

# THE DEVELOPMENT AND MEASUREMENT OF DIFFERENT SERVICE QUALITY MODELS

by

Sirion Chaipoopirutana

Graduate School of Business, Assumption University

## Abstract

*This article outlines the development of service quality models, from the earlier Nordic model, the Gaps model, SERVQUAL and SERVPERF models, to the most recent, the service quality of internet search engines (adapted from SERVQUAL), and perceptions of educational service quality (adapted from SERVPERF). The author presents and discusses the basis of development of each service model, service quality structures, and element of each service industry. Finally, the implications for service quality model improvement and further research are discussed.*

## INTRODUCTION

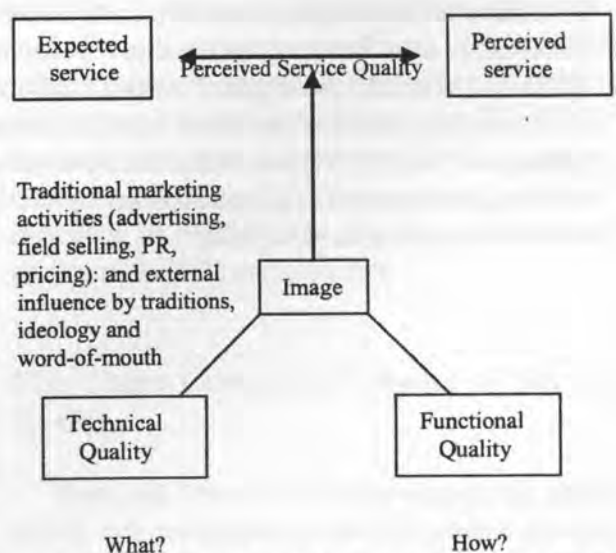
Service quality models have been adapted and developed by many researchers. Each subsequent development has been an attempt to define more precisely the five dimensions of the service quality structure or to correct the inadequate attention paid to customers' expectation, perception, and satisfaction in the previous model. The original service model was developed by Gronroos (1982). The most popular service quality model is SERVQUAL and SERVPERF which consists of a scale designed to measure five dimensions. However, both models have not been supported or successfully adapted in all service industries. Many researchers have tried to test and adapt these models to fit with their particular service sectors. The objective of this article is to understand the development and adaptation of service quality models used in different service sectors.

### The Original Service Quality: The Nordic Model

An early measure of service quality was developed by Gronroos (1982, 1983, 1984) who applied a traditional CS/D (Customer Satisfaction/Dissatisfaction) model to explain service quality. The researcher identified two service quality dimensions: technical quality and functional quality. Technical quality focuses on the outcome of the service, or what the customers received from

their interactions with service providers to satisfy their basic needs. Functional quality or process-related dimension represents the process which evaluates the manner of delivery of the service. It defines customers' perceptions of the interactions during service delivery (see Figure 1). The Gronroos service quality model or the Nordic Model has been used to measure consumers' perception of service quality. Many researchers have applied and adopted this model to measure service quality in different industries.

Figure 1: The Nordic Model



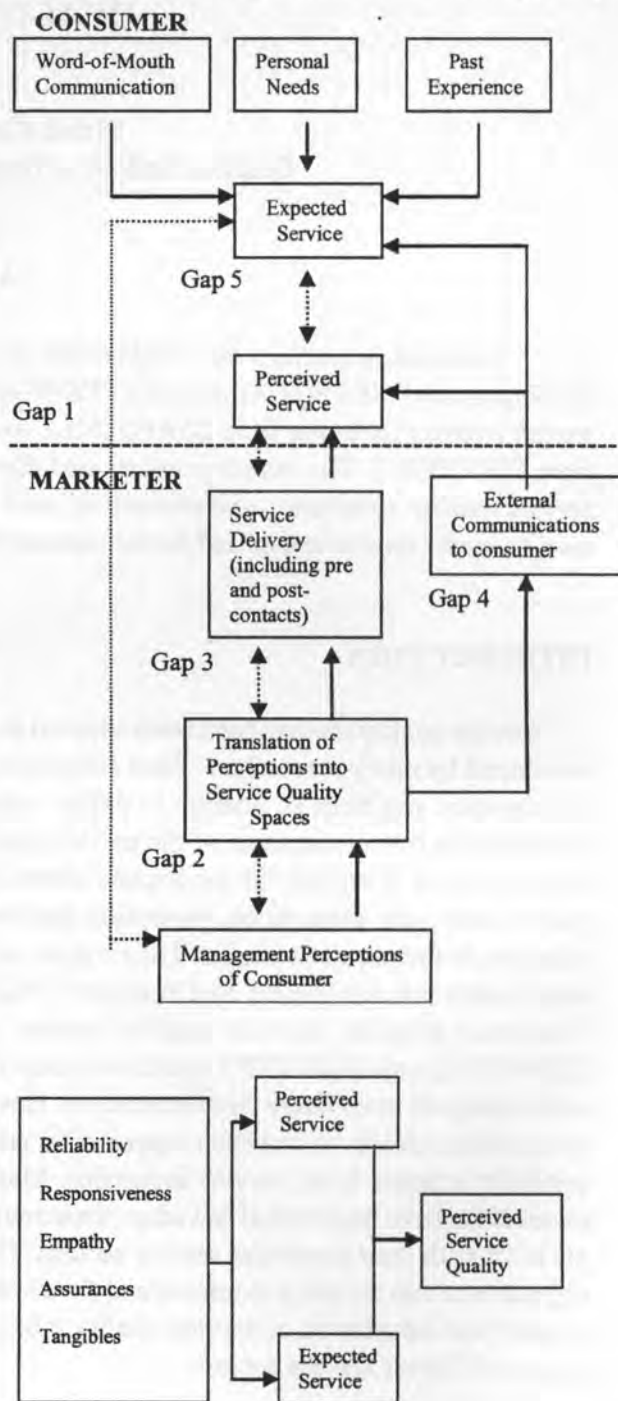
Source: Gronroos (1984), "A Service Quality Model and Its Marketing Implication" *European Journal of Marketing*, 18(4), p.40.

