

Service Quality Measurement in Foodservice Industries

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ABSTRACT

This study intended to enhance understanding of concept and measurement of service quality and analyzed studies investigating dimension and attributes of service quality in both Korea and international foodservice industries. This study summarized many methodological issues related to service quality measurement, especially SERVQUAL. SERVQUAL has been criticized because performance-expectation difference operationalization threatened reliability and discriminant validity including shared method variance. Researcher suggests that future studies should understand clearly the concept of service quality and methodological issues of SERVQUAL prior to adapting SERVQUAL itself. (*J Community Nutrition* 8(1): 44~57, 2006)

KEY WORDS: service quality · measurement · SERVQUAL · foodservice.

Introduction

Service quality was an important management concept in the 1980s, and there were research requests on service quality from both the service industry and academia. The delivery of higher levels of service quality is the recommended strategy for service providers to position themselves more effectively in the market place (Parasuraman et al. 1988). Understanding of the nature of service quality and measuring quality has become an important issue (Parasuraman et al. 1985). Despite the recognized benefits and the demand for higher quality, measuring service quality is difficult because the service quality is an elusive and indistinct construct (Cronin, Taylor 1992; Parasuraman et al. 1985). Parasuraman et al. (1988) developed SERVQUAL as a means to measure service quality. This scale made a unique contribution by providing diagnostic comparisons between expectations and performances. However, there has been debate about the SERVQUAL in the early 1990s (Brown et al. 1993; Cronin, Taylor 1992; Teas 1993; Parasuraman et al. 1993).

This study intended to enhance understanding of concept

and measurement of service quality and analyzed studies investigating dimension and attributes of service quality in foodservice industries. This study summarized many issues related to service quality measurement, especially SERVQUAL. Also, it presented previous service quality measurement studies in both domestic and international foodservice industries.

Conceptualization of Service Quality

Conceptualization of service quality was one of the major topics discussed in the early service marketing literatures. Service quality was described as "the consumer's judgment about an entity's overall excellence or superiority" (Parasuraman et al. 1988, p.15). They defined service quality as "the degree and direction of discrepancy between consumer's perceptions and expectations." Gronroos (1984, p.38) defined service quality as a perceived judgment, resulting from an evaluation process where customers compare their expectations with the service they perceive to have received. Gronroos (1984) contended that service quality could be understood as a form of attitude and that customers evaluated service quality by comparing the service they expected with the service they actually received. He distinguished service quality as technical quality (what is done) and functional quality (how it is done). The technical quality involves what the customers actually receive from the service providers (outcomes). The functional quality is related to the way the service is delivered

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to the consumers (processes).

Instrument Measuring Service Quality

1. SERVQUAL

Parasuraman et al. (1985) conducted an extensive focus group study to develop a service quality model ("Gap" model). SERVQUAL was developed with five different services: appliance repair and maintenance, retail banking, long-distance telephone service, securities brokerage, and credit cards. In their subsequent national survey (1988), they developed SERVQUAL, the most popular instrument for measuring service quality. SERVQUAL is based on their notion (1985) that service quality, as perceived by consumers, is the comparison of what customers feel the service firms should offer (i.e. from their expectations) and their perceptions of the performance of firms providing the services. Perceived quality is therefore viewed as the degree and direction of discrepancy between consumers' perceptions and expectations. In SERVQUAL, service quality is assessed by subtracting the subjects' ratings of expectation of service from their ratings of the performance of service received with respect to each a number of specific items representing five dimensions of service. For each item a difference score Q (perceived quality) was defined as $Q = (P - E)$, where P and E are the ratings on the corresponding perception and expectation statements. Parasuraman et al. (1985) identified ten dimensions of service quality in an exploratory study: tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding the customer, and access. The scale refinement procedures including two stages of data collection and scale purification looked good. Finally, they suggested SERVQUAL's five dimensions which were tangibles, reliability, responsiveness, assurance, and empathy (Parasuraman et al. 1988).

2. SERVPERF

The gap approach of SERVQUAL has been criticized for problems because of the difference scores (in terms of reliability, discriminant validity, and variance restrictions) and measuring expectations (Brown et al. 1993; Cronin, Taylor 1992; Teas 1993). Cronin, Taylor (1992) suggested that service quality should be measured as an attitude rather than the use of the disconfirmation framework. They proposed an alternative method of operationalizing perceived service quality

known as SERVPERF, a performance-only scale. The results of their study showed that the performance-only (SERVPERF) model achieved the best fit on average in the four industries (banking, pest control, dry cleaning, and fast food) in contrast to the $(P - E)$ SERVQUAL, importance-weighted SERVQUAL models. In addition, the performance-based model can avoid problems from measuring expectations. However, Zeithaml et al. (1996) noted that the performance-only operationalization is appropriate when the purpose of the study is to explain the variance of dependent construct while the gap approach is better for diagnostic purposes.

Cronin, Taylor (1992, p.65) concluded that "little if any theoretical or empirical evidence supports the relevance of the expectations minus performance gap as the basis for measuring service quality." Though they demonstrated the superiority of performance-based service quality model (SERVPERF), there were no statistical test results performed on the difference in model fits among SERVQUAL, SERVPERF, and the weighted SERVPERF.

