12.8% of supermarkets in category 7, approximately three-quarters had recently increased services. In comparison, the 23% of supermarkets categories one through three were more evenly split between having recently increased services and no recent change.

Of the 38% of florists in variety of services category 7, approximately three-fifths had not recently changed their number of services. These probably represent those florists which had already offered the full-range of floral services, and the same logic would apply for the 2.6% of supermarkets in this cell. For florists in each variety of services category, the majority had not recently increased their services.[4]

Table 3.40 is a cross-tabulation of the variety of services and planned service change variables. The 5% of florists in variety of services categories one through three planned no change. Of florists in each of the four upper categories, the clear majority had no plans to increase their services. The florists that planned to decrease their services were evenly distributed through variety of services categories four, five and six. Approximately one-half of the florists already in the "broadest range of services" category were planning to add still more services.

As mentioned above, none of the supermarkets had planned to decrease services. Of the 39% of supermarkets which planned to increase services, over half were in variety of services categories four and five. The 62% of supermarkets that did not plan to change their number of services were distributed throughout the variety of services categories. However, more than half of these supermarkets were found in categories four and five.[5]

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[4]A cross-tabulation of level of service and recent service change, for both florists and supermarkets, appears in Appendix C, Table C16.
[5]A cross-tabulation of level of service and planned service change, for both florists and supermarkets, appears in Appendix C, Table C17.

Table 3.40. Percentage of florist and supermarket respondents in each variety of service/planned service change category.

Variety of services		Group[z]	Planned service change: Increase services	Planned service change: No change	Planned service change: Decrease services	Row totals[y]
Self service only	1	Florist	0.0	0.6	0.0	0.6
		Supermkt.	0.0	7.7	0.0	7.7
	2	Florist	0.0	1.2	0.0	1.2
		Supermkt.	2.6	2.6	0.0	5.1
	3	Florist	0.0	3.0	0.0	3.0
		Supermkt.	5.1	5.1	0.0	10.3
	4	Florist	0.6	3.0	0.6	4.2
		Supermkt.	10.3	20.5	0.0	30.8
	5	Florist	4.8	15.1	0.6	20.4
		Supermkt.	12.8	12.8	0.0	25.6
	6	Florist	7.8	23.5	0.6	32.3
		Supermkt.	2.6	5.1	0.0	7.7
Broadest range	7	Florist	11.4	27.1	0.0	38.3
		Supermkt.	5.1	7.7	0.0	12.8
Column totals[x]		Florist	24.4	73.8	1.7	
		Supermkt.	38.5	61.5	0.0	

[z]Florist n=166; Supermkt. n=39.
[y]Florist n=171; Supermkt. n=39.
[x]Florist n=172; Supermkt. n=39.

CHAPTER IV

CONSUMER PERCEPTIONS OF SERVICE QUALITY

Objectives

1. To investigate consumers' expectations and perceptions of the service quality of Texas floral retailers.
   A. To measure and compare consumers' expectations of service quality of florists and supermarket floral departments.
   B. To measure and compare consumers' perceptions of service quality of florists and supermarket floral departments.
   C. To determine the relative importance of the dimensions of floral service quality in influencing customers' service quality perceptions of both florists and supermarkets.
   D. To evaluate the effectiveness, reliability and validity of the modified SERVQUAL research instrument.
2. To determine, from a consumer perspective, the relative importance of service and product quality characteristics of florists and supermarket floral departments.

Methodology

Development of the Expectations and Perceptions Instruments

The consumer expectations and perceptions survey instruments were adaptations of the modified SERVQUAL instrument(Appendix A). Based on a review of the literature and on suggestions from floriculture industry experts, including marketing research specialists, florists and supermarket floral retailers, the SERVQUAL instrument was tailored to meet the study's objectives. The major differences between the refined SERVQUAL and the instruments used in this study are as follows:

1. Expectations and perceptions were measured separately.
2. Perceived quality was measured with the perceptions items only, not as a difference score between perceptions and expectations.
3. Floral-specific items, regarding both products and services, were added to both the expectations and perceptions instruments.
4. Demographic questions were included at the end of both the expectations and perceptions instruments.

The Expectations Instrument[6]

Expectations were viewed as the desires or wants of consumers, i.e. what they feel a type of retailer should offer in terms of product and/or service quality. Florist customers were asked about the expectations of an "excellent florist shop;" supermarket floral customers were asked about their expectations of an "excellent supermarket floral department." This approach is most consistent with a consumer-oriented marketing concept.

A cover letter explained the purpose of the study, urged response, and provided directions for completing the questionnaire. The expectations instrument was of a structured, undisguised format, and consisted of four parts. Part 1 included the 22 SERVQUAL service quality expectations items (with only minor wording changes) along with nine floral-specific service and product expectations items (the "florals scale" items). Each of the SERVQUAL and florals items employed a 7-point, strongly disagree-strongly agree response scale.

The florals scale items were included at the request of several of the participating retailers. The reasons they gave for wanting to include these items were of two general types: 1) they had specific questions which they wanted to have addressed, and 2) they wanted their customer respondents to sense that the retailer was concerned about both product and service quality. The florals scale items were selected from a list of items suggested by the participating retailers. In choosing the items, the range of services offered by the participating retailers was considered. All of the participating retailers, along with the investigator, agreed that the selected items pertained to each firm, and that their customers should find the items meaningful and answerable.

The second part consisted of a question in which the respondent was asked to rate the five SERVQUAL dimensions according to each dimension's relative importance to the respondent. The respondent was asked to allocate a total of 100 points among the five dimensions according to how important they determined each dimension to be.

The third section also contained a relative-importance question in which respondents were asked to allocate 100 points among five attributes of floral retailing. These attributes were flower quality, custom floral design, flower price, service quality and product assortment.

The final section of the expectations form consisted of demographic and floral buying behavior items.

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[6]An example of the expectations instrument appears in Appendix D.

The Perceptions Instrument[7]

This instrument was designed to measure customer perceptions of floral product and service quality, and was of a structured, undisguised format. The respondent was asked to rate a particular floral retailer's quality performance.

A cover letter explained the purpose of the study, urged response, provided needed directions. It also stated the retailer to be evaluated, including company name, street address, city or town, and the zip code. For customers of the supermarket chain stores, the respondent was asked to evaluate a particular location's quality, i.e. the floral department of the store from which the questionnaire was received and with which they had recently conducted business. The participating florist shops were all single-location businesses, eliminating any potential "multi-location confusion."

The perceptions instrument consisted of four parts. Part 1 included the 22 SERVQUAL service quality perceptions items (with only minor wording changes) along with eight floral-specific service and product perceptions items (the "florals scale" items). Each item employed a 7-point, strongly disagree-strongly agree response scale.

Part 2 consisted of five overall and comparative judgment items utilizing the same 7-point response scale. These Likert-type statements were:

1. I am very satisfied with the variety of services offered by (the floral retailer).
2. I find that (the floral retailer) always provided excellent service.
3. I am very satisfied with the quality of flowers at (the floral retailer).
4. In general, florist shops provide much better service than do supermarket floral departments.
5. In general, florist shops sell much higher-quality flowers than do supermarkets.

The third section included the same Problem?/Resolved?/Recommend? questions as in the refined SERVQUAL. Respondents were also asked when they had most recently purchased flowers from the involved retailer. This section also contained the same floral purchasing behavior questions that were included in the expectations instrument.

Part 4 contained the same demographic questions as in the expectations instrument.

Selection of the Participating Retailers

A judgment sample of 16 different floral retailing companies participated in the consumer study, including 8 florists and 8 supermarket chains. The retailers were located in

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[7]An example of the perceptions instrument appears in Appendix E.

cities and towns throughout Texas. The florists were all single location businesses, while the number of participating locations per supermarket chain ranged from 1 to 6. The selection of participating retailers differed for florists and supermarkets, an explanation of which follows.

At the end of the retailer questionnaire discussed earlier, respondents were asked to indicate if they were interested in participating in a study of their customers' perceptions of their service quality. A total of 17 florists and 2 supermarkets indicated such interest by including their business card with the returned questionnaire.

In a brief telephone conversation, the study was discussed with each of the 19 retailers' floral managers. Copies of the preliminary expectations and perceptions instruments were sent to each manager for their consideration. Suggestions for the improvement of the instruments was solicited from these floral managers at this time. After further discussion with each manager, and through the mutual agreement of the researchers and managers, eight florists were selected to participate. The willingness of the retailer to participate in the study was the prime consideration.

To obtain the cooperation of supermarkets, calls were placed to the regional floral directors of nine supermarket chains operating stores in Texas. The study was discussed with each director in a brief telephone conversation. Copies of the preliminary expectations and perceptions instruments were sent to each director for their consideration. They were asked to discuss the questionnaires with one or more of their floral department managers as well as with upper-level management, and to make suggestions for improving the instruments.

After further discussion between the investigator and each director, it was decided that eight supermarkets would participate. Again, the willingness of the retailer to participate in the study was the prime consideration. A total of 22 locations were selected, with the 8 different companies represented by 1, 2, 2, 2, 3, 3, 3, and 6 locations.

The floral directors informed the floral manager at their participating locations about the study. The floral managers were then contacted by the investigator by mail. Information regarding the purpose and methods of the study, along with samples of the preliminary instruments, was included in this mailing. The project was then discussed with each floral manager by telephone on at least two occasions. Suggestions were solicited regarding instrument content and wording. Alternative methods of in-store instrument distribution were discussed with each floral manager.

Instrument Pre-test

The expectations and perceptions instruments were pre-tested to uncover any problems with respondent comprehension of the items. A convenience sample of 56 floral consumers participated in the pre-test. The participants were members of a state-wide organization of amateur gardeners. They were attending a three-day Benz School of Floral Design class on the Texas A&M University campus at the time of pre-test administration (February, 1992).

The research project was explained to the sample subjects. Their participation in the pre-test was requested, to which they all agreed. Prior to administration, the respondents were grouped as to whether or not they had recently purchased floral products from either a florist or supermarket. In this way, an appropriate instrument could be administered to each subject (i.e. recent supermarket floral customers would complete a questionnaire about supermarket floral departments, and florist customers would complete a florist-related instrument). Approximately equal numbers of the subjects were given one of the four different questionnaires: florist customer expectations, florist customer perceptions, supermarket customer expectations, and supermarket customer perceptions.

Since the perceptions instrument was retailer-specific (i.e. a customer's perceptions of their floral retailer's service), the perceptions instrument respondents were asked to evaluate a particular retailer from whom they had recently purchased floral products. They were not requested to identify the retailer to the investigator, just to keep their retailer in mind while completing the questionnaire.

The sample subjects were asked to complete the questionnaire individually, and were requested to not ask questions of the survey administer while they responded. This was done to more-accurately simulate actual instrument administration. The subjects were , however, asked to mark any directions or items which they found confusing, redundant, or inappropriate, etc. while completing the questionnaire. For example, to circle unfamiliar words, underline confusing sentences, cross-out inappropriate items, etc. They were also asked to provide brief written comments, after completing the questionnaire, on the items they had marked. The instruments were then collected, and questions and suggestions regarding the instruments were solicited.

Based on the information provided by the pre-test respondents, the instruments were revised into final form.

Subject Sampling and Survey Administration: Florist Customers

An attempt was made to have 600 questionnaires (100 expectations and 500 perceptions instruments) distributed to a sample of each florist's customers. To sample as broad a range of customers as possible, including in-store and telephone customers, both mail and in-store distribution was utilized. Instruments were distributed to florist customers in August and September, 1992.

Each florist provided an estimate of the proportion of their sales that were conducted in-store versus over the telephone. These proportions were then applied to the distribution scheme to determine how many of the 600 questionnaires should be mailed versus handed-out. For example, if a florist conducted approximately 60% of their sales over the telephone, then 360 questionnaires (i.e. 60% of the randomized 100 expectations and 500 perceptions instruments) were mailed to a sample of their customers. The remaining 240 questionnaires would then be distributed by the florist to their in-store customers. The percentages of mailed questionnaires ranged from 60% to 73% among the eight participating florists.

The sampling frames for the mailings consisted of mailing lists provided by each florist. In generating these mailing lists, the retailers were asked to include only those customers who had purchased within the last 3 months. A random sample of the predetermined size was then drawn from each list. A survey form, along with a business-reply envelope, was then mailed to each sample element for self-administration. These out-going envelopes were posted with a first-class stamp.

For in-store distribution, the florists were instructed to hand-out their allotment of instruments to "as random a sample as possible." For example, to every customer who made a purchase, or to every fifth customer. The retailers were requested to keep a record of the number of questionnaires distributed, and a form was sent to each for this purpose.

For in-store distribution, a questionnaire and business reply envelope were sealed in an outer envelope. The outer envelope was plain except for the investigator's return address, which was printed in the upper-left corner. Individual customers received, and self-administered, either an expectations or perceptions questionnaire.

Subject Sampling and Survey Administration: Supermarket Customers

An attempt was made to have 600 questionnaires (100 expectations and 500 perceptions instruments) distributed to a sample of each supermarket location's floral customers. The time frame for distributing instruments to supermarket customers was from September through November, 1992.

For 21 of the locations, either no sales were conducted over the phone, or no mailing list was available from which to draw a sample of customers for mail distribution. For these 21 stores, it was agreed that personnel at each location would attempt to distribute the 600 questionnaires to their customers.

One supermarket location did conduct a considerable amount of business over the telephone, and had an available mailing list. For this location, a combination of mail and in-store distribution was utilized as with the florists. Forty-two percent of the 600 questionnaires allocated for distribution by this location were mailed.

For in-store distribution, the floral managers were instructed to hand out the instruments to "as random a sample as possible." For example, to every customer who made a purchase, or to every fifth customer. The retailers were requested to keep a record of the number of questionnaires distributed, and a form was sent to each for this purpose.

In consultation with the investigator and their floral directors, each floral department manager determined how the questionnaires would be distributed. Some managers opted for a more-active approach, having employees hand out questionnaires to floral customers along with a few words of explanation and encouragement. Other managers set up a counter display in the floral department with signs to encourage customers to take, and complete, a questionnaire.