## The Gaps Model of Service Quality

Using the Nordic Model, the outcomes of the technical and functional quality may not be sufficient to identify what is perceived by the customer, because technical quality and functional quality, combined, comprise the construct of image. Expanding on Gronroos' work, Parasuraman, Berry, and Zeithaml (1985) developed the concept of expectation and perception of service quality by creating the Gaps Model of Service Quality as shown in Figure 2. Parasuraman, et al. (1985) defined the Gap model by focusing on the discrepancy between customers' expectation and perception. The initial model comprised of ten dimensions of service quality. The ten dimensions are: tangible, reliability, responsiveness, competence, access, courtesy, communication, credibility, security, and understanding/knowing the customer (Berry, et al., 1985, p.45-46). Parasuraman, et al. (1985) reduced the ten dimensions of their earlier work to five dimensions (tangible, reliability, responsiveness, assurance, and empathy) and this instrument, known as the SERVQUAL measurement, confirmed their conceptual model of the Gaps Model of Service Quality. The foundation of the model is a set of four gaps, with gap 5 showing the discrepancy between consumer's expectation and perception.

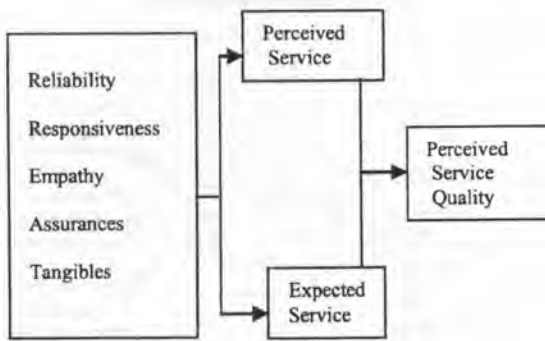
In summary, in the earlier models, two dimensions of service quality were suggested by Gronroos (1982). Five dimensions were developed by Parasuraman, Zeithaml, and Berry (1988) known as the SERVQUAL model (see Figure 3) which measured the discrepancy between customers' expectation and perception. The SERVQUAL instrument comprises of two parts (expectation and perception) that can be used for measuring service quality.

Figure 2: The Gaps Model of Service quality



Source: Parasuraman, Berry, and Zeithaml (1985), "A Conceptual Model of Service Quality and Its Implications for Future Research", *Journal of Marketing*, 49 (Fall), p.44.

**Figure 3: The SERVQUAL Model**



Source: Parasuraman, Zeithaml, and Berry (1988) "SERVQUAL: A Multiple Item Scale for Measuring Consumer Perceptions of Service Quality". *Journal of Retailing*, 64 (1).

Parasuraman, et al. (1985) identified the differences between expected service (ES) and perceived service (PS) in terms of a "PS-ES" measurement framework. If expectation of service quality is exceeded ( $PS > ES$  or  $PS - ES > 0$ ), it means customers' satisfaction. If expectation of service quality is met ( $PS = ES$  or  $PS - ES = 0$ ), it means customers' mere satisfaction. If expectation of service quality is not met ( $PS < ES$  or  $PS - ES < 0$ ), it means customers' dissatisfaction. However, Parasuraman and his colleagues (1995) suggested that research studies should be focused on the customers' expectation and their nature.