3. DINESERV

The needs to adapt and modify the SERVQUAL instrument to a specific industry have been recommended since the instrument was developed as a generic service quality measure (Carmen 1990). Knutson et al. (1995) modified the SERVQUAL measure and developed DINESERV, a five-factor instrument which the same was to SERVQUAL for use in the restaurant sector. The DINESERV scale is composed of 29 statements that ask customers' normative expectations of service. Reliability was found to be the most important dimension, followed by tangibles, assurance, responsiveness, and empathy. The DINESERV scales items are presented in Table 1.

Dimensions of Service Quality

SERVQUAL consists of five dimensions measured by a total of 22 items. The proposed five SERVQUAL dimensions are tangibles, reliability, responsiveness, assurance, and empathy.

- Assurance: the knowledge and courtesy of the employees and their ability to inspire trust and confidence
- Empathy: the caring, individualized attention the organization and its employees provide the customers
- Reliability: the ability to perform the promised service

- dependably and accurately
- Responsiveness: a willingness to help customers and provide prompt service

- Tangible: assessment of physical facilities, equipment, and appearance of the personnel.

Over the past three decades, numerous researchers have

Table 1. Items adapted from SERVQUAL in previous research in the united states foodservice industries

Dimen- sions	Bojanic & Rosen (1994)	Richard, Sundaram & Allaway (1994)	Knutson, Stevens and Patton (1995) [DINESERV]	Fu & Parks (2001)	Lee, Shanklin & Johnson (2003)
Tangibles	Restaurants should have up-to-date equipment.	Domino's has up to date delivery vehicles.	The restaurant has ... visually attractive parking areas and building exteriors.	The visual attractiveness of the restaurant's building and dining areas.	The dining room is visually attractive.
Physical facilities should be appealing.	Domino's delivery vehicles are visually appealing.	... a visually attractive dining area.	The appearance of staff members (clean, neat, approximately dressed).	The employees are well dressed and appear neat.	
Restaurant employees should be well-dressed and appear neat.	Domino's delivery people are well dressed and appear neat.	... staff members who are clean, neat, and appropriately dressed.	The comfort and cleanliness of the dining area.	The dining room is comfortable and easy to move around in.	
The appearance of the physical facilities should be consistent with the type of service provided.	The appearance of Domino's delivery vehicles are in keeping with the type of service provided a decor in keeping with its image and price range. ... a menu that is easily readable. ... a visually attractive menu that reflects the restaurant's image. ... a dining area that is comfortable and easy to move around in. ... rest rooms that are thoroughly clean. ... dining areas that are thoroughly clean. ... comfortable seats in the dining room.	The quality of the food The ease of moving around in the dining area. The legibility of the menu. The availability of healthy food.	The dining room is clean.	
Reliability	Restaurants shouldn't be expected to tell customers exactly when services will be performed.	When Domino's promises to do something by a certain time, they do it.	The restaurant ... serves you in the time promised. ... quickly corrects anything that is wrong.	Waiters or waitresses served you in a timely manner. Genuine interest in correcting anything that is wrong.	The foodservice department serves me in the time promised.
When restaurants promise to do something by a certain time, they should do so.	When you have problems, Domino's is sympathetic and reassuring.	... is dependable and consistent. ... provides an accurate guest check.	The accuracy of orders and bills.	The foodservice department corrects anything that is wrong quickly.	
Restaurants should keep accurate records.	Domino's is dependable.	... serves your food exactly as you ordered it.	The convenience of operating hours.	The foodservice department is dependable and consistent.	
Restaurants should provide their services at a time they promise to do so.	Domino's provides their services at the time they promise to do so.			The quality of food is consistent each time it is served.	
Restaurants should be dependable.	Domino's keeps their records accurately.				

sought to discover the attributes of service quality. Several researchers have applied SERVQUAL in various industries to examine the relative importance of service quality attributes

to the overall service quality as perceived by customers (Bojanic, Rosen 1994; Fu, Parks 2001; Heung et al. 2000; Johns, Tyas 1996; Lee, Hing 1995; Richard et al. 1994).

Table 1. Continued (1)