As with the florists, the questionnaires distributed in-store by the supermarkets were sealed, along with a business reply, in an outer envelope . The outer envelope was plain except for the investigator's return address, which was printed in the upper-left corner. Individual customers received, and self-administered, either an expectations or perceptions questionnaire.

All completed, returned instruments were checked for usability based on completeness, legibility and consistency. All usable questionnaires were then coded, and the data entered into the computer for statistical analysis.

Results and Discussion

This chapter presents the results of the consumer study. The response rates are discussed first, followed by respondent demographics and floral buying behavior. The SERVQUAL results are then presented, and the scale's validity, reliability and factor structure is assessed. The chapter concludes with the findings on the floral-specific items.

Response

A total of 4620 questionnaires were distributed by florists, yielding an effected distribution of 96.3%. A total of 840 instruments were returned by florist customers, 816 of which were usable, yielding a usable response rate of 18.2%.

The supermarkets distributed a total of 9614 questionnaires, for a 72.8% rate of effected distribution. Supermarket floral customers returned 528 instruments, 508 of which could be used, for a usable response rate of 5.3%.

The sampling frames for the mailings were not completely accurate and up-to-date, as evidenced by the rate of return by the U.S. Postal Service. Among the florists and the supermarket for which questionnaires were mailed, approximately 4% of the mailed instruments were undeliverable.

A significant proportion of the instruments designated for in-store distribution by the retailers did not reach customer hands. This was particularly true for the supermarkets, whose rates of effected distribution ranged from 10 to 100% (Table 4.1). The number of mailed surveys, and the number of mailed surveys returned as undeliverable, were known by the investigator. The number of questionnaires distributed in-store was provided by the florist manager or supermarket floral department manager involved. In some cases, and particularly for the supermarkets, the manager could only provide an estimate of the number of questionnaires actually distributed. The investigator felt that, in some cases, these estimates were high.

For the analysis of perceptions in this study, only recent customers of the participating retailers were included. More specifically, questionnaires were included only if the respondents indicated that they had made a floral purchase, within the previous three months, from the particular retailer they had evaluated (Table 4.2). This was done to provide at least partial control over potential time effects while maintaining adequate sample sizes for both retailer groups.

After applying the selection criteria, 426 florist customer perceptions questionnaires were included in the analysis, as were 339 from supermarket customers (Table 4.3). There was a significant difference between the two customer groups as to when they had most recently made a floral purchase from the retailer they evaluated. As a group, the supermarket customers' purchases were made more recently than those of the florist customers.

Table 4.1. Percent of effected distribution per retailer, retailer's percent of usable response, and percent of total usable response.

Participating florists				Participating supermarkets			
Retailer	% effected distr.[z]	% retailer response[y]	% of total response (n=816)[x]	Retailer	% effected distr.[z]	% retailer response[y]	% of total response (n=508)[x]
F1	84.5	10.7	6.6	S1	100.0	4.5	5.3
F2	98.8	16.7	12.1	S2a	68.3	3.7	3.0
F3	99.5	21.8	15.9	S2b	22.5	4.4	1.2
F4	84.5	22.6	16.4	S2c	10.0	5.0	0.6
F5	98.7	14.5	10.5	S2d	75.0	3.6	3.1
F6	98.3	15.8	11.4	S2e	82.5	3.6	3.5
F7	98.8	20.9	15.2	S2f	100.0	5.7	6.7
F8	92.5	17.3	11.8	S3a	42.8	3.1	1.6
			99.9	S3b	100.0	4.8	5.7
				S4a	67.5	4.0	3.1
				S4b	100.0	4.8	5.7
				S5a	80.8	4.3	4.1
				S5b	87.5	14.1	14.6
				S5c	36.7	4.1	1.8
				S6a	97.8	8.0	9.3
				S6b	21.7	3.8	1.0
				S7a	24.2	2.1	0.6
				S7b	85.0	3.3	3.3
				S7c	100.0	7.7	9.1
				S8a	100.0	6.5	7.7
				S8b	100.0	3.7	4.3
				S8c	100.0	4.0	4.7
							100.0

[x]For each retailer, estimated rate of distribution=number distributed÷600.
[y]100(Number of usable returns from retailer's customers÷number of questionnaires distributed by the retailer).
[z]Percent of the total number of usable questionnaires.

Table 4.2. Comparison of florist and supermarket customer perceptions survey respondents on when they most recently purchased flowers from florist shops and supermarkets, respectively.

	% of customer respondents	
Time period	Florist (n=722)	Supermkt. (n=409)
Within last 1-4 weeks	1.2	43.0
5-8 weeks	37.8	28.9
9-12 weeks	19.9	11.0
13-16 weeks	19.0	4.9
17-20 weeks	7.8	3.7
Prior to 20 weeks ago	14.3	7.6
Never	0.0	1.0

Table 4.3. Comparison of florist and supermarket customer perceptions survey on when they most recently purchased flowers from florist shops and supermarkets, respectively.

	% of customer respondents		
Time period	Florist (n=426)	Supermkt. (n=339)	
Within last 1-4 weeks	2.1	51.9	
5-8 weeks	64.1	34.8	
9-12 weeks	35.7	13.3	
M-W U mean rank	473	270	P=0.00

Respondent Demographics and Floral Buying Behavior

Demographic variables were investigated to reveal any differences between the respondent samples. For each variable, respondents who completed the expectations questionnaire were compared to those who had completed the perceptions questionnaire, for florist and supermarket respondents separately. Then the combined florist expectations and perceptions respondents were compared to those of the supermarkets on each demographic variable.

Respondents were asked to indicate their year of birth. From this information, respondent age in years was calculated. For both the florist customers and supermarket customers, there was no statistically significant difference between expectations respondents and perceptions respondents on the age variable (Table 4.4). For florist customers, the average age of expectations respondents was 45.3 years, and for perceptions respondents, 44.8 years. The average age of supermarket expectations respondents was 43.3 years, and 41.3 years for the perceptions group.

Table 4.4. Comparison of expectations (E) and perceptions (P) survey respondents, for both florist and supermarket customer groups, on respondent age.

	Florist customers			Supermarket customers		
	E	P		E	P	
n	82	415		80	334	
Mean	45.3	44.8	P=0.74[z]	43.3	41.3	P=0.30[z]
SE	1.517	0.685		1.658	0.830	
Min.	18	15		17	14	
Max.	76	79		89	82	

[z]Two-tailed probability of pooled variance *t*-test.

There was a significant difference between florist customer respondents and those of supermarkets on the age variable (Table 4.5). Florist customers were an average of 44.9 years of age, while the mean age of supermarket respondents was 41.7.

Respondents were grouped into five age categories, and the respondent frequencies were calculated for each category for both florist and supermarket customers (Table 4.6). For florists, the largest percentage of customers (27%) were in the 41 to 50 year range. The greatest number of supermarket customers (29%) were in the ≤30 years of age category.

Table 4.5. Comparison of florist and supermarket customer groups on respondent age in years.

	Florist customers	Supermkt. customers	
n	497	414	
Mean	44.9	41.7	P=0.00[z]
SE	0.623	0.742	

[z]Two-tailed probability of pooled variance *t*-test.

Table 4.6. Age category frequencies for florist and supermarket customer perceptions survey respondents.

		% of customer respondents	
Age group	Age in years	Florist n=415	Supermkt. n=334
1	≤30	17.1	28.7
2	31-40	23.4	25.7
3	41-50	27.2	19.2
4	51-60	18.1	15.3
5	≥61	14.2	11.1

Respondent gender was the next variable considered. For both the florist and supermarket customer groups, there was no significant difference between expectations and perceptions respondents on the proportion of female to male respondents (Table 4.7). Of the florist expectations customers, 82% were female and 18% were male; the same percentages were found among the florist perceptions respondents. Eighty-three percent of the supermarket expectations respondents were female, compared to 78% of the perceptions respondents.

The proportions of female to male customers were not significantly different between the two retailer groups (Table 4.8). Again, 82% of the florist customers were female and 18% were male. Seventy-nine percent of all the supermarket customers were female and 21% were male.

Table 4.7. Comparison of expectations (E) and perceptions (P) survey respondents, for both florist and supermarket groups, on respondent gender.

	% of customer respondents					
	Florist			Supermkt.		
Gender	E n=84	P n=421		E n=80	P n=334	
Female	82.1	81.9	P=0.97[z]	82.5	78.1	P=0.39[z]
Male	17.9	18.1		17.5	21.9	

[z]Pearson χ^2 test probability.

Table 4.8. Comparison of florist and supermarket customer respondents on respondent gender.

	% of customer respondents		
Gender	Florist n=505	Supermkt. n=414	
Female	82.0	79.0	P=0.25[z]
Male	18.0	21.0	

[z]Pearson χ^2 test probability.

A mean rank test revealed no differences between expectations and perceptions respondents for either retailer group on the level of education variable (Table 4.9). For both florist and supermarket customer groups, the greatest percentage of both expectations and perceptions respondents indicated that they had at least some college or technical school education.

The mean ranks of florist and supermarket customer on the education variable were not significantly different (Table 4.10). The distributions of florist and supermarket customers through the level of education categories were very similar. Again, the greatest percentage of both groups had some college or technical school experience.

Tables 4.9. Comparison of expectations (E) and perceptions (P) survey respondents, for both florist and supermarket customer groups, on respondent level of education.

	% of customer respondents					
	Florist			Supermkt.		
Level of education	E	P		E	P	
Some high school	0.0	2.9		8.7	2.7	
High school graduate	13.1	14.0		11.2	9.3	
Some college/tech. school	34.5	33.0		36.2	33.8	
College/tech. school graduate	29.8	30.4		17.5	32.6	
Some graduate school	22.6	19.5		23.7	18.3	
Graduate school graduate	0.0	0.2		2.5	3.3	
n	84	421		80	334	
M-W U mean rank	263	251	P=0.44	193	211	P=0.20

Table 4.10. Comparison of florist and supermarket customer respondents on respondent level of education.

	% of customer respondents		
Level of education	Florist	Supermkt.	
Some high school	2.4	3.9	
High school graduate	13.9	9.7	
Some college/tech. school	33.3	34.3	
College/tech. school graduate	30.3	29.7	
Some graduate school	20.0	19.3	
Graduate school graduate	0.2	3.1	
n	505	414	
M-W U mean rank	452	470	P=0.30

The next variable considered was respondents' household size. For this item, the respondent was asked to write in the number of people living in their household, including themselves. For the florist respondents, there was no significant difference between the mean ranks of expectations and perceptions respondents for household size (Table 4.11). This result was also true for the supermarket respondents. For all four groups, the largest proportion of respondents had two-person households.

There was also no statistically significant difference between the customers of the two retailer groups on the household size variable (Table 4.12). For both florist and supermarket customer groups, over 90% of the respondents had between one- and four-person households. The maximum household sizes were seven and eight people for the florist and supermarket customer groups, respectively.

Tables 4.11. Comparison of expectations (E) and perceptions (P) survey respondents, for both florist and supermarket customer groups, on number of people in respondent's household.

	% of customer respondents					
	Florist			Supermarket		
Number of people	E	P		E	P	
1	12.0	11.3		12.7	18.6	
2	33.7	40.2		40.5	38.7	
3	22.9	20.0		16.5	18.0	
4	24.1	21.2		19.0	16.2	
5	7.2	6.5		10.1	5.1	
6	0.0	0.5		0.0	1.5	
7	0.0	0.2		0.0	0.9	
8	0.0	0.0		1.3	0.9	
n=	83	415		79	333	
M-W U mean rank	258	248	P=0.52	220	203	P=0.24

Table 4.12. Comparison of florist and supermarket customer respondents on number of people in respondent's household.

	% of customer respondents		
Number of people	Florist	Supermkt.	
1	11.4	17.5	
2	39.2	39.1	
3	20.5	17.7	
4	21.7	16.7	
5	6.6	6.1	
6	0.4	1.2	
7	0.2	0.7	
8	0.0	1.0	
n	505	414	
M-W U mean rank	452	470	P=0.30

Each respondent was asked to respond to a categorical response item regarding their pre-tax 1991 household income (Table 4.13). For all groups, the largest percentages of respondents were found in category 10: incomes ≥$55,000.00. Based on mean ranks, there

were no statistically significant differences between expectations and perceptions respondents among either the florist or supermarket customer groups.

There was also no significant difference between the mean ranks of the florist and supermarket customer groups (Table 4.14). The distributions of the two customer groups appeared very similar.

Table 4.13. Comparison of florists and supermarkets customer groups, for both expectations and perceptions surveys, on 1991 household income before taxes.

	% of customer respondents				
	Florist			Supermkt.	
Income category	E	P		E	P
≤$15,000	2.5	4.7		5.1	6.4
$15,000-$19,999	1.3	4.4		5.1	8.3
$20,000-$24,999	10.1	7.5		14.1	6.4
$25,000-$29,999	6.3	7.0		6.4	6.7
$30,000-$34,999	3.8	9.9		3.8	8.3
$35,000-$39,999	8.9	6.8		9.0	5.4
$40,000-$44,999	7.6	8.3		6.4	10.8
$45,000-$49,999	6.3	5.2		7.7	8.9
$50,000-$54,999	12.7	8.6		7.7	6.7
≥$55,000	40.5	37.7		34.6	32.2
n	79	385		78	314
M-W U mean rank	248	229	P=0.26	199	196 P=0.81

Table 4.14. Comparison of florist and supermarket customer respondents on respondent 1991 income before taxes.

	% of customer respondents		
1991 household income	Florist	Supermkt.	
≤$15,000	4.3	6.1	
$15,000-$19,999	3.9	7.7	
$20,000-$24,999	8.0	7.9	
$25,000-$29,999	6.9	6.6	
$30,000-$34,999	8.8	7.4	
$35,000-$39,999	7.1	6.1	
$40,000-$44,999	8.2	9.9	
$45,000-$49,999	5.4	8.7	
$50,000-$54,999	9.3	6.9	
≥$55,000	38.1	32.7	
n	464	392	
M-W U mean rank	444	410	P=0.04

Four questions pertaining to the recent floral buying behavior of the customer respondents were included on both the expectations and perceptions instruments. All four questions were asked of all florist and supermarket customer respondents. In the first question, the respondent was asked to write in the number of times they had purchased floral products from florist shops within the previous six months. They were then asked to write in the average amount spent on these florist shop purchases. This step was followed by two questions requesting the same information regarding their floral purchases from supermarkets within the previous six month period.