### SERVQUAL vs. SERVPERF

Cronin and Taylor (1992) argued that the conceptualization and operationalization of service quality (SERVQUAL) are inadequate measures of the relationship between service quality, customers' satisfaction, and purchase intentions. In addition, Brow and Swartz (1989), Crosby (1979), Garvin (1983), and Rathmell (1966) confirmed that service quality is abstract and difficult to measure. Similarly, Carman (1990) studied service quality of a tire store, placement center, and dental clinic. The researcher found that the SERVQUAL scale fails to demonstrate the five dimensional structure of service quality. Cronin and Taylor (1992) analyzed and tested a performance model based on the SERVQUAL measurement which was supported by Mariz, Ahtola, and Klippel (1975). Also, Churchill and Surprenant (1982) affirmed the efficacy of applying performance perceptions alone to measure the service quality. In addition, Hawes and Rao (1985) concluded that the

SERVPERF scale can measure consumers' perceptions of a service firm's performance. An examination by Cronin and Taylor (1992) found statistical significance in service quality (SERVQUAL) effects in two industries (banking and fast food) out of four industries but SERVPERF or a performance-based approach of the measurement of service quality effects fitted all four industries (banking, pest control, dry cleaning, and fast food). The researchers concluded that the SERVPERF is an adequate measure of consumers' perception, hence they supported the performance-based measures of service quality.

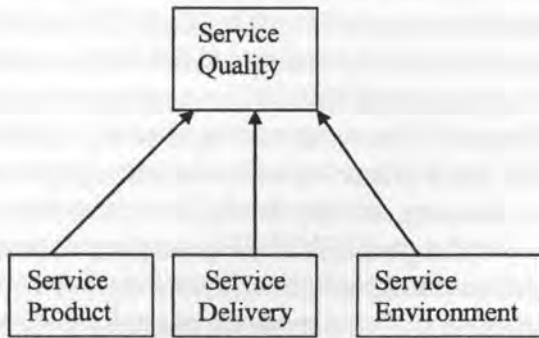
### An Alternative Conceptualization and Measurement of Service Quality

Several researchers modified the original SERVQUAL and SERVPERF models. Some researchers were interested in the technical and functional quality dimensions of Gronroos' model (1982, 1984). For instance, Rust and Oliver (1994) developed a three-component model of service quality. Based on Rust and Oliver's (1994) view of overall perception of service quality, Brady and Cronin (2001) developed a three component measure of service quality based on a hierarchical approach known as a third-order factor model. Dabholkar, Thorpe and Rentz (1996), finding that the SERVQUAL model was an inadequate measure of consumers' perceived service quality of retail stores, developed a hierarchical factor structure of retail service quality. Wang, Xie, and Goh (1999) similarly agreed on the inadequacy of the SERVQUAL model. In order to apply SERVPERF for measuring the service quality of education, Oldfield and Baron (2000) regrouped the five dimensions of SERVPERF into three dimensions, shown in the following section.

### The Three-Component Model of Service Quality.

Rust and Oliver (1994) developed this model which was comprised of service product (technical quality), service delivery (functional quality), and service environment as shown in Figure 4. This model has been supported and has been employed to measure retail banking service quality.

**Figure 4: The Three-Component Model of Service Quality**



Source: Rust and Oliver (1994). "Service Quality: Insights and Managerial Implications from the Frontier", in *Service Quality: New Directions in Theory and Practice*.

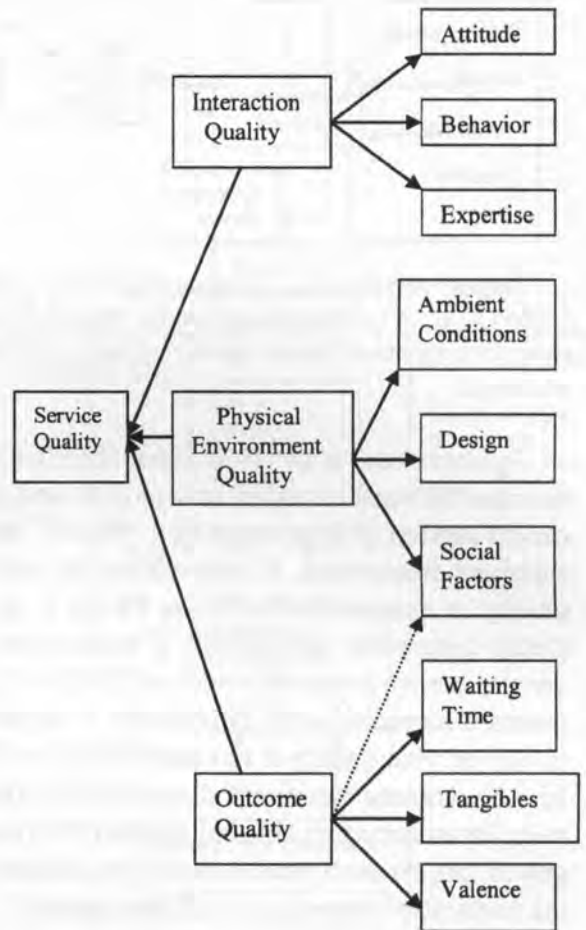
**The Structure of A Third-Order Factor Model**