Dimensions	Bojanic & Rosen (1994)	Richard, Sundaram & Allaway (1994)	Knutson, Stevens and Patton (1995) [DINESERV]	Fu & Parks (2001)	Lee, Shanklin & Johnson (2003)
Responsiveness	It is okay if the restaurant is too busy to respond to customer requests promptly. Employees don't always have to be willing to help customers. It is not realistic for customers to expect prompt service from restaurant employees.	Domino's tells customers exactly when services will be performed. You receive prompt service from Domino's delivery people/order-takers. Domino's delivery people/order-takers are always willing to help customers. Domino's delivery people/order-takers are not too busy to respond to customer requests promptly.	The restaurant ... during busy times has employees shift to help each other maintain speed and quality of service. ... provides prompt and quick service. ... gives extra effort to handle your special requests.	The dining staff is never too busy to respond to requests. The dining staff is always willing to help you. The dining staff gives you prompt service. The dining staff tells customers exactly when services will be performed. The host greeted you in a timely manner. The friendliness of the staff.	The employees work as a team to maintain quality of service. My employees provide prompt service. My special requests are handled.
Assurance	Employees should be polite. Customers should be able to trust restaurant employees. It is unrealistic to expect employees to know what the needs of their customers are. Employees should get adequate support from the restaurant to do their jobs well. Customers should be able to feel safe in their transactions with restaurants.	You can trust Domino's delivery people/order-takers. You feel safe in your transactions with Domino's delivery people/order-takers. Domino's delivery people/order-takers are polite. Delivery people/order-takers get adequate support from Domino's to do their jobs well.	The restaurant ... has employees who can answer your questions completely. ... makes you feel comfortable and confident in your dealings with them. ... has personnel who are both able and willing to give you information about menu items, their ingredients, and methods of preparation. ... makes you feel personally safe. ... has personnel who seem well-trained, competent, and experienced. ... seems to give employees support so that they can do their jobs well.	The consistency and reliability of service. You feel safe with the service and food. The knowledge and confidence of the staff. The teamwork and coordination displayed by the staff.	I have adequate opportunities to give management feedback on the food and dining services. I feel comfortable and confident in dealing with them. The employees are well trained and competent.

Table 1. Continued (2)

Dimensions	Bojanic & Rosen (1994)	Richard, Sundaram & Allaway (1994)	Knutson, Stevens and Patton (1995) [DINESERV]	Fu & Parks (2001)	Lee, Shanklin & Johnson (2003)
Empathy (Cont.)	<p>It is unrealistic to expect restaurants to have their customers' best interests at heart.</p> <p>Restaurants should not be expected to give customers individual attention.</p> <p>When customers have problems, restaurant employees should be sympathetic and reassuring.</p> <p>Restaurant employees cannot be expected to give customers personal attention.</p> <p>Restaurants should not be expected to have operating hours that are convenient to all of their customers.</p>	<p>Domino's gives you individual attention.</p> <p>Domino's delivery people/order-takers give you personal attention.</p> <p>Domino's delivery people/order-takers know what your needs are.</p> <p>Domino's has your best interest at heart.</p> <p>Domino's has convenient delivery hours to all their customers.</p>	<p>The restaurant ... has employees who are sensitive to your individual needs and wants, rather than always relying on policies and procedures.</p> <p>... makes you feel special.</p> <p>... anticipates your individual needs and wants.</p> <p>... has employees who are sympathetic and reassuring if something is wrong.</p> <p>... seems to have the customers' best interests at heart.</p>	<p>The restaurant's concern about customers' best interests.</p> <p>The restaurant's ability to make customers feel special and valued.</p> <p>The dining staff understands your specific needs.</p>	<p>The employees treat me with respect.</p> <p>The employees are friendly.</p> <p>The employees are sympathetic and reassuring if something is wrong.</p> <p>The employees are sensitive to my individual needs and wants, rather than always relying on policies and procedures.</p> <p>The employees give me personal attention.</p> <p>The employees in the dining room are attentive to my needs.</p> <p>Meals are scheduled at convenient times.</p> <p>The foodservice department meets my special diet requests.</p>
Outcome ^a Food ^b		<p>Domino's has delicious home-delivery pizza.</p> <p>Domino's has nutritious home-delivery pizza.</p> <p>Domino's home-delivery pizza has a flavorful sauce.</p> <p>Domino's provides a generous amount of toppings for its home-delivery pizza.</p> <p>Domino's home-delivery pizza is made with superior ingredients.</p> <p>Domino's prepared their home-delivery pizza crust exactly the way I like it.</p>			<p>Special meal event provided are memorable experiences.</p> <p>The foodservice department serves quality food.</p> <p>The menu provides choices.</p> <p>Foods are service at the appropriate temperature (hot food hot, cold food cold).</p> <p>A variety of foods are offered.</p> <p>Foods are appetizing.</p> <p>Foods are served attractively.</p> <p>Healthy choices are offered.</p>

^aDimension in Richard, Sundaram & Allaway (1994)'s study & ^bdimension in Lee, Shanklin & Johnson (2003)'s study

The dimensions and attributes used to measure service quality are summarized in Table 1.

Many studies replicated SERVQUAL, however, they disagreed about the number and types of dimensions. Parasuraman et al. (1994) recognized that service quality was a multidimensional construct and there was no agreement regarding the number of dimensions or their interrelationships. Bolton, Drew (1991) noted that different service dimensions were relevant in different industries. Thus, it is necessary to develop multiple scale items that adequately capture a particular study context. Oh, Parks (1997) described three plausible sources of this discrepancy in the dimensionality of SERVQUAL: 1) the SERVQUAL is situation specific dependence on the expectation or performance scores, 2) the structural differences of service quality across service, and 3) the difference in the level of factor abstraction achieved by researchers.

Operationalization of SERVQUAL: P – E conceptualization

Operationalization of service quality is the same as the objective disconfirmation and a particular form of the subjective disconfirmation within the context of customer satisfaction research. These conceptual similarities between customer satisfaction and service quality have developed considerable debate in the first half of the 1900s. According to Rust, Oliver (1994) the primary debate surrounding this issue is “whether disconfirmation should be inferred from the mathematical difference between perceived quality and expectations or whether individuals’ subjective disconfirmation should be measured directly” (p.247). Although the critical issue in their debate is the conceptualization of service quality as the arithmetic difference between expectation and performance perception, many additional issues are still largely unresolved.