The florist customers who completed the perceptions questionnaire and those that completed the perceptions instrument had significantly different values on one of the four floral buying variables: the average amount spent on floral purchases from supermarkets within the previous six months (Table 4.15). On this variable, the florist expectations respondents had a higher mean amount than did the perceptions respondents. On the other three floral buying variables, there was no significant difference between these two groups.

The supermarket expectations survey respondents and the supermarket perceptions survey respondents were not significantly different on any of the four floral buying variables (Table 4.15).

Table 4.15. Comparison of expectations (E) and perceptions (P) survey respondents, for both florist and supermarket customer groups, on respondent floral purchasing within the previous six months.

Variable		Florist customers E	Florist customers P		Supermarket customers E	Supermarket customers P	
No. of floral purchases from florist shops	n	84	419		80	334	
	Mean	7.38	6.69	P=0.72[z]	3.80	2.47	P=0.14[z]
	SE	1.848	0.442		0.858	0.244	
Ave. amount spent on floral purchases from florist shops	n	84	418		80	328	
	Mean	$32.67	$31.33	P=0.71[z]	$17.03	$17.02	P=1.00[z]
	SE	2.573	2.482		2.061	1.454	
No. of floral purchases from supermarkets	n	84	423		80	334	
	Mean	1.82	1.15	P=0.10[z]	7.13	6.21	P=0.54[z]
	SE	0.394	0.112		1.391	0.494	
Ave. amount spent on floral purchases from supermarkets	n	84	422		80	318	
	Mean	$6.36	$4.22	P=0.02[y]	$18.91	$19.00	P=0.98[z]
	SE	0.940	0.377		1.732	2.318	

[z,y]Two-tailed probability of separate and pooled variance *t*-tests, respectively.

Next, the combined florist customers (expectations and perceptions survey respondents) were compared to the combined supermarket customer respondents on the floral buying variables. On all four of these variables, the two customer groups were significantly different (Table 4.16). On the number of floral purchases from florists, the florist customers had bought more often (an average of approximately seven times) than did the supermarket customers (an average of approximately three times.

The florist customers also spent significantly more, on average, on their florist shop purchases than did the supermarkets customer respondents. The florist customer average on this variable was $31.55, while that of the supermarket customers was $17.02.

The florist customers made significantly fewer floral purchases from supermarkets, on average, than did the supermarket customers. While the supermarket customers averaged more than six floral purchases during the previous six months, the florists customers averaged just over one supermarket floral purchase during the same time frame.

The supermarket customers also spent significantly more on their supermarket floral purchases (an average of $18.98) than did the florist customers (an average of $4.58).

Table 4.16. Comparison of florist and supermarket customer respondents on respondent floral purchasing within the previous six months.

Variable		Florist customers	Supermarket customers	
No. of floral purchases from florist shops	n	503	414	
	Mean	6.81	2.72	P=0.00[z]
	SE	0.479	0.258	
Ave. amount spent on floral purchases from florist shops	n	502	408	
	Mean	$31.55	$17.02	P=0.00[z]
	SE	2.127	1.660	
No. of floral purchases from supermarkets	n	507	414	
	Mean	1.26	6.39	P=0.00[z]
	SE	0.114	0.480	
Ave. amount spent on floral purchases from supermarkets	n	506	398	
	Mean	$4.58	$18.98	P=0.00[z]
	SE	0.620	1.985	

[z,y]Two-tailed probability of separate variance *t*-tests.

SERVQUAL

This section of the manuscript presents the SERVQUAL results, beginning with the expectations, perceptions and gap scores for each of the SERVQUAL items. The expectations scores reflect the quality of service that the florist and supermarket customer respondents felt an excellent florist or supermarket floral department would provide, respectively. The perceptions scores are the respondents' measure of the quality of service provided by the particular retailer they evaluated.

The gap scores indicate how well the participating florist and supermarket retailer groups had performed, from their customers' perspective. Because the gap scores were calculated as perceptions minus expectations, positive subtrahends indicate that customer expectations had been exceeded. Negative values indicate that customer expectations had not been met.

A customer group's mean gap score on an item could be calculated by simply subtracting the group's mean expectations score from that group's mean perceptions score. However, that method would not allow statistical comparison between the florist and supermarket customer groups on their gap scores. Therefore, the gap score for each item was calculated by subtracting a customer group's mean expectations score for the item from each perceptions survey respondent's score on the item. For example, the florist customers' mean expectations score for item 1 was subtracted from each perceptions survey florist customer's score on item 1. The florist group's mean gap score was then computed.

Because the expectations, perceptions, and gap scores were not normally distributed, differences between the florist and supermarket customer groups were investigated using the Mann-Whitney U mean rank test. In the following discussion, judgments of significant difference were based on the mean ranks of the scores of the two customer groups. Comments regarding observed differences between the mean scores do not imply statistically significant differences. Again, the mean ranks of the scores were tested, not the mean scores.

To facilitate the readability of this section of the manuscript, the 22 SERVQUAL items are referred to by number; the only exception being when the item is first mentioned. The SERVQUAL items are numbered consecutively from 1 to 22. Items 1 through 4 make up the tangibles dimension; items 5 through 9 the reliability dimension; items 10 through 13 the responsiveness dimension; items 14 through 17 the assurance dimension; and items 19 through 22 constitute the empathy dimension. Dimension by dimension, the expectations item scores of the florist and supermarket customer groups are discussed, followed by the

perceptions scores and the gap scores. Examples of the expectations and perceptions instruments appear in Appendices D and E, respectively.

Table 4.17 presents a summary of the tangibles dimension item scores. The florist and supermarket customers differed significantly on their expectations of item 1 (modern-looking equipment) and their perceptions of item 4 (visually-appealing printed materials). For both the expectations and perceptions of items 1, 2 (visually-appealing) and 3 (neat-appearing employees), the supermarket customers' mean scores were higher than those of florist customers. On item 4, the florist group's mean expectations and perceptions scores were greater.

The gap scores on items 1, 2 and 3 were significantly different between the two customer groups, and there was no significant difference on item 4. The gap scores of both groups were positive on items 1 and 4, and on both items, the florist customers' value was larger. The scores of both groups were negative on item 2, and that of the supermarket customers was more negative. The florist customers' item 3 score was negative while that of the supermarket customers was positive.

Table 4.17. Summary of the expectations, perceptions, and gap scores on each item of the SERVQUAL tangibles dimension for both florist and supermarket customer groups.[z]

Item number	Item		Expectations		Perceptions		Gap	
			Florist	Super.	Florist	Super.	Florist	Super.
1	Modern-looking equipment	Mean	4.15	4.85	5.60	5.65	1.447	0.800
		Mean rank	72.6	91.1	371	370	411	321
			P=0.01		P=0.99		P=0.00	
2	Visually-appealing	Mean	6.23	6.41	5.60	5.99	-0.207	-0.424
		Mean rank	77.7	87.5	377	370	430	305
			P=0.12		P=0.62		P=0.00	
3	Neat-appearing employees	Mean	6.23	6.30	6.19	6.32	-0.032	0.018
		Mean rank	81.5	83.6	362	384	426	303
			P=0.75		P=0.13		P=0.00	
4	Visually-appealing printed materials	Mean	5.13	4.93	5.92	5.16	0.792	0.231
		Mean rank	84.7	80.2	408	306	373	351
			P=0.54		P=0.00		P=0.16	

[z]A complete statistical table (including sample size, mean, standard error, and response frequencies) for each item appears in Appendix F, Tables F1-F4.

Of the reliability dimension items, statistically significant differences between florist and supermarket customer expectations were found on items 5 (do what is promised) and 8

(perform service at the time promised) (Table 4.18). The florist customer mean expectations scores were higher on items 5, 6 (interest in solving customer problems), 7 (perform service right the first time) and 8 , but lower on item 9 (insist on error-free records.)

The florist and supermarket customer perceptions scores were significantly different for all of the reliability items. On each, florists received the higher mean scores from their customers.

The customer groups' gap scores were significantly different for all five items. For both the florist and supermarket customer groups, all five item scores were negative. The florists received the less-negative marks on all five items.

Table 4.18. Summary of the expectations, perceptions, and gap scores on each item of the SERVQUAL reliability dimension for both florist and supermarket customer groups.[z]

Item number	Item		Expectations		Perceptions		Gap	
			Florist	Super.	Florist	Super.	Florist	Super.
5	Do what is promised	Mean	6.97	6.79	6.68	6.07	-0.294	-0.716
		Mean rank	85.6	79.25	428	303	360	392
			P=0.04		P=0.00		P=0.04	
6	Interest in solving customer problems	Mean	6.86	6.81	6.67	6.14	-0.187	-0.656
		Mean rank	82.1	81.9	415	327	337	427
			P=0.95		P=0.00		P=0.00	
7	Perform service right the first time	Mean	6.80	6.66	6.60	6.13	-0.200	-0.534
		Mean rank	84.5	80.4	418	323	348	414
			P=0.41		P=0.00		P=0.00	
8	Perform service at time promised	Mean	6.96	6.78	6.71	6.19	-0.250	-0.584
		Mean rank	85.7	79.2	412	319	335	421
			P=0.05		P=0.00		P=0.00	
9	Insist on error-free records	Mean	6.51	6.58	6.49	5.90	-0.018	-0.678
		Mean rank	79.4	85.7	397	293	449	219
			P=0.28		P=0.00		P=0.00	

[z]A complete statistical table (including sample size, mean, standard error, and response frequencies) for each item appears in Appendix F, Tables F5-F9.

There were no significant differences between florist and supermarket customer expectations of the four responsiveness items (Table 4.19). On items 10 (tell exactly when will perform service) and 13 (never too busy to respond to customer requests), the mean florist customer expectations were lower than those of the supermarkets. The opposite was true for item 11 (prompt service), and the two groups had the same mean on item 12 (always willing to help).

All four perceptions scores were significantly different between the two groups, and the florist customers' scores were greater on each item.

All the gap scores were also significantly different. On items 10 and 13, the florist customers' scores were positive marks while those of the supermarket customers were negative. Both groups' scores were negative on items 11 and 12, with the florist customers having the less-negative scores.

Table 4.19. Summary of the expectations, perceptions, and gap scores on each item of the SERVQUAL responsiveness dimension for both florist and supermarket customer groups.[z]

Item number	Item		Expectations		Perceptions		Gap	
			Florist	Super.	Florist	Super.	Florist	Super.
10	Tell exactly when will perform service	Mean	6.49	6.55	6.51	5.98	0.025	-0.573
		Mean rank	81.4	83.7	407	313	466	231
			P=0.70		P=0.00		P=0.00	
11	Prompt service	Mean	6.68	6.66	6.67	6.12	-0.010	-0.544
		Mean rank	82.4	82.7	426	319	352	414
			P=0.96		P=0.00		P=0.00	
12	Always willing to help	Mean	6.75	6.75	6.63	6.17	-0.119	-0.580
		Mean rank	81.9	83.2	417	336	417	336
			P=0.80		P=0.00		P=0.00	
13	Never too busy to respond to requests	Mean	6.49	6.59	6.54	6.02	0.055	-0.569
		Mean rank	81.7	83.3	415	334	485	245
			P=0.80		P=0.00		P=0.00	

[z]A complete statistical table (including sample size, mean, standard error, and response frequencies) for each item appears in Appendix F, Tables F10-F13.

The assurance dimension items were: 14. behavior instills customer confidence, 15. make certain customers feel secure, 16. consistently courteous, and 17. knowledge to answer questions. On each of the expectations item scores, florist and supermarket customer mean ranks were not significantly different (Table 4.20). And on each of the items, the florist customer mean scores were higher than those of the supermarket customer respondents.

There were significant differences between the customer groups' mean ranks on all four of the assurance perceptions items. As with the expectations items, the mean florist customer perceptions scores were higher than those of their supermarket counterparts for each of the items.

The gap scores for each item on this dimension were significantly different between the florist customer and supermarket customer groups. In addition, all of these gap scores

were negative. On each item, the florist customer scores were higher than those of the supermarket customer group.

Table 4.20. Summary of the expectations, perceptions, and gap scores on each item of the SERVQUAL assurance dimension for both florist and supermarket customer groups.[z]

Item number	Item		Expectations Florist	Expectations Super.	Perceptions Florist	Perceptions Super.	Gap Florist	Gap Super.
14	Behavior instills customer confidence	Mean	6.63	6.46	6.46	6.08	-0.172	-0.378
		Mean rank	84.8	79.1	402	348	332	436
			P=0.33		P=0.00		P=0.00	
15	Make certain customers feel secure	Mean	6.62	6.42	6.55	6.06	-0.074	-0.355
		Mean rank	85.3	76.3.	412	328	345	415
			P=0.14		P=0.00		P=0.00	
16	Consistently courteous	Mean	6.77	6.65	6.59	6.20	-0.186	-0.455
		Mean rank	85.5	79.3	411	345	334	443
			P=0.25		P=0.00		P=0.00	
17	Knowledge to answer questions	Mean	6.56	6.54	6.41	5.98	-0.155	-0.565
		Mean rank	81.0	83.0	411	334	353	410
			P=0.75		P=0.00		P=0.00	

[z]A complete statistical table (including sample size, mean, standard error, and response frequencies) for each item appears in Appendix F, Tables F14-F17.

The last SERVQUAL dimension includes the five empathy items. The florist and supermarket customer mean expectation ranks were significantly different on item 19 (convenient hours) (Table 4.21). There was no significant difference between the expectations groups on the other four items (18. give customers individual attention, 20. give customers personal attention, 21. have customer's best interests at heart, and 22. understand customers' specific needs). The mean florist customer scores were less than those of the supermarket customer on each of these expectations items.

There were significant differences between the customer group's mean ranks on each of the of the empathy dimension's perceptions items. Again, florist customer mean scores were the higher of the two customer groups for each of these items.

All of the gap scores on the empathy dimension were also significantly different between the two customer groups. On each item, the florist customer scores were greater than those of the supermarket customer group. The florist customer scores were positive on all items except number 21. The supermarket customer scores were all negative except on item 19.