Brady and Cronin (2001) developed the third-order factor model which comprised three primary dimensions (interaction quality, physical environment quality, and outcome quality) and nine sub-dimensions. Attitude, behavior, and expertise form the first sub-dimension group under interaction quality. Ambient conditions, design, and social factors form the second sub-dimension group under physical environment quality. The last sub-dimension group under outcome quality is waiting time, tangibles, and valence (see Figure 5). All variables were analyzed and tested by factor analysis. This model is similar to the three-component model of service quality which was developed by Rust and Oliver (1994). Also, the interaction quality component and the outcome quality component are similar to the functional quality and the technical quality of the Nordic model by Gronroos (1982, 1984). According to Bitner's (1990) study, perception of service quality is affected by the service environment which is one of the crucial dimensions of Brady and Cronin's (2001) model.

**The Hierarchical Factor Structure of Retail Service Quality Model**

Dabholkar, Thorpe and Rentz (1996) found that the SERVQUAL model has not been fully applied to measure the service quality of retail stores. The authors developed a 28-item scale, retaining 17 items from SERVQUAL to measure

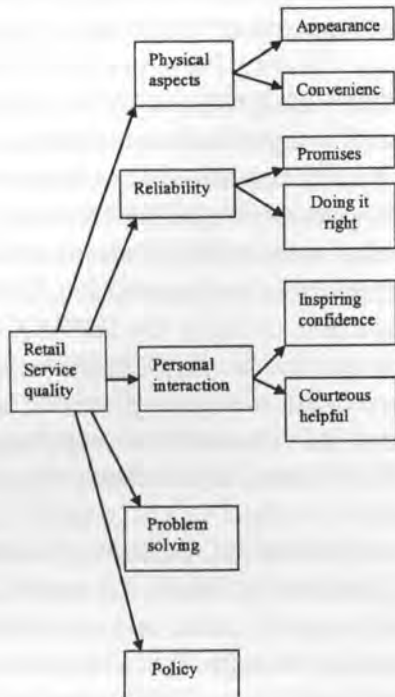
**Figure 5: The Structure of A Third-Order Factor Model**



Source: Brady and Cronin (2001). Some New Thoughts on Conceptualizing Perceived Service Quality: A Hierarchical Approach, *Journal of Marketing*, 65 (July), p.37.

customers' perceptions of retail service quality. The retail service quality model comprises five dimensions (physical aspects, reliability, personal interaction, problem solving, and policy) and six sub-dimensions of physical aspects, reliability, and personal interaction. These are appearance and convenience, which fall under physical aspects; promises and doing it right, which fall under reliability; and inspiring confidence and courteous help, under personal interaction as shown in Figure 6.

**Figure 6: The Hierarchical Factor Structure of Retail Service Quality**



Source: Dabholkar, Thorpe, and Rentz (1996) "A Measure of Service Quality for Retail Stores: Scale Development and Validation", *Journal of the Academy of Marketing Science*, 24 (1), p.6.

**Service Quality of Internet Search Engines Model (SERVQUAL)**

Wang, Xie, and Goh (1999) failed in their application of the traditional five dimensions of SERVQUAL to measure the gap between expectation and perception of internet search engines. The researchers modified SERVQUAL from the traditional 22 items to 14 items and five dimensions. The authors mailed the questionnaires around the world. From the analysis of the modified SERVQUAL based on 168 valid replies, the researchers found that tangible, reliability, and assurance dimensions are not important to customers. The researchers grouped nine items of three dimensions (tangibles, reliability, and assurance) to form a new dimension, namely, the *Technical support* dimension based on factor analysis.

Also, the three items from empathy dimension were grouped under *Supplementary service* and the last factor, *Speed*, which is regarded as the responsiveness dimension (see Table 1). The three

new factors were matched and considered as an effective means of measuring the gap between expectation and perception of internet search engines.