1. Ceiling effect and floor effect

Teas (1993) showed an example of P-E computation problems when expectations were interpreted as attribute importance. Ex) SQ score is + 6 when customer’s perception score is + 7 and expectations + 1. Also, the customer’s perception and expectation scores are + 7 equally, leading to an SQ score of zero. The quality of service for two situations shows a dramatic difference based on expectations (a ceiling effect), regardless of performance. The same incident could occur at the

lower end of the scales (a floor effect). Teas (1993) noted that $(P - E)$ fails to present quality when the following conditions occur simultaneously: 1) I is the classic ideal point, 2) $E = I$, and 3) P exceeds E (and I). Based on this discussion Teas (1993) proposed a Modified Quality (MQ), $MQ = (|P - I| - |E - I|)$.

2. Reliability and discriminant validity of expectations and shared method variance

Brown et al. (1993) addressed their psychometric concerns on SERVQUAL including reliability, discriminant validity, and variance restriction. Brown et al. (1993) argued that the difference score such as $P - E$ SERVQUAL score should be avoided. Difference score measures often demonstrate poor reliability because any positive correlation between the component scores attenuates the reliability of the resulting difference score. Thus, any correlation between a difference score and another variable is an artifact of the relationship between the component measures used to form the difference score and the other variable. This artificial correlation undermines discriminant validity.

Teas (1993) argued that normative expectations used in service quality computation did not discriminate from other types of expectations. He stated normative expectations could potentially mislead customer perceptions of service quality. He found considerable variance in respondents’ interpretations of the “should expectations” used in SERVQUAL. According to Teas (1993), two interpretations of Parasuraman et al. (1991)’s “ideal standard” are possible: classic attitudinal ideal point and feasible ideal point. Perceived quality would decrease as performance increasingly exceeds the classic attitudinal ideal point. Feasible ideal point represents a feasible or the best level of performance by the highest-quality provider under perfect circumstances. However, other empirical evidence and theoretical backgrounds seem to support $P - E$ disconfirmation and SERVQUAL’s normative comparison standards for expectations and performance.

Other concern from Brown et al. (1993) related to psychometric issues is the variance restriction of the difference scores at higher levels of service quality due to the high mean value and low variance for the expectations component of SERVQUAL. Another problem with SERVQUAL that arose during the empirical investigation is that its dimensionality did not replicate. But, the SERVQUAL items represent core evaluation criteria as Parasuraman et al. (1993) stated.

3. Other issues

There has been debate about whether it is practical to ask customers their expectations of a service immediately before consumption and their perceptions of performance immediately after. Customers may be tired of being asked to complete both surveys. Some analyses have therefore used combined single scale to measure gaps (Carmen 1990; Babakus, Boller 1992). Bolton, Drew (1991) have suggested better wording for some of the scale items because customers find it hard to differentiate between many of the scale items. Thus, it is believed that more direct approach to the service quality measurement is desirable. Some researchers stated that performance-only based measure of service quality may be an improved way of measuring the service quality construct (Churchill, Surprenant 1982; Bolton, Drew 1991; Cronin, Taylor 1992). This has led to the development and application of a more direct form of disconfirmation technique such as SERVPERF. In other words, it does not seek to estimate difference scores between expectations and perceptions but seek to assess customers' postconsumption perceptions only.

Previous Service Quality Measurement Studies in Foodservice Industries

Most of the past service quality studies have focused on identifying the sources of service quality (i.e. attributes) and discovering effective ways to determining customers' wants and needs. However, substantial disagreement appears in the level of specificity of the investigated attributes. Although studies have widely divergent levels of attribute specification, it appears that most researchers agree with measuring service quality based on multi-attribute scales that reflect the multi-functional nature of the foodservices.

SERVQUAL has been adopted in a variety of industries and has been widely cited in marketing literature (Brown et al. 1993). Many research studies of service quality incorporated the SERVQUAL model (Bojanic, Rosen 1994; Fu, Parks 2001; Heung et al. 2000; Johns, Tyas 1996; Lee, Hing 1995; Lee et al. 2003; Richard et al. 1994).

Bojanic, Rosen (1994) measured service quality in a restaurant using 22 items of SERVQUAL and identified dimensions similar to those in Parasuraman et al. (1988)'s SERVQUAL. Interestingly, the empathy dimension of SERVQUAL was segmented into two dimensions of "knowing the customer" and "access". Richard et al. (1994) suggested additional outcome

dimension of service quality while investigating the importance of service quality in predicting choices of a pizza delivery restaurant. They proposed that SERVQUAL ignored the outcome dimension, such as whether or not respondents believed that the restaurants provided delicious and nutritious pizzas, and whether or not the pizzas had generous amounts of toppings, and whether or not the pizzas were made with superior ingredients. Thus, they added one outcome dimension such as taste, topping, and crust of pizza. An analysis using a logit model revealed the outcome dimensions and three process dimensions (responsiveness, reliability, and empathy).