Table 4.21. Summary of the expectations, perceptions, and gap scores on each item of the SERVQUAL empathy dimension for both florist and supermarket customer groups.[z]

Item number	Item		Expectations Florist	Expectations Super.	Perceptions Florist	Perceptions Super.	Gap Florist	Gap Super.
18	Give customers individual attention	Mean	6.55	6.58	6.64	6.14	0.094	-0.437
		Mean rank	82.0	83.1	420	326	495	232
			P=0.86		P=0.00		P=0.00	
19	Convenient hours	Mean	5.89	6.20	6.48	6.33	0.583	0.130
		Mean rank	75.3	90.1	391	365	470	265
			P=0.03		P=0.05		P=0.00	
20	Give customers personal attention	Mean	6.44	6.51	6.55	6.15	0.112	-0.358
		Mean rank	80.9	84.2	409	340	482	246
			P=0.60		P=0.00		P=0.00	
21	Have customer's best interests at heart	Mean	6.53	6.55	6.55	6.08	-0.036	-0.474
		Mean rank	82.3	82.7	415	327	347	414
			P=0.95		P=0.00		P=0.00	
22	Understand customers' specific needs	Mean	6.30	6.40	6.46	5.92	0.167	-0.484
		Mean rank	80.1	85.0	412	322	471	245
			P=0.46		P=0.00		P=0.00	

[z]A complete statistical table (including sample size, mean, standard error, and response frequencies) for each item appears in Appendix F, Tables F18-F22.

To summarize, the florist and supermarket customer groups' scores were significantly different on four of the 22 SERVQUAL expectations items (numbers 1, 5, 8 and 19). The florist customers' expectations were significantly greater on items 5 and 8, while those of the supermarket customers were significantly higher on items 1 and 19.

On the perceptions items, the customer groups differed significantly on all of items 4 through 22. On each of these 19 perceptions items, the florist customers' scores were significantly larger.

There were significant differences between the two customer groups' gap scores on all items except number 4. The florist customers' scores were significantly more positive, or less negative, than the supermarket customers' scores on all of the items except number 3. Item 3 (neat-appearing employees) is the only item on which the supermarket customers' gap score was significantly more positive than that of the florist customers.

The florist customers' gap scores were positive on seven items: 1, 4, 10, 13, 18, 19, 20, and 22. On the remaining items, the florist customers' gap scores were negative. The gap scores of the supermarket customers were positive on four items (1, 3, 4, and 19), and negative on the other 18 items.

The discussion now turns to the florist and supermarket customer scores on the SERVQUAL dimensions and total SERVQUAL scale. The SERVQUAL dimensions and total SERVQUAL scale scores are customer group averages (but are referred to simply as dimension scores and total scale scores, respectively).

The dimension scores are group averages of the respondents' average scores for the items on each dimension. For example, each florist customer's average tangibles dimension score was calculated by summing their scores on items 1 through 4, and then dividing by four. These individual respondent averages were then averaged to yield the florist customers' group average tangibles dimension score. The group average total SERVQUAL scale scores were calculated in similar fashion, except that the averaging was over all 22 of the items.

There were no significant differences between the florist and supermarket customer groups' expectations scores on any of the dimensions, or on their total scale expectations scores (Table 4.22).

There were significant differences between the two customer groups' perceptions scores on all of the dimensions, as well as between their total scale perceptions scores. On each of the dimensions, and for the total scale, the florist customers' perceptions scores were significantly greater than the supermarket customers' scores.

The gap scores were also significantly different between the customer groups on each of the dimensions and total scale. And on each dimension, and for the total scale, the florist customers gap scores were either more positive, or less negative, than the scores of the supermarket customers. On the tangibles dimension, both groups' gap scores were positive. On the reliability, responsiveness, and assurance dimensions, both groups' gap scores were negative. The florist customers' gap score on the empathy dimension was positive, while that of the supermarket customers' was negative. Similarly, the florist customers' total scale gap score was positive (though very small at 0.05 scale points), while that of the supermarket customers' was negative (-0.37).

In a separate question, the expectations survey respondents were asked to rate the relative importance they attributed to each of the five SERVQUAL dimensions. The respondents were requested to allocate a total of 100 points among the five dimensions to indicate relative importance (Table 4.23).

Table 4.22. Comparison of respondents on the SERVQUAL dimensions and total scale expectations, perceptions, and gap scores for both florist and supermarket customer groups.

Dimension/Scale		Expectations		Perceptions		Gap	
		Florist	Supermkt.	Florist	Supermkt.	Florist	Supermkt.
Tangibles	n	84	80	417	336	417	336
	Mean	5.43	5.63	5.94	5.78	0.50	0.15
	SE	0.069	0.107	0.050	0.057	0.050	0.056
		P=0.18[z]		P=0.03[z]		P=0.00[z]	
Reliability	n	84	80	426	333	426	333
	Mean	6.82	6.72	6.63	6.06	-0.19	-0.64
	SE	0.031	0.063	0.031	0.058	0.031	0.058
		P=0.15[y]		P=0.00[y]		P=0.00[y]	
Responsiveness	n	84	80	426	337	426	337
	Mean	6.60	6.64	6.59	6.07	-0.02	-0.57
	SE	0.058	0.060	0.034	0.062	0.034	0.062
		P=0.66[z]		P=0.00[y]		P=0.00[y]	
Assurance	n	84	80	426	338	426	338
	Mean	6.65	6.52	6.50	6.08	-0.15	-0.44
	SE	0.059	0.073	0.037	0.061	0.037	0.061
		P=0.17[z]		P=0.00[y]		P=0.00[y]	
Empathy	n	84	80	426	337	426	337
	Mean	6.35	6.45	6.54	6.13	0.18	-0.32
	SE	0.072	0.071	0.036	0.059	0.036	0.059
		P=0.35[z]		P=0.00[y]		P=0.00[y]	
SERVQUAL	n	84	80	426	339	426	339
	Mean	6.39	6.41	6.45	6.03	0.05	-0.37
	SE	0.048	0.057	0.031	0.054	0.031	0.054
		P=0.82[z]		P=0.00[y]		P=0.00[y]	

[zy]Two-tailed probability of pooled and separate variance *t*-tests, respectively.

For the florist customers, the mean number of points allocated to each dimension were significantly different. The florist customers allocated the most points to the reliability dimension, followed by responsiveness, assurance, empathy and lastly, tangibles. For the florist customer group, the dimensions can be ranked on importance, without ties (Table 4.24).

Such was not the case for the supermarket customers. This group allocated an average of 24 points to reliability and 22 points to responsiveness. These values were not significantly different, but both were significantly different from the means of the other three dimensions. The supermarket customers' average points allocated to the empathy dimension (20 points) and to the assurance dimension (18 points) were not significantly different. The mean number of points allocated to empathy, while not significantly different from the value on assurance, was significantly different from the means on the other three dimensions. The

Table 4.23. Comparison of florist and supermarket customer groups on relative importance of SERVQUAL dimensions.[z]

SERVQUAL dimension		Florist customers (n=84)	Supermkt. customers (n=79)	
Tangibles: "The appearance of displays, equipment, personnel and printed materials"	Mean	12.8[a]	16.1[a]	P=0.01[y]
	SE	0.756	1.016	
	Min.	0	0	
	Max.	40	50	
Reliability: "The ability to perform the promised service dependably and accurately"	Mean	33.1[b]	24.2[b]	P=0.00[x]
	SE	1.505	1.453	
	Min.	10	0	
	Max.	65	75	
Responsiveness: "The willingness to help customers and provide prompt service"	Mean	22.0[c]	22.2[b]	P=0.86[x]
	SE	0.901	1.046	
	Min.	0	0	
	Max.	50	50	
Assurance: "The knowledge and courtesy of employees and their ability to convey trust and confidence"	Mean	17.0[d]	18.0[ac]	P=0.46[x]
	SE	0.874	1.019	
	Min.	5	0	
	Max.	50	60	
Empathy: "The caring, individualized attention provided to customers"	Mean	15.1[e]	20.0[c]	P=0.00[y]
	SE	0.715	1.445	
	Min.	45	100	
	Max.	45	100	

[z]Respondent was asked to allocate a total of 100 points among the five attributes according to each attribute's importance to the respondent. Column values with common superscript letters are not significantly different at P=0.10 using Wilcoxon signed-ranks test with two-tailed probabilities.
[y,x]From separate and pooled variance estimates of *t*-test, respectively.

Table 4.24. Summary of relative importance ratings of the SERVQUAL dimensions for florist and supermarket customer groups.[z]

Florist customers			Supermarket customers		
Dimension	Points[z]	Rank	Dimension	Points[z]	Rank
Reliability	33.1	1	Reliability	24.2	1
Responsiveness	22.0	2	Responsiveness	22.2	1
Assurance	17.0	3	Empathy	20.0	2
Empathy	15.1	4	Assurance	18.0	2-3
Tangibles	12.8	5	Tangibles	16.1	3

[z]Customer group's average number of points allocated to each dimension.
[y]Rankings based on results of Wilcoxon signed-ranks test.

average on the assurance dimension, however, was not significantly different from the values on either the empathy or tangibles dimension. The tangibles dimension had the lowest observed mean point value, but as mentioned, this number was not significantly different from the average on the assurance dimension.

The two customer groups were then compared on the mean points they had allocated to each dimension (Table 4.23). There were significant differences between groups on three of the five dimensions: tangibles, reliability, and empathy.

The florist and supermarket customer perceptions survey respondents were compared on their responses to the problem, resolved and recommend variables. The problem item asked the respondent to indicate whether or not they had recently experienced a service-related problem with the florist or supermarket floral department they were evaluating. There was no significant difference between the florist and supermarket customers on this variable (Table 4.25). Approximately 6% of the florist customers and 8% of the supermarket customers had recently experienced a problem.

Table 4.25. Comparison of florist and supermarket perceptions survey customer respondents on whether or not they have recently experienced a service problem.

	% of customer respondents		
Problem?	Florist (n=424)	Supermkt. (n=335)	
Yes	6.4	8.4	P=0.29[z]
No	93.6	91.6	

[z]P indicates significance of difference between column percentages using χ^2 test.

The resolved item asked respondents who had recently experienced a floral-related service problem to indicate whether or not the problem had been resolved to their satisfaction. The respondents who had experienced a problem were compared between customer groups on their response to the resolved variable (Table 4.26). There was no significant difference between the florist and supermarket customers on this variable. Of the florist customers that had experienced a problem, 69% indicated that the problem had been resolved to their satisfaction. Of the supermarket customers who had recently experienced a problem, 52% replied that the problem had been resolved to their satisfaction.

Table 4.26. Comparison of florist and supermarket perceptions survey customer respondents who have experienced a problem, on whether or not the problem was resolved to their satisfaction.

		% of customer respondents		
Problem?	Resolved?	Florist (n=26)	Supermkt. (n=25)	
Yes	Yes	69.2	52.0	P=0.21[z]
	No	30.8	48.0	

[z]P indicates significance of difference between column percentages using χ^2 test.

The recommend item asked the respondent whether or not they would recommend to a friend the florist (or supermarket floral department) being evaluated. Of the florist customers, 99% indicated that they would recommend the retailer (Table 4.27). Ninety-five percent of the supermarket customers would have recommended the retailer's floral department. These proportions were significantly different between the customer groups.

Table 4.27. Comparison of florist and supermarket perceptions survey customer respondents on whether or not they would recommend the retailer/retailer's floral department to a friend.

	% of customer respondents		
Recommend?	Florist (n=422)	Supermkt. (n=331)	
Yes	99.1	94.9	P=0.00[z]
No	0.9	5.1	

[z]P indicates significance of difference between column percentages using χ^2 test.

The two customer groups were compared on the cross-tabulated problem and recommend variables (Table 4.28). Of the respondents who had experienced a problem, 92% of the florist customers versus 65% of the supermarket customers would recommend the florist and supermarket floral department, respectively. These percentages were significantly different.

Of the respondents who had not experienced a problem, there was a significant difference between the florist and supermarket customers on the percentage of respondents who would recommend the retailer. Of the florist customers who had not experienced a problem, 99.5% would recommend the florist. Of the supermarket customers who had not experienced a problem, 97% would recommend the supermarket floral department.

Table 4.28. Comparison of florist and supermarket perceptions survey customer respondents who have or have not experienced a problem, on whether or not they would recommend the retailer/retailer's floral department to a friend.

Problem?	Recommend?	% of customer respondents Florist	Supermkt.	
Yes	Yes	92.3	65.4	P=0.02[z]
	No	7.7	34.6	
		(n=26)	(n=25)	
No	Yes	99.5	97.4	P=0.02[y]
	No	0.5	2.6	
		(n=395)	(n=304)	

[zy]P indicates significance of difference between column percentages using χ^2 and Fischer's Exact (two-tailed) tests, respectively.

For the respondents who had experienced a problem, the resolved and recommend variables were cross-tabulated and the two customer groups compared on their responses (Table 4.29). (The cell sample sizes in this table were considered too small to perform statistical tests.) Of the florist customers whose problem had been satisfactorily resolved, 100% would recommend the florist. Of the supermarket customers whose problem had been satisfactorily resolved, 83% would recommend the floral department. Of the florist customers whose problem had not been satisfactorily resolved, 71% would recommend the florist. Of the supermarket customers whose problem had not been satisfactorily resolved, 83% would recommend the floral department.

Table 4.29. Comparison of florist and supermarket perceptions survey customer respondents who have experienced a problem on whether or not they would recommend the retailer/retailer's floral department to a friend by whether the problem had been resolved to their satisfaction.

Problem?	Resolved?	Recommend?	% of customer respondents Florist	Supermkt.
Yes	Yes	Yes	100.0	83.3
		No	0.0	16.7
			(n=18)	(n=12)
	No	Yes	71.4	54.5
		No	28.6	45.5
			(n=7)	(n=11)

Validity

The validity of an instrument refers to the extent to which the instrument measures what it is intended to measure. SERVQUAL's content validity (i.e. face validity) involves a judgment as to whether or not the instrument captures the breadth of the domain of service quality. Given the thorough and conceptually-sound procedures used to develop SERVQUAL, and the relatedness of its items to the service quality construct, this instrument is judged to have content validity.