**Table 1: The Three Factors Service Quality of Internet Search Engines**

Service quality variables	Service Quality Gap
<i>Technical support:</i>	-0.89
1. Different search methods available	-0.38
2. A large amount of information	-0.44
3. Information is well organized	-0.81
4. Good syntax consistency	-0.59
5. Can narrow search topic	-0.88
6. Search results are relevant	-1.44
7. Information is up to date	-1.18
8. No repetition of pages/sites	-1.07
9. No dead links	-1.20
<i>Supplementary service:</i>	0.31
10. The layout upon first impression is easy to understand	0.07
11. Offers natural language searching	0.19
<i>Speed:</i>	
12. There are help screens to guide users	-0.10
13. Search results are provided quickly	-0.42

Source: Wang, Xie, and Goh (1999). *Service Quality of Internet Search Engines*, *Journal of Information Science*, 25 (6) pp.505.

**Perceptions of Educational Service Quality (SERVPERF)**

Oldfield and Baron (2000) studied student perceptions of education service quality (SERVPERF). A sample of 333 undergraduate students of Business and Management at a UK university was used to collect data. The results of the factor analysis using a principal component and varimax rotation showed that the five components structure (tangible, reliability, responsiveness, assurances, and empathy) were insufficient to measure the education service quality. The authors created three names for new factors: *requisite*, *acceptable*, and *functional elements*, where requisite element comprised thirteen items, acceptable element, five items, and functional element, three items, as shown in Table 2.

**Table 2: Perceptions of Educational Service Quality (SERVPERF)**

Variables
<i>Factor 1: Requisite element</i>
1. When I have a problem, administrative staff show a sincere interest in solving it.
2. Academic staff understand the needs of their students.
3. Services are performed right the first time.
4. Queries are dealt with efficiently and promptly.
5. Administrative staff are never too busy to respond to a request for assistance.
6. Administration keeps accurate records.
7. I am dealt with promptly when requesting assistance.
8. Academic staff have the knowledge to answer my questions relating to course provision.
9. When the support service promise to do something by a certain time they do so.
10. Academic staff deal with me in a caring fashion.
11. The physical facilities are visually appealing (i.e. building and surroundings).
12. I feel secure in my transactions with this faculty.
13. This faculty employ staff in whom I have confidence.
<i>Factor 2: Acceptable element</i>
14. Academic staff are often too busy to respond to a request for assistance.
15. Academics are willing to give students individual attention.
16. When I have a problem, academic staff show a sincere interest in solving it.
17. This faculty provides its services within the time one might reasonably expect.
18. All staff are consistently courteous to me.
<i>Factor 3: Functional element</i>
19. The opening hours are convenient for me.
20. This faculty has up-to date equipment.
21. This faculty provides its services at the time it promises to do so.

Source: Oldfield and Baron (2000). Student perceptions of Service Quality in a UK University Business and Management Faculty, *Quality Assurance in Education*, 8 (2), p.91.

## CONCLUSION

The preceding discussion demonstrates that the Nordic model by Gronroos may not be adequate to explain customers' perception. Expanding on Gronroos' work, Parasuraman, Berry, and Zithaml's models (1958, 1988, 1991, 1991a, 1994), have made a significant contribution to various service quality research studies. Parasuraman and his colleagues developed five dimensions of service quality model which focused on the gap between expectation and perception, both of which are measurable by using the SERVQUAL instrument. Cronin and Taylor (1992) developed a performance-based measure of service quality and concluded that the performance perception alone (SERVPERF) is sufficient to measure consumers' perception.

Subsequent to the development of the Nordic, SERVQUAL and SERVPERF models, many researchers adapted, tested, and applied these models in various researches: Rust and Oliver (1994), and Brady and Cronin (2001) applied the Nordic model from Gronroos. Dabholkar, Thorpe, and Rentz (1996) adopted 17 items from the SERVQUAL and created a hierarchical factor structure of a retail service quality model. In addition, Wang, Xie, and Goh (1999) regrouped the 5 factors of SERVQUAL into 3 factors to analyze the service quality of internet search engines. SERVPERF was applied by Cronin and Taylor (1992) and by Oldfield and Baron (2000) for studying the perception of service quality of educational institutions. All service quality models cover different dimensions, structures, and use different names based on the specific nature of each service industry. Each service model has its own strong and weak points. Future studies should aim at testing the service components and service structures to suit current measures of service quality in new and emerging service industries.

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*About the author:*

Dr. Sirion Chaipooirutana teaches full-time in the Graduate School of Business, Assumption University. She can be reached at sirionc@gmail.com.