Lee, Hing (1995) used the SERVQUAL instrument to measure strengths and weaknesses of one French and one Chinese restaurant. Results revealed that the customers had high expectations for the service quality dimensions of assurance (e.g., orders without errors, well-trained staff) and reliability (e.g., accurate check, staff are dependable in fixing problems). Customers' least important expectations were related to variables related to the tangible dimension, such as visually attractive dining areas, modern dining equipment, and employees who are well-dressed.

Heung et al. (2000) adapted the SERVQUAL model to assess travelers' perceptions of service quality at full-service, casual dining, quick service, and Chinese restaurants in a Hong Kong airport. Travelers had different levels of expectations for the different types of restaurants. For instance, travelers had the highest expectations in "receiving food as they ordered it" in the full-service, casual dining, and Chinese restaurants. They had the highest expectation in "prompt and quick service and convenient operating hours" for the quick-service restaurant.

Fu, Parks (2001) adopted the SERVQUAL model to investigate the relationship between service quality and customer loyalty among older customers of family-style restaurants. They identified three different dimensions from the SERVQUAL dimensions: tangibles, reliability-responsiveness, and assurance-empathy. Lee et al. (2003) developed a service quality measurement for foodservice in the continuing care retirement community. The instrument was developed to encompass both the process and outcome aspects of service quality. Some items were adopted from the SERVQUAL and DINE-SERV scales. Although the scale showed good content validity the study failed to verify the theoretical dimensionality of service quality for this segment of the foodservice industry.

On the other hand, Seo (2005) identified the four dimensions used by older residents to evaluate the service quality of dining service in the continuing care retirement community: food quality, dining room employees' attitudes and service skills, dining room employees' safety and cleanliness, and systemization of service delivery process.

Bojanic, Rosen (1994) indicated that it was difficult to have customers fill out two different questionnaires before and after the customers after they had received the services. Johns, Tyas (1996) suggested that the performance items seemed to provide a better measurement of service quality than the expectation items alone and the perception-expectation measurement. Much research has found theoretical and operational problems in Parasuraman et al.'s (1988) two separate measurements of expectations and perceptions. For example, some researchers have indicated that they had difficulties in collecting expectations and perceptions data separately. Thus, some researchers adopted Carmen's (1990) suggestion to combine expectations and perceptions into single items.

Many domestic researchers have conducted studies related to service quality issues in foodservice industries within 10 years. Previous studies have begun to develop quality measurement in foodservices in the late 1990s. This study intends to classify these studies regarding service quality in domestic foodservice industries. This classification is mainly based on the publications of the Korean Journal of Community Nutrition, Korean Journal of Dietary Culture, Journal of the Korean Dietetic Association, and the Korean Nutrition Society.

1) Evaluation of menu quality management to enhance food service quality (Lee, Yang 1999), development of service quality evaluation instrument followed by developing quality management standards and performance indicators (Yang et al. 2000c; Yang et al. 2003; Lee et al. 2004).

2) Identification of dimensions of service quality in flight catering service (Kwak, Park 1999) and college students' perception of service quality in university foodservice and residence hall foodservice (Yang et al. 1998; Yang et al. 2000a); identification of factors/attributes of foodservice quality and customers' expectation of service quality attributes in restaurants (Yang et al. 2000a).

3) Measurement of customers' expectations and satisfactions of service quality attributes in restaurants (Yang et al. 2000b); analysis of staff satisfaction in hospitals measuring expectations and perceptions (Lee, Lee 2002); and comparison of service quality expectations between service providers

and customers in restaurants (Yang et al. 1999b).

4) Investigation of customer satisfaction and the factors influencing customer satisfaction of contract foodservice (Yang et al. 1999) and hospital foodservice (Chang et al. 2000); evaluation of customer satisfaction of university residence hall foodservice and influence of service quality dimensions on customer satisfaction (Yang et al. 2000b).

5) Identification of factors influencing customer loyalty (Yang et al. 2000c; Kim et al. 2000).

Previous researchers conducted service quality measurement studies in various foodservice industries such as restaurants (family restaurant, pizza restaurant, fast food restaurant, Korean food restaurant, and snack shop), airline catering, hospital meal services, school foodservices, university dining services, hotel banquet services, and business and industry contract foodservice (Back 1998; Chang et al. 2004; Hong, Kim 2000; Kang 2002; Kim et al. 2000; Kim et al. 2004; Kim, Won 2003; Kwak, Chang 1997; Kwak, Shin 1999; Lee, Lee 2002; Lee et al. 2004; Yang et al. 1998, 1999a, 1999b, 2000a, 2000b, 2000c). It is important to examine service quality dimensions specified for a variety of foodservice industries and identify each customer's need, expectation, and importance on service quality attributes. Only a few researchers indicated that they adapted SERVQUAL and DINSERV (Chang et al. 2004; Kim et al. 2004; Kwak, Chang 1997). Some researchers followed the operationalization of SERVQUAL (Perception-Expectation) though they did not indicate any exact statements that they used SERVQUAL items (Kwak, Park 1999). Table 2 shows dimensions and attributes used to measure service quality in various domestic foodservice industries.