An instrument is considered to possess concurrent validity if the measure is related to another indicator of the construct under consideration. In this study, the concurrent validity of SERVQUAL was assessed by investigating the association between the perceptions scores and other independent, but conceptually-related variables.

The first measure of concurrent validity involved the SERVQUAL perceptions scores and the respondents' overall service quality (OSQ) ratings of the retailer they evaluated. The OSQ item contained the statement "I find that (retailer/retailer's floral department) always provides excellent service," to which the customer responded on a 7-point scale anchored "strongly disagree -- strongly agree."

Concurrent validity was assessed by measuring the correlation between OSQ and SERVQUAL perceptions dimension scores and total scale scores for both customer groups (Table 4.30). Because the OSQ scores were not normally distributed for either the florist or supermarket customer group, the Spearman rank correlation coefficient was used. The correlation between OSQ and the SERVQUAL perceptions total scale score was 0.66 for the florist customers and 0.80 for the supermarket customers. For both customer groups, the correlation between the tangibles dimension and OSQ was the weakest. On the other five dimensions, the correlations were relatively strong for both customer groups. The supermarket customer groups' correlation coefficients were greater than those of the florist customer group for all five dimensions and the total scale.[8] The correlation between OSQ and the SERVQUAL perceptions scores provides partial support of the insturment's concurrent validity.

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[8]A table with the correlation coefficients between OSQ and each of the 22 SERVQUAL perceptions item scores for both customer groups appears in Appendix F, Table F23.

Table 4.30. Correlation between the overall service quality (OSQ) measure and the SERVQUAL dimension and total perceptions scores for florist and supermarket customer groups.

		Correlation coefficient[z]					
		Tangibles	Reliability	Responsiv.	Assurance	Empathy	SERVQUAL
Florist customers	OSQ	0.45 n=416 P=0.00	0.70 n=425 P=0.00	0.67 n=425 P=0.00	0.64 n=425 P=0.00	0.65 n=425 P=0.00	0.66 n=425 P=0.00
Supermkt. customers	OSQ	0.64 n=333 P=0.00	0.73 n=331 P=0.00	0.76 n=335 P=0.00	0.74 n=335 P=0.00	0.74 n=335 P=0.00	0.80 n=336 P=0.00

[z]Spearman's rank correlation coefficient; one-tailed probabilities.

To further substantiate SERVQUAL's concurrent validity, the SERVQUAL perceptions scores were calculated for the florist and supermarket customers grouped according to their answers to the problem, resolved and recommend variables (Table 4.31). It had been hypothesized that the respondents who had experienced a problem would have lower SERVQUAL perceptions scores than those who had not experienced a problem. For both florist and supermarket customer groups, this hypothesis was not rejected.

Table 4.31. Average SERVQUAL perceptions scores (SQ score) for florist and supermarket customers grouped by response to variables: problem, resolved, and recommend.[z]

		Problem?		Resolved?		Recommend?	
		Yes	No	Yes	No	Yes	No
Florist customers	n	27	397	18	8	18	4
	SQ score	5.61	6.51	6.00	4.79	6.48	4.61
	Mean rank	103.4	219.9	16.2	7.4	213.3	23.9
		P=0.00		P=0.00		P=0.00	
Supermarket customers	n	28	307	13	12	314	17
	SQ score	4.87	6.14	5.35	4.48	6.18	3.78
	Mean rank	83.0	175.8	15.3	10.5	173.4	29.0
		P=0.00		P=0.05		P=0.00	

[z]Spearman's rank correlation coefficient; one-tailed probabilities.

Of the respondents who had a problem, and the problem had been satisfactorily resolved, it had been hypothesized that they would have higher perceptions scores than those respondents whose problems had not been satisfactorily resolved. For both the florist and supermarket customer groups, this hypothesis was not rejected.

It had also been hypothesized that the respondents who would recommend the retailer would have higher perceptions scores than those customers who would not recommend the retailer. This hypothesis was also not rejected for either the florist or supermarket customer group. These results provided additional support of SERVQUAL's concurrent validity.

The high degree of reliability which the instrument was found to possess (discussed below) suggested that SERVQUAL possessed convergent validity, i.e. that the scale items represented the intended construct (service quality).

Reliability

To assess the reliability of the SERVQUAL instrument in this study, reliability coefficients for the SERVQUAL dimensions and total scale were calculated (Table 4.32). This was done for both the expectations and perceptions instruments, for both the florist and supermarket customer groups. The reliability coefficients (alphas) for the total scale were high for both customer groups on both instruments. And for both groups, the total scale alphas on the perceptions instrument were higher than those on the expectations instrument

Table 4.32. Reliability coefficients for the SERVQUAL dimensions and total scale for both the expectations and perceptions instruments for both the florist and supermarket customer groups.[z]

	Reliability coefficient			
	Expectations		Perceptions	
Dimension	Florist	Supermkt.	Florist	Supermkt.
Tangibles	571	647	842	771
Reliability	590	776	874	892
Responsiveness	699	794	860	858
Assurance	850	657	924	924
Empathy	827	788	906	914
SERVQUAL	877	883	944	961

[z]Cronbach's α; all coefficients in the table were multiplied by 100.

For the dimensions, the alphas were higher on the perceptions instrument than on the expectations instrument for both customer groups. The lowest alphas were found on the

expectations instrument of the florist customer respondents (e.g. 0.571 on tangibles). The highest alpha among the dimensions was 0.924 for assurance on the perceptions instrument for both the florist and supermarket customer groups.

In addition, corrected item-to-total correlation coefficients and reliability coefficients ("alpha if item deleted") were calculated for each item on both the SERVQUAL dimensions and total scale. This was also done for both the expectations and perceptions instruments for both the florist and supermarket customer groups (Appendix F, Tables F24 and F25). In general, at both the dimension and total scale level, these coefficients provided further evidence supporting SERVQUAL's reliability as applied in this study.

Factor Analysis of the SERVQUAL Perceptions Scores

The SERVQUAL perceptions scores were factor analyzed using the principal axis factoring procedure. Factors with eigenvalues greater than one were retained. These factors were subjected to oblique rotation to allow for correlations among the factors and to facilitate interpretation. The resultant factor loadings for each item are presented in Table 4.33.

For both groups, a three-factor structure emerged. The SERVQUAL tangibles dimension items formed a distinct factor (F2) for both customer groups. For the florist customer group, all 5 of the reliability items and two of the responsiveness items (10 and 11) loaded on F3. The other two responsiveness items, along with all of the assurance and empathy items, loaded on F1 for the florist customer group.

For the supermarket customers, reliability items 5, 7, 8, and 9 all loaded most heavily on F3. Reliability item 6 loaded most heavily on F1, though it also loaded heavily on F3. For this customer group, responsiveness item 10 clearly loaded on F3. The remaining items (including responsiveness items 11, 12, and 13, and all of the assurance and empathy items) loaded most heavily on F1.

To investigate the overlap between the SERVQUAL dimensions in the factor analysis, the correlation coefficients between the dimension perception scores were calculated (Table 4.34). For both customer groups, the weakest correlations were between the tangibles dimension and each of the other dimensions. The strongest correlations were between assurance and empathy, and between responsiveness and assurance, for both customer groups.

Table 4.33. Factor loading matrices of SERVQUAL perceptions scale for florist and supermarket customer groups.

	Factor loadings					
	Florist customers			Supermkt. customers		
Item	F1	F2	F3	F1	F2	F3
1	84	882	12	56	836	47
2	40	886	38	25	802	14
3	165	536	96	371	332	73
4	58	560	56	29	491	241
5	82	43	913	5	128	737
6	155	16	681	450	88	408
7	9	57	849	161	27	744
8	83	22	864	157	73	816
9	146	123	552	80	73	854
10	204	83	571	78	0	810
11	227	67	676	623	18	271
12	610	79	280	952	34	37
13	756	41	87	848	12	35
14	905	27	33	918	64	72
15	876	74	46	776	1	165
16	1000	92	95	914	34	66
17	783	85	15	742	118	18
18	791	34	80	962	101	11
19	403	313	28	422	43	211
20	884	11	12	930	22	22
21	694	95	131	741	62	128
22	816	82	52	768	62	94

Table 4.34. Correlation between the SERVQUAL dimension perceptions scores for both florist and supermarket customer groups.

		Correlation coefficient[z]			
		Tangibles	Reliability	Responsiv.	Assurance
Florist customers	Empathy	0.50 n=417	0.75 n=426	0.81 n=426	0.86 n=426
	Assurance	0.41 n=417	0.79 n=426	0.84 n=426	
	Responsiv.	0.43 n=417	0.83 n=426		
	Reliability	0.44 n=417			
Supermarket customers	Empathy	0.62 n=334	0.81 n=332	0.88 n=337	0.90 n=337
	Assurance	0.64 n=335	0.80 n=333	0.90 n=337	
	Responsiv.	0.64 n=334	0.85 n=332		
	Reliability	0.68 n=330			

[z]Pearson's *r*; one-tailed probabilities all significant at P=0.00.

Item Non-response

The percentage of non-response was calculated for each item on the SERVQUAL expectations and perceptions scales for both the florist and supermarket customer respondents (Appendix F, Table F26). The average percent of item non-response was calculated for the SERVQUAL dimensions and for the total scale (Table 4.35).

On the expectations instrument, the florist customers responded to every item. For the supermarket customers who completed the expectations instrument, the average percent of non-response ranged between 0.00% on the responsiveness dimension items, to 1.60% on the assurance dimension. For the total expectations scale, the supermarket customers' average percent of item non-response was 0.46%.

On the total perceptions scale, the florist customers' average percent of item non-response was 1.33%. For the florist customers, the percentages ranged from an average of 0.40% on the assurance perceptions items to an average of 4.38% on the tangibles perceptions items.

Table 4.35. Average percent of item non-response on the SERVQUAL dimensions and total scale for florist and supermarket customer groups.

	Average % of item non-response			
	Expectations		Perceptions	
Dimension	Florist	Supermkt.	Florist	Supermkt.
Tangibles	0.00	0.63	4.38	2.75
Reliability	0.00	0.26	0.94	6.02
Responsiveness	0.00	0.00	0.45	3.28
Assurance	0.00	1.60	0.40	2.28
Empathy	0.00	0.00	0.74	2.44
SERVQUAL	0.00	0.46	1.33	3.43

The supermarket customers' average percent of non-response on the total perceptions scale was 3.43%. For the supermarket customers, the percentages ranged from an average of 2.28% on assurance items to an average of 6.02% on the reliability dimension.

SERVQUAL and Demographic Variables

For both the florist and supermarket customer groups, possible relationships between the SERVQUAL perceptions scores and the demographic variables were investigated. The first demographic variable considered was respondent gender (Table 4.36). For the florist customers, female respondents had significantly higher SERVQUAL perceptions scores than did male respondents. There was no significant difference between the female and male supermarket respondents on their SERVQUAL scores.

Table 4.36. Comparison of female and male perceptions survey respondents on SERVQUAL perceptions scores for both florist and supermarket customer groups.

		Florist customers			Supermkt. customers		
		Females (n=345)	Males (n=76)		Females (n=261)	Males (n=73)	
SERVQUAL	Mean	6.48	6.31	P=0.04[z]	6.00	6.11	P=0.35[y]
	SE	0.034	0.084		0.065	0.098	

[zy]Two-tailed probability of pooled and separate variance *t*-tests, respectively.

A scatter plot of respondent age and the SERVQUAL scores hinted at a possible correlation between the two variables. For both customer groups, the correlation between age

and SERVQUAL score was calculated (Table 4.37). While the correlation coefficients were statistically significant, they were weak. For the florist group, the correlation coefficient equaled 0.10, and for the supermarket group the coefficient was 0.21.

Table 4.37. Correlation between age and SERVQUAL perceptions scores for both florist and supermarket customer respondent groups.

		SERVQUAL			SERVQUAL
Florist customers	Age	0.10 (n=415) P=0.04	Supermarket customers	Age	0.21 (n=334) P=0.00

[z]Pearson's *r*; two-tailed probabilities.

The relationship between age and SERVQUAL score was investigated further by categorizing the respondents on the age variable and then testing for significant differences between the age groups on SERVQUAL score. The age categories used for this analysis, and respondent frequencies for both the florist and customer groups, are shown in Table 4.38.

For both customer groups, a one-way analysis of variance (ANOVA) was conducted to test for any significant differences between the age groups on their mean SERVQUAL scores. For the florist customers, the ANOVA was significant at P=0.00, and analysis proceeded with a means separation using Duncan's multiple range test (Table 4.39). The means separation revealed no significant differences among age groups 1, 2, 3, and 4. The mean score for age group 5, however, was statistically significantly different from, and greater than, each of the other four age groups of the florist customers.

Table 4.38. Age category frequencies for florist and supermarket customer perceptions survey respondents.

		% of customer respondents	
Age group	Age in years	Florist n=415	Supermkt. n=334
1	≤30	17.1	28.7
2	31-40	23.4	25.7
3	41-50	27.2	19.2
4	51-60	18.1	15.3
5	≥61	14.2	11.1

Table 4.39. One-way ANOVA: SERVQUAL perceptions scores by age groups for florist customer respondents.

Source	df	SS	MS	F	Age group	n	Mean[z]	SE
Btwn. groups	4	6.08	2.06	3.68	3	113	6.356[a]	0.068
W/in groups	410	169.37	0.43	P=0.00	4	75	6.389[a]	0.077
Total	414	175.56			2	97	6.421[a]	0.069
					1	71	6.462[a]	0.078
					5	59	6.732[b]	0.059
					Overall	415	6.449	0.033

[z]Group means without common superscript letters are significantly different at P=0.05 using Duncan's multiple range test.

For the supermarket customers, there were also significant differences between several age groups on their SERVQUAL scores (Table 4.40). Age group 1 was significantly different from groups 4 and 5, and groups 2 and 3 were significantly different from group 5. The observed mean scores increased from group 1 through group 5.

Table 4.40. One-way ANOVA: SERVQUAL perceptions scores by age groups for supermarket customer respondents.

Source	df	SS	MS	F	Age group	n	Mean[z]	SE
Btwn. groups	4	14.36	3.59	3.73	1	96	5.847[a]	0.109
W/in groups	329	316.63	0.96	P=0.01	2	86	5.920[ab]	0.11
Total	333	330.99			3	64	6.038[ab]	0.117
					4	51	6.246[bc]	0.128
					5	37	6.487[c]	0.126
					Overall	334	6.034	0.055

[z]Group means without common superscript letters are significantly different at P=0.05 using Duncan's multiple range test.

Differences on SERVQUAL scores for respondents with different levels of education were analyzed. The level of education categories, and respondent frequencies at each level, are presented in Table 4.41.

For the florist customers, the ANOVA was significant (P=0.02), and means separation of the education groups on SERVQUAL scores was conducted (Table 4.42). Education groups 2, 3, and 4 were not significantly different from each other, but were significantly

Table 4.41. Comparison of florist and supermarket customer perceptions survey respondents on respondent level of education.

Level of education	Education group	% of customer respondents: Florist (n=421)	Supermkt. (n=334)
Some high school/H.S. graduate	1	16.9	12.0
Some college/tech. school	2	33.0	33.8
College/tech. school graduate	3	30.4	32.6
Some graduate school/G.S. graduate	4	19.7	21.6

Table 4.42. One-way ANOVA: SERVQUAL perceptions scores by education groups for florist customer respondents.

Source	df	SS	MS	F	Education group	n	Mean[z]	SE
Btwn. groups	3	4.01	1.34	3.23	3	128	6.329[a]	0.062
W/in groups	417	172.38	0.41	P=0.02	4	83	6.461[a]	0.066
Total	420	176.39			2	139	6.478[a]	0.057
					1	71	6.618[b]	0.059
					Overall	421	6.453	0.032

[z]Group means without common superscript letters are significantly different at P=0.05 using Duncan's multiple range test.

different from education group 1. The mean SERVQUAL score for group one was the highest among the education groups of the florist customers.

For the supermarket customers, the ANOVA of SERVQUAL scores between education groups was not significant (Table 4.43).

Table 4.43. One-way ANOVA: SERVQUAL perceptions scores by education groups for supermarket customer respondents.

Source	df	SS	MS	F	Education group	n	Mean	SE
Btwn. groups	3	2.18	0.73	0.72	4	72	5.907	0.133
W/in groups	330	331.50	1.00	P=0.54	3	109	5.989	0.096
Total	333	333.68			2	113	6.101	0.091
					1	40	6.123	0.132
					Overall	334	6.025	0.055

The relationship between the number of people in the respondent's household and SERVQUAL scores was studied. Four household size groups were established, and

respondent frequencies in each group calculated for both the florist and supermarket customers (Table 4.44).

For the florist customers, the ANOVA of the SERVQUAL scores was not statistically significant (Table 4.45). For the supermarket customers, the ANOVA was significant at P=0.10, and a means separation was conducted (Table 4.46). The mean SERVQUAL scores for household size groups two and four were significantly different. No other significant differences between the household size groups of the supermarket customers were found.

Table 4.44. Comparison of florist and supermarket customer perceptions survey respondents on number of people in respondent's household.

Number of people in household	Household size group	% of customer respondents	
		Florist (n=415)	Supermkt. (n=333)
1	1	11.3	18.6
2	2	40.2	38.7
3	3	20.0	18.0
≥4	4	28.4	24.6

Table 4.45. One-way ANOVA: SERVQUAL perceptions scores by household size groups for florist customer respondents.

Source	df	SS	MS	F	Household size group	n	Mean	SE
Btwn. groups	3	1.29	0.43	1.01	4	118	6.363	0.059
W/in groups	411	174.23	0.42	P=0.39	3	83	6.457	0.069
Total	414	175.52			1	47	6.484	0.099
					2	167	6.495	0.051
					Overall	415	6.449	0.032

Table 4.46. One-way ANOVA: SERVQUAL perceptions scores by household size groups for supermarket customer respondents.

Source	df	SS	MS	F	Household size group	n	Mean[z]	SE
Btwn. groups	3	6.23	2.08	2.09	4	82	5.821[a]	0.115
W/in groups	329	327.56	1.00	P=0.10	1	62	5.993[ab]	0.149
Total	332	333.79			2	129	6.088[ab]	0.080
					3	60	6.218[b]	0.121
					Overall	333	6.028	0.055

[z]Different letters indicate significantly different group means at P=0.05 using Duncan's multiple range test.

Respondent household income was the last demographic variable for which differences in SERVQUAL scores were sought. The ten income categories discussed in the demographics section of this chapter formed the income groups used in the ANOVA of SERVQUAL scores for both florist and supermarket customers (Table 4.47).

For both the florist and supermarket customer groups, the ANOVAs for SERVQUAL scores for the income groups were not significant (Tables 4.48 and 4.49). Mean separations were not attempted.

Table 4.47. Comparison of florist and supermarket customer respondents on respondent 1991 income before taxes.

1991 household income	Income group	% of customer respondents	
		Florist (n=334)	Supermkt. (n=314)
≤$15,000	1	4.3	6.1
$15,000-$19,999	2	3.9	7.7
$20,000-$24,999	3	8.0	7.9
$25,000-$29,999	4	6.9	6.6
$30,000-$34,999	5	8.8	7.4
$35,000-$39,999	6	7.1	6.1
$40,000-$44,999	7	8.2	9.9
$45,000-$49,999	8	5.4	8.7
$50,000-$54,999	9	9.3	6.9
≥$55,000	10	38.1	32.7

Table 4.48. One-way ANOVA: SERVQUAL perceptions scores by income groups for florist customer respondents.

Source	df	SS	MS	F	Income group	n	Mean	SE
Btwn. groups	9	2.93	0.33	0.75	8	20	6.148	0.172
W/in groups	375	162.47	0.43	P=0.66	2	17	6.382	0.191
Total	384	165.40			10	145	6.386	0.054
					7	32	6.394	0.137
					9	33	6.451	0.097
					6	26	6.461	0.123
					3	29	6.479	0.121
					4	27	6.512	0.114
					5	38	6.516	0.106
					1	18	6.569	0.128
					Overall	385	6.424	0.033

Table 4.49. One-way ANOVA: SERVQUAL perceptions scores by income groups for supermarket customer respondents.

Source	df	SS	MS	F	Income group	n	Mean	SE
Btwn. groups	9	4.87	0.54	0.55	2	26	5.755	0.224
W/in groups	303	299.50	0.99	P=0.84	1	20	5.763	0.300
Total	313	304.37			6	17	5.971	0.334
					10	101	6.035	0.097
					9	21	6.037	0.196
					4	21	6.054	0.206
					7	34	6.107	0.137
					8	28	6.127	0.139
					5	26	6.159	0.202
					3	20	6.189	0.166
					Overall	314	6.029	0.056

Floral-specific Items

The discussion now turns to the floral-specific questions included on the survey instruments. The results of the florals scale expectations and perceptions items are presented first. These eleven items are numbered consecutively, beginning with number 23, to avoid confusion with the SERVQUAL scale items.

There were statistically significant differences between the mean ranks of the florist and supermarket customer groups on four of the nine florals scale expectations items (Table 4.50). These included items 25 (carry many kinds of cut flowers), 26 (label flower names), 27 (clearly mark flower prices), and 30 (display a wide variety of cut designs). The non-significant items were 23 (sell only the freshest cut flowers), 24 (make buying flowers convenient), 28 (design to customer specifications), 29 (make buying flowers easy), and 31 (will guarantee fresh flowers). The supermarket customer mean expectations scores were higher on all except items 28 and 29.

Florist and supermarket customer mean ranks were significantly different on 5 of the 8 perceptions items on the florals scale.[9] These included perceptions items 23, 24, 25, 28 and 29. On two of the eight florals items (26 and 27), the supermarket customers' mean perceptions scores were higher than those of the florist customers. As previously discussed, item 31 was not included on the perceptions instrument.

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[9]A "guarantee fresh flowers" perceptions item was not included because: a) it was felt that many respondents may not know whether or not their retailer offered a guarantee, and b) such an item would require a nominal (yes/no) response.

The mean ranks of the gap scores for the florist and supermarket customers were significantly different on all the florals scale items. The gap scores of the florist customers were more positive, or less negative, than the scores of the supermarket customers on each of the florals scale items. The supermarket customer groups' gap scores were negative for each of the items. The florist customers' gap scores were negative on items 23, 26, and 27, and were positive on the other five items.

Table 4.50. Summary of the expectations, perceptions, and gap scores on each item of the florals scale for the florist and supermarket customer groups.[z]

	Item		Expectations Florist	Expectations Super.	Perceptions Florist	Perceptions Super.	Gap Florist	Gap Super.
23	Sell only the freshest cut flowers	Mean	6.71	6.84	6.38	5.71	-0.331	-1.13
		Mean rank	79.7	85.5	427	319	481	252
			P=0.25		P=0.00		P=0.00	
24	Make buying flowers convenient	Mean	6.48	6.63	6.66	6.40	0.183	-0.221
		Mean rank	78.6	86.6	406	351	496	238
			P=0.19		P=0.00		P=0.00	
25	Carry many kinds of cut flowers	Mean	6.00	6.50	6.17	5.77	0.172	-0.731
		Mean rank	70.6	95.0	407	343	458	280
			P=0.00		P=0.00		P=0.00	
26	Label flower names	Mean	5.69	6.10	5.68	5.57	-0.010	-0.531
		Mean rank	73.4	92.1	371	354	412	306
			P=0.01		P=0.28		P=0.00	
27	Clearly mark flower prices	Mean	6.14	6.63	5.63	5.69	-0.511	-0.943
		Mean rank	69.3	95.5	358	368	400	319
			P=0.00		P=0.53		P=0.00	
28	Design to customer specifications	Mean	6.51	6.30	6.51	5.99	0.002	-0.313
		Mean rank	86.2	78.7	403	316	342	398
			P=0.25		P=0.00		P=0.00	
29	Make buying flowers easy	Mean	6.55	6.54	6.64	6.35	0.094	-0.188
		Mean rank	82.5	82.5	406	350	320	458
			P=1.00		P=0.00		P=0.00	
30	Display a wide variety of cut designs	Mean	5.71	6.30	5.88	5.85	0.162	-0.449
		Mean rank	71.3	94.2	374	364	422	306
			P=0.00		P=0.51		P=0.00	
31	Will guarantee fresh flowers	Mean	6.56	6.71				
		Mean rank	80.17	85.0				
			P=0.37					

[z]A complete statistical table (including sample size, mean, standard error, and response frequencies) for each item appears in Appendix F, Tables F27-F35 .

The florals expectations, perceptions and gap scale scores (averages over all the items) were significantly different between the customer groups (Table 4.51). The supermarket customers' expectations score was significantly higher than that of the florist customers. The florals perceptions score for the florist customer group was significantly greater than that of the supermarket customers. For both customer groups, the florals scale gap scores were negative. However, the florist customers' score was significantly more positive than that of the supermarket customers.

Table 4.51. Comparison of florist and supermarket customer groups on their total florals scale average expectations, perceptions and gap scores.

	Expectations		Perceptions		Gap score	
	Florist	Supermkt.	Florist	Supermkt.	Florist	Supermkt.
n	84	80	426	339	426	339
Mean	6.22	6.48	6.22	5.92	-0.03	-0.57
SE	0.066	0.069	0.041	0.056	0.041	0.056
	P=0.01[z]		P=0.00[y]		P=0.00[y]	

[z,y]Two-tailed probability of pooled and separate variance *t*-tests, respectively.

The relationship between the florals scale perceptions scores and the SERVQUAL perceptions scores and the overall service quality (OSQ) was investigated. Correlation coefficients were calculated, and the results are presented in Table 4.52. For both customer groups, the correlation between the florals perceptions scores and the SERVQUAL perceptions scores was strong ($r \approx 0.80$). For the florist group, the correlation between the florals scores and OSQ ($\rho = 0.61$) was weaker than that found for the supermarket customer group ($\rho = 0.75$).

Table 4.52. Correlation between florals scale perceptions scores and SERVQUAL perceptions score, and with the overall service quality (OSQ) measure for both florist and supermarket customer groups.

		Correlation coefficient				Correlation coefficient	
		SERVQUAL[z]	OSQ[y]			SERVQUAL[z]	OSQ[y]
Florist customers	Florals	0.79 n=426 P=0.00	0.61 n=425 P=0.00	Supermkt. customers	Florals	0.81 n=339 P=0.00	0.75 n=336 P=0.00

[z]Pearson's *r*.
[y]Spearman's rank correlation coefficient; one-tailed probabilities.

Possible relationships between respondent demographics and florals scale perceptions scores were investigated for both the florist and supermarket customer groups. The same demographic groupings used for the ANOVAs of SERVQUAL scores were used for the analysis of florals scale scores as well.

For both the florist and supermarket customer groups, there was no significant difference between the mean florals scale perceptions scores of female and male respondents (Table 4.53).

Table 4.53. Comparison of female and male perceptions survey respondents on florals scale scores for both florist and supermarket customer groups.

		Florist customers			Supermkt.. customers		
		Females (n=345)	Males (n=76)		Females (n=261)	Males (n=73)	
Florals	Mean	6.24	6.07	P=0.17[y]	5.88	6.00	P=0.32[y]
	SE	0.043	0.117		0.066	0.101	

[zy]Two-tailed probability of pooled and separate variance *t*-tests, respectively.

The ANOVA of florals perceptions scores for the age groups were significant for both the florist customers and supermarket customers. For the florist customers, the mean florals score of age group three was significantly different from that of groups one and five (Table 4.54). The mean scores of groups 4 and 2 were also significantly different from that of group 5. For the supermarket customers, the mean florals scores of age groups two, three, and one were significantly different from the mean score of group 5 (Table 4.55). There were no other significant difference between these age groups.

Table 4.54. One-way ANOVA: florals scale perceptions scores by age groups for florist customer respondents.