As shown in Table 2, price, information offering, reputation, safety, sanitation, and cleanliness were newly founded dimensions compared to studies which adapted to SERVQUAL and DINESERV to measure service quality. However, some attributes were not associated with the dimensions they belonged to. Though an exploratory factor analysis seeks to uncover the underlying structure of a relatively large set of variables (attributes), factor interpretation and labels must have face validity and/or be rooted in theory. Future research should take statistical analysis results carefully with theoretical foundations.

Several studies compared customers' expectation and performance of service quality and examined customers' satisfaction level of foodservice. However, some studies have

Table 2. Dimensions and attributes of previous studies related to service quality in the Korea foodservice industries

Researchers	Yang, Lee & Kim (1998)	Kwak & Shin (1999)	Yang, Kim & Kim (1999a & 1999b)	Yang, Kim, Shin & Kim (2000)	Kim, Yang & Shin (2000)
Sample	College students who used dining hall of Yonsei University	Customers who experienced in airline catering	Managers and customers of fast food and family restaurants in Seoul	Customers of fast food, pizza, and family restaurants in Seoul	Foodservice providers and customers in restaurants
	549	474	278 (managers) 427 (customers)	232 (customers)	232 (customers) 232 (foodservice providers)
Service quality dimensions and attributes	Food Taste Appearance Nutritional value Freshness Temperature Portion Menu Variety New menu Seasonal food Changes in cycle menu Price Price Atmosphere Interior design Quietness Comfort Music Lighting Sanitation Food Utensil Table and chair Employee Attitude of employee Appearance Kindness Prompt service Dining facility Layout of table and chair Location of counter Location of take out Menu Ventilation Heating and air-conditioning Convenience Waiting time Operation hour Location of dining hall Offering of breakfast menu Sales during holidays Rest area after Meal	Food quality Preferred menus Appropriate amount Appearance Temperature Freshness Menu variety Various menu Various side dishes Cleanliness Flight attendant's cleanliness Clean utensil Interest Appropriate distribution time Appropriate distribution interval Information offering Menu card Information about meal time Information about meal and nutrition	General management Employee responsiveness to complaints Knowledgeable employee Employee's appearance Cleanliness of restaurant Reasonable price Speedy service Atmosphere Unique atmosphere Adequate decoration Menu variety Comfortable atmosphere Food Appearance of food Food consistency Food tastiness Food freshness Attitude Timely service Friendly employee Convenience Convenient location Convenient business hours Portion size Reputation Reputation Effective advertisement	General management comfortable atmosphere Convenient location Neat establishment Cleanliness of facilities/utensils Convenient parking Employee responsiveness to complaints Attractive decoration Friendly employee appearance Friendly/quick counter service Reasonable price Food Food taste Food freshness Consistent food quality Portion size Appearance of food Knowledgeable employee Menu variety Reliability Quick food delivery Speedy service Service when asked Speedy payment Reputation Effective advertising Reputation Convenient business hours	Employee attitude Employee responsiveness to complaints Friendliness of employees Friendly, quick counter service Availability of service when requested Cleanliness Cleanliness of facilities/utensils Knowledge of employees of menus Employees' neatness Reputation Effective advertising Reputation Attractive decorations Neat establishment Reliability Consistent quality Timely food delivery Prompt service Food Food taste Food freshness Appearance of food Convenient business hours Price Reasonable price Adequacy of food amount Speedy payment Convenience Convenient parking Comfortable atmosphere Variety Menu variety Convenient location

Table 2. Continued(1)

Researchers	Yang, Kang & Weon (2000a) Yang, Weon & Kang (2000b)	Hong & Kim (2000)	Kang (2002)	Lee & Lee (2002)	Lee, Chang & Yang (2004)
Sample	College students in dormitories in Seoul & Kyunggi	Dietitians in elementary schools in Seoul	College students who experiences in pizza, hamburger, kimbab & chicken restaurants	Employees of hospitals over 200 bed	Patients who eat general diet of hospitals in Kangnam area
	1011	170	224	643	191
Service quality dimensions and attributes	Food quality Taste Raw materials Nutrition Freshness Temperature Portion size Menu variety Menu variety Variety of choice Availability of new menus Seasoning food Cycling of menus Preferred menus Abundance of food Dessert Additional service of rice & kimchi Sanitation & cleanliness Food Dish Table & chairs Dining hall Kitchen Employees Tableware Equipment Price Proper price Atmosphere Decoration Quietness Comfort Music Lighting Facilities Enough seats Arrangement of tables & chair Location of cashier Location of service area Posting of the menu Ventilation Air conditioning Water & tableware Employees' attitude Kindness Speed of service Managers' attitude Kindness Speed of service Convenience Waiting time Operating hours Convenience store Discontents handling Diversion (to library, recreation center)	Food Availability of meals children like Variety of menu Taste of meals Appearance of meals Temperature of meals Availability of seasonal food Nutritional balance Safe food Appropriate portion size Safety Cleanliness of uniform Sanitized utensil Sanitized kitchen Service Punctuality of meal time Kindness of foodservice staff Prompt service Dealing with complaint Communication channel Education Provision of nutrition information Nutrition education for foodservice staff Sanitation education for foodservice staff Training for cooking Nutrition education & counseling for student	Design Atmosphere Seats Restrooms Interiors Location Billboard Service Reception Farewell Courteous Service speed Food décor Plating Food shape Garnish Food color Food quality Food quantity Food texture Price Tastes Food temperature Menu variety	Sensory quality Softness of meal Temperature Smell Seasoning Taste Appearance Nutrition Variety of menu Nutritional consideration Sanitation Cleanliness of meals Cleanliness of dishes Cleanliness of environment Cleanliness of employee clothes Service Moderate prices Courtesy of employees Prompt delivery Prompt dealing with meal complaints Prior notification about menu	Nutrition-balanced meals Delicious meals Salty enough meals Meals with proper temperature Neat and proper meals Meals made from fresh food materials Sanitary meals and tableware Proper portion size of meals Various kinds of meals Selective menu Meal service on schedule Enough time to eat a meal Meal delivery to the bed Removal service of tray by foodservice personnel Kind foodservice personnel Foodservice personnel's clean and neat uniforms Open mind to inpatient's opinion for meals Handling inpatient's complaint ASAP Meal service according to doctor's order Nutrition and health related information service