Source	df	SS	MS	F	Age group	n	Mean[z]	SE
Btwn. groups	4	16.86	4.22	6.14	3	113	5.981[a]	0.091
W/in groups	410	281.36	0.69	P=0.00	4	75	6.152[ab]	0.079
Total	414	298.22			2	97	6.167[ab]	0.088
					1	71	6.341[bc]	0.089
					5	59	6.607[c]	0.042
					Overall	415	6.206	0.041

[z]Group means without common superscript letters are significantly different at P=0.05 using Duncan's multiple range test.

Table 4.55. One-way ANOVA: florals scale perceptions scores by age groups for supermarket customer respondents.

Source	df	SS	MS	F	Age group	n	Mean[z]	SE
Btwn. groups	4	10.34	2.59	2.49	2	86	5.809[a]	0.112
W/in groups	329	342.06	1.04	P=0.04	3	64	5.812[a]	0.133
Total	333	352.41			1	96	5.832[a]	0.150
					4	51	6.140[ab]	0.137
					5	37	6.297[b]	0.149
					Overall	334	5.921	0.056

[z]Group means without common superscript letters are significantly different at P=0.05 using Duncan's multiple range test.

For the florist customers, the ANOVA for mean florals scale scores for the education groups was significant (Table 4.56). The florist customers in education group three had a mean florals score which was significantly different from that of both education groups two and one. The mean for education group four differed significantly from that of group 1.

The ANOVA for florals scale scores for the education groups of the supermarket customers was not significant (Table 4.57). No means separation was attempted.

Table 4.56. One-way ANOVA: florals scale perceptions scores by education groups for florist customer respondents.

Source	df	SS	MS	F	Education group	n	Mean[z]	SE
Btwn. groups	3	7.60	2.53	3.61	3	128	6.080[a]	0.080
W/in groups	417	292.60	0.70	P=0.01	4	83	6.080[ab]	0.094
Total	420	300.20			2	139	6.318[bc]	0.070
					1	71	6.395[c]	0.082
					Overall	421	6.212	0.041

[z]Group means without common superscript letters are significantly different at P=0.05 using Duncan's multiple range test.

Table 4.57. One-way ANOVA: florals scale perceptions scores by education groups for supermarket customer respondents.

Source	df	SS	MS	F	Education group	n	Mean	SE
Btwn. groups	3	2.06	0.69	0.64	2	113	5.877	0.105
W/in groups	330	352.90	1.07	P=0.59	4	72	5.881	0.111
Total	333	354.96			3	109	5.883	0.101
					1	40	6.122	0.141
					Overall	334	5.909	0.057

Next, the household size groups were compared on mean florals scale scores, for both the florist and supermarket customer respondents. The ANOVA of florals scores for the household size groups of the florist customers was significant (Table 4.58). The mean florals score of household size group four was significantly different from those of groups two and one. There were no other significant differences between these groups on the florals scores.

For the supermarket customers, the ANOVA of florals scores for the household size groups was not significant (Table 4.59). No means separation was performed.

Table 4.58. One-way ANOVA: florals scale perceptions scores by household size groups for florist customer respondents.

Source	df	SS	MS	F	Household size group	n	Mean[z]	SE
Btwn. groups	3	4.98	1.66	2.33	4	118	6.059[a]	0.080
W/in groups	411	292.70	0.71	P=0.07	3	83	6.186[ab]	0.088
Total	414	297.68			2	167	6.286[b]	0.832
					1	47	6.377[b]	0.132
					Overall	415	6.212	0.042

[z]Group means without common superscript letters are significantly different at P=0.05 using Duncan's multiple range test.

Table 4.59. One-way ANOVA: florals scale perceptions scores by household size groups for supermarket customer respondents.

Source	df	SS	MS	F	Household size group	n	Mean	SE
Btwn. groups	3	2.89	0.96	0.90	4	82	5.760	0.119
W/in groups	329	351.74	1.07	P=0.44	2	129	5.932	0.086
Total	332	354.63			3	60	5.952	0.146
					1	62	6.029	0.127
					Overall	333	5.911	0.057

Finally, the florals scale perceptions scores were investigated in relation to the income groups for both the florist and supermarket customers. For both the florist and supermarket customers, the ANOVAS of florals scale perceptions scores for the income groups were not significant (Tables 4.60 and 4.61, respectively). Therefore, no means separation was performed for either customer group.

Table 4.60. One-way ANOVA: florals scale perceptions scores by income groups for florist customer respondents.

Source	df	SS	MS	F	Income group	n	Mean	SE
Btwn. groups	9	4.77	0.53	0.71	8	20	5.843	0.200
W/in groups	375	279.86	0.75	P=0.70	7	32	6.125	0.156
Total	384	284.63			9	33	6.140	0.157
					10	145	6.145	0.072
					6	26	6.151	0.172
					2	17	6.265	0.205
					5	38	6.279	0.154
					3	29	6.280	0.147
					4	27	6.305	0.126
					1	18	6.410	0.214
					Overall	385	6.180	0.044

Table 4.61. One-way ANOVA: florals scale perceptions scores by income groups for supermarket customer respondents.

Source	df	SS	MS	F	Income group	n	Mean	SE
Btwn. groups	9	7.39	0.82	0.79	2	26	5.690	0.208
W/in groups	304	317.09	1.04	P=0.63	1	20	5.713	0.299
Total	313	324.47			10	101	5.805	0.107
					9	21	5.890	0.208
					4	21	6.015	0.185
					8	28	6.016	0.173
					7	34	6.046	0.173
					6	17	6.057	0.223
					3	20	6.075	0.197
					5	26	6.197	0.189
					Overall	314	5.917	0.058

Non-response rates on the individual florals scale expectations items ranged from 0.0% to 1.3% (Table 4.62). For the florals scale, the average rates of expectations item non-response were 0.0% for the florist customers and 0.1% for the supermarket customers. For the florals scale perceptions items, the rates of non-response varied between 0.2% and 7.7%. The average rates of perceptions item non-response on the florals scale were 3.5% for the florist customers and 1.7% for the supermarket customers.

Table 4.62. Percent of florals scale expectation and perception item non-response for florist and supermarket customer groups.

	% of non-response					% of non-response			
	Expectations		Perceptions			Expectations		Perceptions	
Item	Florist	Super	Florist	Super	Item	Florist	Super	Florist	Super
23	0.0	0.0	1.4	0.6	28	0.0	0.0	1.9	7.7
24	0.0	0.0	0.2	0.6	29	0.0	0.0	0.5	0.3
25	0.0	0.0	1.9	0.3	30	0.0	0.0	5.4	1.2
26	0.0	0.0	8.2	1.5	31	0.0	0.0		
27	0.0	1.3	8.7	1.2	Scale ave.	0.0	0.1	3.5	1.7

For both the expectations and perceptions instruments, the reliability coefficients for the florals scale (items 23 through 30) were calculated (Table 4.63). The reliability coefficients for the expectations instrument were 0.79 for the florist customers and 0.82 for the supermarket customers. For the perceptions instrument, the reliability coefficients for the florals scale were 0.88 and 0.90 for the florist and supermarket customers, respectively.

Table 4.63. Internal consistencies of florals scale: expectations and perceptions.[z]

	Expectations				Perceptions			
	Florist		Supermarket		Florist		Supermarket	
Item	r^x	α'^w	r	α'	r	α'	r	α'
23	491	774	460	816	682	863	686	884
24	524	765	634	791	547	877	672	888
25	586	752	678	776	748	856	736	879
26	569	758	597	803	691	865	703	883
27	492	768	460	808	746	857	652	888
28	452	756	498	804	669	866	584	894
29	480	773	670	785	655	870	761	880
30	510	769	536	798	670	864	743	878
Florals scale reliability coeff. α^y	790		819		880		897	

[z]All coefficients in the table were multiplied by 100.
[y]Cronbach's α.
[x]Corrected item-to-total correlation coefficient.
[w]Alpha if item deleted.

Corrected item-to-total correlation coefficients, along with the alpha-if-item-deleted, were calculated for the florals scale expectations and perceptions items (Table 4.63). In general, the correlations were mild to strong on both instruments and for both customer groups. The alphas-if-item-deleted also indicated a high degree of reliability for most of the items on both scales and for both customer groups.

The expectations instrument contained an item regarding the relative importance of five floral retailing attributes. The attributes were flower quality, custom floral design, flower price, service quality, and flower assortment. The florist and supermarket customers were asked to allocate a total of 100 points among the five attributes according to how important each attribute was to them (Table 4.64).

Table 4.64. Comparison of florist and supermarket customer groups on relative importance of floral retailing attributes.[z]

Attribute		Florists customers (n=84)	Supermkt. customers (n=79)	
"The quality of the flowers (i.e. flower freshness)"	Mean	28.6[a]	28.2[a]	P=0.81[x]
	SE	1.191	1.416	
	Min.	10	5	
	Max.	70	75	
"The employees' ability to custom-design flowers for you"	Mean	17.3[c]	14.8[d]	P=0.10[y]
	SE	0.792	1.275	
	Min.	0	0	
	Max.	40	90	
"The prices of flowers"	Mean	17.7[c]	19.9[b]	P=0.16[x]
	SE	1.093	1.078	
	Min.	0	0	
	Max.	50	50	
"The quality of the service you receive"	Mean	22.6[b]	17.6[c]	P=0.00[y]
	SE	1.189	0.953	
	Min.	10	0	
	Max.	75	50	
"The assortment and variety of fresh flowers"	Mean	13.8[d]	19.6[b]	P=0.00[y]
	SE	0.662	1.017	
	Min.	0	0	
	Max.	30	50	

[z]Respondent was asked to allocate a total of 100 points among the five attributes according to each attribute's importance to the respondent. Column values with common superscript letters are not significantly different at P=0.10 using Wilcoxon signed-ranks test with two-tailed probabilities.

[y,x]From separate and pooled variance estimates of *t*-test, respectively.

For the florist customers, there were statistically significant differences between the number of points allocated to several of the attributes. For these customers, the greatest number of points (a mean of 29) was allocated to flower quality, and this value was significantly different from the number of points allocated to each of the other four attributes. The next highest number of points (a mean of 23) was allocated to service quality, and this value was also significantly different from the values on all other four attributes.

There was no significant difference between the number of points the florist customers allocated to custom design and flower price (means of 17 and 18 points, respectively). However, these values were significantly different from the points allocated to each of the other three attributes. Finally, the number of points allocated to flower assortment by the florist customers (a mean of 14) was significantly different from the number of points they allocated to each of the other four attributes.

The supermarket customers also allocated the greatest number of points to flower quality (a mean of 28), which was significantly different from the values on each of the other four attributes. The number of points allocated to flower price and flower assortment were not significantly different for the supermarket customers. However, both of these values (means of 20 points each) were significantly different from the number of points they allocated to each of the other three attributes. The next highest number of points allocated by the supermarket customers went to service quality (mean=18 points), which was significantly different from the values on all four of the other attributes. Finally, the least number of points allocated by the supermarket customers went to custom design (mean=15 points), which was also significantly different from the number of points they had allocated to each of the other attributes.

The florist customers were then compared to the supermarket customers on the number of points allocated to each dimension. There were no significant differences between the groups on the number of points they allocated to flower quality, custom design, and flower price. There were significant differences between the groups on the number of points allocated to service quality and flower assortment. The rankings of the floral retailing attributes, for both customer groups, are summarized in Table 4.65.

Florist and supermarket customers who completed the perceptions instrument were asked a set of five floral attitude questions. Each of these items was a strongly-worded statement to which the respondent was asked to indicate the extent to which they agreed or disagreed with the statement (Table 4.66). For each of these items, a 7-point response scale was employed. These response scales were anchored "strongly disagree" (=1) and "strongly agree" (=7).

Table 4.65. Summary of relative importance ratings of the floral retailing attributes for florist and supermarket customer groups.[z]

Florist customers			Supermarket customers		
Attribute	Points[z]	Rank	Attribute	Points[z]	Rank
Flower quality	28.6	1	Flower quality	28.2	1
Custom design	17.3	3	Custom design	14.8	4
Flower price	17.7	3	Flower price	19.9	2
Service quality	22.6	2	Service quality	17.6	3
Flower assortment	13.8	4	Flower assortment	19.6	2

[z]Customer group's average number of points allocated to each dimension.
[y]Rankings based on results of Wilcoxon signed-ranks test.

Table 4.66. Comparison of florist and supermarket customer respondents on overall product and service quality perception items.

Item		% of customer respondents: Florist	Supermkt.	
"I am very satisfied with the variety of services offered by (retailer/retailer's floral dept.)"	n	425	337	
	Mean	6.58	5.94	
	SE	0.041	0.073	
	M-W U mean rank	432	317	P=0.00
"I find that (retailer/retailer's floral department) always provides excellent service."	n	425	336	
	Mean	6.64	6.0	
	SE	0.037	0.070	
	M-W U mean rank	433	316	P=0.00
"I am very satisfied with the quality of flowers at (retailer)."	n	425	338	
	Mean	6.56	5.89	
	SE	0.043	0.070	
	M-W U mean rank	440	309	P=0.00
"In general, florist shops provide much better service than do supermarket floral departments."	n	422	333	
	Mean	6.66	4.03	
	SE	0.041	0.117	
	M-W U mean rank	497	228	P=0.00
"In general, florist shops sell much higher-quality flowers than do supermarkets."	n	420	334	
	Mean	6.42	3.92	
	SE	0.055	0.118	
	M-W U mean rank	488	238	P=0.00

[z]A response frequency table for each item appears in Appendix F, Table F36.

There were significant differences between the groups on all five of the floral attitude questions. On the first item, involving respondent satisfaction with the variety of services offered, the florist customers' mean score was significantly greater than that of the supermarket customers.

The second item was the overall service quality (OSQ) measure which was used to substantiate SERVQUAL's validity. On this item, the florist customers' scores were significantly greater than those of the supermarket customers.

The third item measured respondent satisfaction with the quality of the flowers at the retailer they were evaluating. Again, the florist customers' scores were significantly larger than those of the supermarket customers.

The fourth item involved a comparison of the quality of service provided by florist shops and supermarket floral departments. The statement was worded such that higher numbers indicated that the respondent agreed that florist shops are the better service providers. The florist customers' scores were significantly greater than those of the supermarket customers on this item.