Table 2. Continued(2)

Resear- chers	Kwak & Chang (1997)	Won & Kim (2003)	Chang, Shin & Kim (2004)	Back (1998)	Kim, Lee & Choi (2004)
Sample	Students & dietitian, foodservice manager & employees of university dining service	Customers with experience in 9 hotel banquet services	Customers of 4 fast food franchisors	Customers in 4 fast food and family restaurants in Daejeon	Visitors of 20 Korean food restaurants in Seoul and Kyunggi
	831 (students) 207 (Dietitian, foodservice manager & employees)	278	503	308	204
Service quality dimensions and attributes	Sanitation Cleanliness of dishes Cleanliness of environment Cleanliness of employee Sanitation of food Cleanliness of dining hall Cleanliness of kitchen Quality of dishes Support of safety equipment and facilities Empathy Nutrition labeling Nutrition information offering Promotion activity of food Nutritional balance of food Dessert offering Menu quality I Preferred menus Taste of food Variety of food Freshness and quality of ingredient Tangibles Modernity of dining hall Atmosphere Quiet sound Responsiveness Prompt responsiveness of unsatisfied Interactive communication Prompt distribution Appropriateness of operation hour Menu quality II Hot food hot Cold food cold Serving size Appearance of food Reliability Accuracy of distribution hour Consistent service Price Variety of price Appropriateness of price	Quality of dining hall Cleanliness Atmosphere No cloudiness Interior Appearance of building Menu quality Taste Freshness Safety Appearance Temperature Reliability Solving of inconvenience Service Promise Accuracy of service Responsiveness Offering of wait time information Prompt service Willingness of help Promptness of request Assurance Courtesy Knowledge of work Kind interest Empathy Convenient hour Understanding of question Interest of customer	Physical facilities and service Kindness of specialty of reservation Kind and reliable employees Prompt service Planning of banquet and event Modern equipment Safety and security Comfortable chair and table Scale of banquet room Menu variety Enough mealtime Possible natural light Menu quality and cleanliness Safety an cleanliness Portion and quality of food Price payment and physical environment Wide space near banquet room Variety of payment ways Scenery of banquet rooms Variety of subsidiary facilities Price Accessibility and parking Convenient accessibility Parking space	Human service Employees' attitude Knowledge of menu and service Well trained employees Variety of service Promptness of service Serving order procedure Convenience of reservation system Accuracy of check procedure Food Accuracy of ordered food Quality of ingredients Appropriateness of food price Appropriateness of service charge Sanitation Credit card usage Appearance of food Consistency of food quality Preparation of menu Variety of menu Location Convenience of restaurant location Space near restaurant Consistency and attractiveness of restaurant exterior Visibility of signage Empathy Appropriate dealing of complaints Special service for anniversary Waiting room Cleanliness of restroom Post-management of customer Image Refined restaurant facility Overall atmosphere Appearance of employees Cleanliness near restaurant Quietness of restaurant environment	Tangibles Visually attractive dining area Interior Attractiveness of building exteriors. Employees' dress Design of menu Clean dining areas Easily readable menu Parking areas Easy to move around in the dining area Reliability Accuracy of guest check Accuracy of ordered food Reliability and consistency Prompt handling of errors Responsiveness Employee shift during busy times prompt service Quick responsiveness Handling of special requests Assurance Explanation of menu items Answering of questions accurately Making customers feel comfortable Making customers feel safe Well-trained, competent, and experienced employees Support of manager Empathy Making customers feel special Prompt dealing of customers' needs and wants Prompt correction of mistakes Having the customers' best interests at heart

confused satisfaction with service quality. Lee, Lee (2002) defined satisfaction as a quality satisfaction by subtracting perception from expectation. A few studies mentioned good quality of foodservice in a conclusion though not measuring service quality but measuring customer satisfaction. The confusion of service quality with customer satisfaction is originated from SERVQUAL's P – E conceptualization, which is the same as the objective disconfirmation and a particular form of the subjective disconfirmation. Many customer satisfaction studies adopt confirmation-disconfirmation paradigm. The confirmation-disconfirmation paradigm consists of three basic elements: expectations, perceived performance, and whether performance meets expectations (expectancy confirmation/disconfirmation). Expectancy confirmation/disconfirmation includes actually two processes: the formation of expectations and disconfirmation/confirmation of expectations through performance evaluations. Thus, customer satisfaction is hypothesized primarily as a function of expectation and disconfirmation, with expectation used as a standard of comparison (Oliver 1980). Customers judge satisfaction with a product in comparison with their expectations about product performance. Positive disconfirmation occurs if the performance of products/services is better than expected. On the other hand, negative disconfirmation results when the performance is worse than expected (Oliver 1980).

In addition, lots of studies did not state the clear definition of service quality and satisfaction in the contexts. However, defining variables (constructs) is a basic and key point of research methodology and researchers should measure and analyze variables (constructs) based on their definition. Future researchers should be reminded of the importance of definitions and define variables (constructs) clearly through an intense review of literature.

Interestingly, several studies used Importance-Performance Analysis (IPA) to investigate the perception of service quality (Chang 2002; Hong, Kim 2000; Yang et al. 1998, 2000a). Importance-Performance Analysis (IPA) framework developed by Matilla, James (1977) combines measures of attribute importance and performance into a two-dimensional grid to present strategic suggestions. Attribute importance needs to be measured prior to the actual purchase experience. Performance is then measured using the same set of attributes so that importance and performance can be directly compared within the same attributes via the IPA grid. The mean values of importance and performance are used as the values for the

respective axis in constructing the IPA grid. IPA framework generates four different quadrants based on importance-performance measures. The top right quadrant, 'keep up the good work', captures the attributes that customers' thoughts are important to their purchase decision and on which customers also perceive the product performs well. Attributes that are important to customers' purchase decisions but on which the organization does not perform well are classified into the top left quadrant, 'concentrate here'. The organization needs to focus on improving its performance on these attributes. The bottom right quadrant, 'possible overkill', indicates that the attributes falling in this quadrant are relatively less important, but on which the product performs well. The bottom left quadrant is identified as, 'low priority', because both importance and performance ratings of attribute are lower than mean values. These items are likely to receive a low priority in resource allocation decisions. IPA framework depicts provides how well the organization meets customers' important concerns on selected attributes and offers guidelines for the organization's future resource allocation decisions.

Lee, Lee (2002) measured expectation and perception of service quality attributes and applied to IPA with perception and expectation, "expectation-perception grid". However, there is a conceptual difference between "expectation" and "importance", and between "performance" and "perception". "Besides expectation-perception grid", Yang et al. (2000d) used "Expectation-Satisfaction Analysis". However, the rationale of using "Expectation-Satisfaction Analysis" was not found in the contexts. Prior to using it, theoretical background of choosing a new methodology should be justified or previous studies referring it be presented to verify research methodology.

The other concerns regarding previous domestic service quality measurement studies are related to insufficient description on instrument development procedure from scale development to validity test. Many studies did not indicate where the scale items were adapted when they developed service quality measurement items. Also, the majority of the studies did not conduct a focus group interview or Delphi during scale development. Only few studies did an interview with foodservice managers (Back 1998; Yang et al. 1999a, 1999b, 2003, 2004). However, it is critical to develop a representative set of attributes to be used as measurements based on literature reviews and focus group interviews, then test validity of measurement through a pilot test. Researchers should

be reminded that the scale items be modified to fit for different foodservice settings, different demographics of target, or different countries (culture). Focus group interviews could help capture the specified dimensions of service quality and design scale items specifically for the target population or product classes. Future study could follow the guidelines provided by Parasuraman et al. (1991) for adapting SERVQUAL instrument. Also, initially selected items would further be evaluated and screened through a discussion with the foodservice management staff. Researchers suggest conducting a pilot test prior to a main survey to check clarity in questionnaire wording and face validity of the questions asked.

Conclusion

Many researchers made an effort to identify concepts of service quality and measure service quality. Service quality measurement studies have focused on expectations and perceptions of service quality attributes as Parasuraman et al. (1988) developed SERVQUAL. The SERVQUAL measuring expectations and perceptions separately allows managers to better understand the dynamics of customers' assessments of service quality over time. It gives management a clear indication of how the company is performing from the perspectives of the individual customer. SERVQUAL allows the foodservice organizations to set an expected standard of performance to enhance their service quality and then use it as an employee training materials and marketing tool for customers. It can help identify the existence of any gaps between customers and service providers and focus on their quality improvement efforts to close these gaps.

Several methodological issues of SERVQUAL (especially, performance-expectation conceptualization) have been raised by Brown et al. (1992), Cronin, Taylor (1992), Teas (1993). These debates seem to originate from how and what researchers define service quality. Lots of studies adapted SERVQUAL despite the critics. Future researchers should be aware of methodological disadvantages of SERVQUAL prior to adapting SERVQUAL itself and modify perception-expectation difference score measurement based on the purpose of the study if the purpose of the study is only to examine the dimensions of service quality in specific industry or to investigate the role of service quality in the relationship of other constructs such as customer satisfaction and customer loyalty.

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