The last of these attitude questions involved a comparison of the flower quality at florist shops and supermarket floral departments. Again, higher scores indicated favorable ratings for florist shops. The florist customers' scores were significantly higher than those of the supermarket customers on this item as well.

The relationship between customer perceptions of service quality and their perceptions of product quality was investigated. The overall service quality variable was correlated with the flower quality item mentioned above. (For both of these variables, higher values indicated favorable impressions of the retailer's quality.) The correlation coefficients were 0.72 for the florist customers and 0.685 for the supermarket customers (Table 4.67).

Table 4.67. Correlation between overall service quality and overall flower quality measure for both florist and supermarket perceptions survey customer respondents.

	Florist customers	Supermkt. customers
OSQ with OFQ	0.720 n=425 P=0.00	0.685 n=336 P=0.00

[z]Spearman's rank correlation coefficient (ρ).

The final statistical analysis performed involved recency of purchase and SERVQUAL and florals scale perceptions scores. The customer respondents who had purchased within the last three months from the retailer they evaluated ("recent purchasers") were compared to the customers who had made their most recent purchase between four and six months prior to completing the questionnaire ("not-recent purchasers").

For the florist customers, there were highly significant differences between the recent and not-recent purchasers for the SERVQUAL and florals scale perceptions scores (Table 4.68). On both of the perceptions scales, the recent purchasers had significantly higher average scores.

For the supermarket customers, the differences between the recent and not-recent purchasers were significant at P=0.10 and P=0.11 for the SERVQUAL and florals scale perceptions scores, respectively. And as with the florist customers, the supermarket recent purchasers had higher scores than the not-recent purchasers on both perceptions scales.

Table 4.68. SERVQUAL and florals scales perceptions scores of florist and supermarket customer respondents grouped by time of most recent floral purchase from their florist or supermarket, respectively.[z]

		Florist customers			Supermarket customers		
Score		Group 1 n=426	Group 2 n=296		Group 1 n=339	Group 2 n=66	
SERVQUAL	Mean	6.45	6.14	P=0.00[y]	6.03	5.74	P=0.10[y]
	SE	0.031	0.052		0.054	0.165	
Florals	Mean	6.22	5.94	P=0.00[y]	5.92	5.63	P=0.11[y]
	SE	0.041	0.056		0.056	0.168	

[z]Group 1 bought within the last three months, and group two between 3 and 6 months ago.
[y]Two-tailed probability of separate variance *t*-test.

CHAPTER V

OVERALL SUMMARY AND CONCLUSION

Products and Services

For many years, florists were the only retailers of floral products. Florist shops had a long, continuous history of providing high-levels of service to their customers. Since the early 1970s, there was a dramatic increase in the number of supermarkets in the United States which sell cut flowers and decorative plants. This change in the floral marketplace was met with mixed response in the industry. Producers viewed these new floral retailers as potential customers, while many traditional flower shop businesses (i.e. florists) saw the supermarkets as potential competitors. Both perspectives remained prevalent in 1992, as supermarkets controlled a significant share of the floral market.

Since 1970, florists have heard both words of warning and reassurance from marketing specialists as the supermarkets entered into floral retailing. Many assumed that the mass marketers would establish themselves as low-cost, high-volume, self-service retailers which would enlarge the market through cash-and-carry trade. In contrast, florists would pursue their traditional strategy, focusing on premium quality, large selection and many services.

As the third decade of the supermarket floral era began, mass marketers and traditional florists had not evolved such distinct profiles. The success of supermarket floral departments, marked by impressive profits, prompted mass marketers to experiment with higher levels of service. Today, based on the variety of goods and services offered to their customers (i.e. level of service), many supermarket floral departments are indistinguishable from traditional flower shops.

The results of the first study presented in this manuscript indicated that a significant proportion of supermarkets in Texas were selling cut flowers and plants (≈51%) on a regular basis. An additional 18% of Texas supermarkets regularly sold blooming and/or foliage plants. Approximately 22% carried floral products only for special promotions and/or seasonally, and 10% did not sell floral products at all.

The range of products and services offered by Texas florists and supermarket floral departments was investigated. The supermarket respondents in this study were considered most representative of Texas supermarkets that offered cut flowers and plants on a regular

basis. In other words, the supermarket respondents were perhaps the most "florist-like" of Texas supermarkets.

There was a significant difference between the florist and supermarket respondents on the number of perishable floral and floral-related products regularly offered. The supermarkets regularly offered a greater number of perishable products (≈7) than did the florists (≈6). There was a significant differences between the florists and supermarket respondents regarding ready-made fresh flower bunches and bedding plants (in season). Sixty-two percent of the florists and 87% of the supermarkets regularly carried ready-made bunches, and 13% of the florists and 64% of the supermarkets stocked bedding plants.

What was most significant was the lack of significant difference between the florist and supermarket respondents. There were no significant differences between the retailer groups regarding regularly carrying such traditional florist products as: cut flowers by-the-stem, ready-made fresh floral designs, foliage plants, blooming plants, fruit baskets, gourmet food products and candy.

Concerning the non-perishable products analyzed, a significantly greater percentage of florists regularly carried six of the items than did the supermarkets. For five of the other non-perishables, a significantly larger percentage of supermarkets carried the items. And on the remaining eleven non-perishables, there were no significant differences between the two retailer groups.

There were no significant differences between the percentages of florists and supermarkets that did not guarantee the cut flower, plant, and non-perishable products they carried. When a guarantee was offered on plants or non-perishables, the supermarkets were more likely to have unconditional guarantees (as opposed to limited guarantees) than were the florists.

There was no significant difference between the proportions of florists and supermarkets that did not guarantee their service (≈14%). However, for respondents that did guarantee their service, a significantly greater percentage of supermarkets offered unconditional service guarantees than did florists.

There was a statistically significant difference between the florists and supermarkets regarding custom design: 99% of the florists and 87% of the supermarkets offered at least some customization of floral designs. Perhaps more important than this difference was that 87% of the supermarkets did offer custom design, crossing the line from off-the-shelf-only floral products to the traditional realm of florist service.

For the florists and supermarkets which offered custom design, a significantly greater proportion of florists offered custom wedding, sympathy, and party design. Still, of the supermarkets, 88% offered custom wedding flowers, 85% offered custom sympathy flowers, and 77% offered custom party design. Twenty-seven percent of the supermarkets provided on-site design services (compared to 77% of the florists).

Forty-one percent of the supermarket respondents offered delivery (compared to 99% of the florists). For the supermarkets and florists that did offer delivery, there were no significant differences between the retailer groups regarding such options as same-day, timed, and 7 days-a-week delivery.

The supermarkets were open more days per week, and for more hours per day, than were the florists. The florists and supermarkets were equally likely to offer sales assistance, but the supermarkets had significantly fewer full-time equivalent employees than did the florists. The average number of full-time equivalent employees for the supermarket floral departments was 0.43, indicating that the floral departments were not always staffed with floral personnel whenever the store was open.

As measured in this study, there was no significant difference between the two retailer groups regarding estimated 1991 floral sales (dollar value). A far greater percentage of florists' sales were conducted by phone compared to the supermarkets, and *vice versa* for in-store sales.

Regarding perishable floral products sales (dollar value), there was no significant difference between the florists and supermarkets on the percent of sales from ready-made fresh arrangements. For the supermarkets, a significantly greater percentage of their floral sales came from cut flowers, blooming plants, and foliage plants than was the case for the florists. The opposite was true regarding the percent of sales from custom-made floral designs (35% for florists versus 11% for the supermarkets).

Finally, compared to the florist respondents, a significantly greater proportion of the supermarket respondents had both recently increased their services and planned to increase their services.

Based on the results of this investigation, it was concluded that a significant number of Texas supermarkets were carrying a wide range of floral products and offering a variety of traditional florist services. This was considered a significant change from the situation in the early 1970s. It is hoped that the results of this study will serve as a benchmark against which to measure future change in the Texas floral industry.

Consumer Perceptions of Service Quality

Services and service quality became prevalent strategic marketing and management issues during the 1980s. Differentiation strategies based on service levels and quality were used by an increasing number of product retailers in order to achieve a sustainable competitive advantage. Florist businesses, traditionally categorized as goods retailers, were no exception. Increased competition from floral mass marketers convinced many florists to re-examine their mix, and quality, of both products and services.

A floral retailer which hopes to gain competitive advantage based on quality of service must approach this challenge from a consumer perspective. Understanding their customers' expectations and perceptions of service quality is the first step in establishing and/or evaluating quality assurance programs. Informed efforts designed to better meet consumer expectations should result in greater customer satisfaction, increased sales and enhanced profitability.

The consumer study reported in this manuscript was a first attempt at measuring consumer perceptions of the service quality of Texas floral retailers. First, the demographic profiles of the florist and supermarket customer respondents were compared. There were significant differences between the customer groups on age and 1991 household income, with the florist customers having the higher values on both variables. There was no significant difference between the florist and supermarket customer groups on respondent gender, though for both groups, a significantly greater proportion were female than male. There were also no significant differences between the florist and customer groups on the respondent level of education and respondent household size variables.

There were significant differences between the florist and supermarket customer groups on the floral buying behavior variables. Regarding floral purchases from florists, the florist customers bought more often, and spent more on average, than did the supermarket customers. And on their floral purchasing from supermarkets, the supermarket customers both bought more often, and spent more per purchase, than did the florist customers.

The SERVQUAL instrument was employed in this exploratory investigation involving florist customers' perceptions of florists, and supermarket floral customers' perceptions of supermarket floral departments. SERVQUAL was judged to posses content validity, and evidence supporting its convergent and concurrent validity was found.

The convergent and discriminate validity of the instrument, as applied in this study, may be questioned on the grounds that the factor analysis did not replicate the factor solution reported by the instruments developers. However, as stated by Parasuraman et al. (1992):

> If [customers'] evaluations of a specific company on individual scale items are similar across dimensions, fewer than five dimensions will result . . .. Alternatively, if their evaluations of a company on scale items within a dimension are sufficiently distinct, more than five dimensions will result. In other words, differences in the number of empirically derived factors across replications may be primarily due to across-dimension similarities and/or within-dimension differences in customers' evaluations of a specific company involved in each setting. At a general level, the five-dimensional structure of SERVQUAL may still serve as a meaningful conceptual framework for summarizing the criteria customers use in assessing service quality.

The distinctiveness of the five SERVQUAL dimensions was supported by the fact that, for the florist customers, respondents allocated significantly different numbers of points to each of the five dimensions based on the dimensions' relative importance. However, for the supermarket customers, the relative importance question results were less supportive of the dimensions' distinctiveness. Yet the dimensions may be distinct, but for the supermarket customers, not all of differing degrees of importance. For both customer groups, the reliability dimension was ranked as most important, and the tangibles dimension as least important.

On the SERVQUAL expectations items, there were no significant differences between the florist and supermarket customer groups on 18 of the 22 item scores. Of the remaining four expectations items, the florist customers scores were significantly greater on two items, and the supermarket customers scores were greater on the other two items. At the dimension and total scale level, there were no significant differences between the florist customers' expectations of florists and the supermarket customers' expectations of supermarket floral departments.

On the SERVQUAL perceptions items, there were significant differences between the florist and supermarket customers on 19 of the 22 item scores, with the florists customers having the higher values in every instance. On three items (all on the tangibles dimension), there were not significant differences between the two customer groups. On each of the dimensions, and for the total scale, the florist customers' scores were significantly greater than the supermarket customers' scores.

There were significant differences between the florist and supermarket customers' gap scores on all but one of the items. And on all but one of the 21 items for which there were significant differences between the groups, the florist customers' gap scores were more positive, or less negative, than the supermarket customers' gap scores. At the dimension and total scale levels, the florist customers' gap scores were significantly more positive, or less negative, than the supermarket customers' gap scores.

Based on expectations scores, it could be concluded that the florist customers' expectations of florists, and the supermarket customers' expectations of supermarket floral departments, were very similar. And based on the perceptions and gap scores, it could be concluded that florist customers found that their florists were providing a relatively better quality of service, and that the supermarket customers perceived that their floral departments were providing relatively poorer service. Yet comparisons of this sort (between florist and sueprmarket customers as analyzed in this study) may not be entirely appropriate.

What would the expectations results have been if the florist customers had been asked to relate their expectations of supermarket floral departments, and the supermarket customers had been asked about their expectations of florists? Were the respondents' expectations of an "excellent floral retailer" being measured? Or did floral consumer conceptions of "florist" and "supermarket floral department" differ so greatly that their service quality expectations of an "excellent florist" and of an "excellent supermarket floral department" would have been significantly different?

The perceptions scores raise interesting questions as well. Suppose that a florist and supermarket offered exactly the same variety and level of service. Would consumer perceptions of these floral retailers differ solely because of the type of outlet providing the service? Future research may serve to answer such questions, and perhaps document changes in consumer expectations and perceptions of these floral retailers.

Until such research is conducted, the comparisons made between the florist and supermarket respondents in this study should be considered exploratory. When considered separately, the results of the florist and supermarket customer surveys are considered to have greater validity.

The results of the of this study also indicated that service quality perceptions may be related to such demographic variables as respondent age, level of education, and household size. Further research into the existence, and possible causal factors, regarding the demographic variable affects on service quality perceptions is suggested.

The florist and supermarket customers' expectations and perceptions scores were significantly different on several, but not all, of the florals scale items. On the florals scale gap scores, there were significant differences between the two groups on all eight items. On all of the florals scale items, the florist customers' gap scores were significantly more positive, or less negative, than the gap scores of the supermarket customers.

For the florist customer group, the florals scales perceptions scores were found to be related to the demographic variables: respondent age, level of education, and household size. No such relationships were detected for the supermarket customer group.

Finally, the florist and supermarket customers' rankings of the relative importance of the floral retailing attributes were dissimilar. For the florist customers, flower quality was most important, followed by service quality. For the florist customers, custom design and flower price tied as third most important, followed by flower assortment. For the supermarkets, flower quality was also most important, and tied as second most important were flower price and flower assortment. For the supermarket customers, service quality ranked third, followed by custom design.

In closing, it is the investigators' hope that this research will, in some way, contribute to improved service quality in the retail floral industry. It was out of concern for both the consumer, and the retailer, that this study was undertaken.

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