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Measuring perceived service quality offline vs. online: a new PeSQ conceptual model

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Abstract

The main objective of this paper is to propose a new conceptual model which can be used to evaluate PeSQ based on a critical literature review of existent service quality (PSQ) studies in offline and online environments. Understanding how customers perceive and evaluate offline and online services is important for companies in order to deliver superior services. Many studies on this topic are emerging from both academic and practitioner sources, but there are still some challenges confronted when studying perceived service quality on Internet. This paper addresses some possible solutions for challenges and uses flow theory as a background for a new conceptual model of PeSQ. Finally, limits of the study are discussed.

Keywords: offline perceived service quality; online service quality; online flow; new PeSQ conceptual model

1. Introduction

The measurement and management of perceived service quality (PSQ) in online and offline environment has been a concern for both academics and practitioners. There are many studies in the literature that focus on this issue and integrate instruments for measuring PSQ in different commercial framework.

PSQ is an important construct for marketing success. Many studies show that PSQ reduces a firms costs (Crosby, 1979) and increases profitability (Buzzell and Gale, 1987; Rust and Zahorik, 1993). Also PSQ has been linked to customer satisfaction (Bolton and Drew, 1991; Boulding et al., 1993) and retention (Reichheld

and Sasser, 1990). Marketing researchers considered PSQ as an important factor of corporate marketing and financial performance (Buttle, 1996), and a way to differentiate a company from its intensifying competition (e.g., Parasurman et al., 1988).

Considering the widespread use of Web technologies and e-commerce, the need to evaluate perceived service quality has shifted to online environment. Many researchers conducted different studies for developing measurement scales adapted to this new medium. However, in these studies there are many ambiguities about the measurement approach and dimensions used for evaluating PeSQ.

This paper is structured as follows: in the beginning, we present the origins and meaning of *quality* construct. Then, we refer to different conceptualizations of perceived service quality in offline and online settings. Further, we continue with reviewing the most important studies that focused on measuring PSQ and PeSQ, and undertake a comparative analysis of them. Finally, we draw some conclusions of measuring perceived service quality in offline and online settings and propose a new conceptual model that could be useful in measuring perceived service quality in online environment, based on flow theory (Csikszentmihalyi, 1975).

2. Conceptualization of perceived service quality (PSQ)

In order to discuss the measurement of PSQ, we believe is important to address to its conceptualization. The *perceptions* term is acquired from psychology, but from a marketing perspective it has been used to describe consumers' opinions, beliefs, or judgemental thoughts of products or services. Parasuraman et al. (1988) defined the *subjectivity of service quality* or *perceived quality*, as: "the consumer's judgment about a product's overall excellence or superiority". Scholars (e.g., Parasuraman et al., 1988) propose for measuring the quality of a company's quality services the measure consumers' perception of quality. This modality contrasts with the approach of evaluating goods quality, which is more objectively and made based on *durability* and *number of defects* (Parasuraman et al., 1988).

The first conceptualization of *quality* can be identified at Walter Shewhart 1920's concept of TQM (Total Quality Management). Since then, the quality definitions show a conceptual evolution from product-based to consumer centric. For example, Parasuraman, Zeithaml, and Berry (1985) consider *quality* "a function of the *difference between the expected and perceived performance* determined by several indicators". For Deming (1986) quality is "meeting *consumer needs* by focusing on constant improvement in consistency and reduction in variation". Juran (1989) conceptualize quality as "*fitness of use*, *need satisfying product* features and free from deficiencies". Finally, Brophy and Coulling (1996) argue that "quality is concerned with meeting the *wants and needs of customers*".

A short analysis of these conceptualizations reveals that first definitions of *quality* focused on product reliability, and changed to focus towards consumer. *Quality* definitions that can relate to *service quality* are those emphasizing on *satisfying customers' requirements* as *determined by the user*.

Curry and Faulds (1986) consider that *quality* must be addressed from someone's viewpoint, it cannot be attained objectively and it is a costumer's judgment. So, perceived service quality (PSQ) is a result of encounter between service, customer, and firm (which is the service provider) and consists in an evaluation and a judgement. The service experience is the sum of the individual service encounters which customer will make these evaluations (Bitner, 1990). Thus, service quality measures are actually measures of "perceived service quality".

Researchers adopted two approaches in PSQ conceptualizations. The first conceptualization defines the dimensions of service quality, globally, in terms of *(1) functional (the process of service delivery), (2) technical (the outcome of the service encounter), and (3) reputational quality (the reflection of the corporate image)* and is also called the "Nordic" perspective (Gronroos 1982, 1984). The second is the "American" perspective and uses other dimensions for service quality: (1) reliability, (2) assurances, (3) tangibles,

(4) empathy, and (5) responsiveness (Parasuraman, Zeithaml, and Berry, 1988). Appendix 1 illustrates different conceptualizations of perceived service quality concept. Analyzing the studies on PSQ we see that the "American" conceptualization dominates PSQ literature. The missing link that should unify the two approaches indicate the complexity of PSQ construct and that its conceptualization may situate on different levels of abstraction (Carman 1990), suggesting a hierarchical nature (Brady and Cronin Jr., 2001). Although researchers still debate which approach is more appropriate, they agree that PSQ is a multidimensional construct.

3. Measurement of offline perceived service quality (PSQ)

In order to evaluate PSQ, researchers proposed different scales for measuring this construct in offline settings. One of the most important instruments is SERVQUAL which is useful for measuring and managing the quality of services. SERVQUAL was developed by Parasuraman, Zeithaml and Berry (1985), and over the time suffered different adjustments (Parasuraman et al., 1986; 1990; 1991a; 1991b; 1993; 1994; 1997, and Zeithaml et al., 1990; 1991; 1992; 1993). In SERVQUAL, the customer's evaluation of service quality is conceptualized as a gap between expectation and their evaluations of the performance of a particular service.

Parasuraman et al. (1985) consider service quality a multidimensional construct. In their original study, Parasuraman et al. (1985) identified ten components of service quality: (1) reliability, (2) responsiveness, (3) competence, (4) access, (5) courtesy, (6) communication, (7) credibility, (8) security, (9) understanding the customer, and (10) tangibles. In 1988, in order to measure customers' expectations and perceptions (E and P), they revised this scale and reduce it to five dimensions: (1) reliability, (2) assurance, (3) tangibles, (4) empathy, and (5) responsiveness. In a follow-up study, Parasuraman et al. (1991) changed wording of items and concentrated on customers' expectations. They changed perceptions items wording (e.g., tangibles and assurance).

In an review on SERVQUAL, Buttle (1996) shows that using SERVQUAL (Parasuraman, Zeithaml and Berry, 1985) implies one of the of following analyzes: item-by-item (e.g., P1 – E1, P2 – E2); dimension-by-dimension (e.g., (P1 + P2 + P3 + P4/4) - (E1 + E2 + E3 + E4/4), where P1 to P4, and E1 to E4, represent the four perception and expectation statements relating to a single dimension); and computation of the single measure of service quality ((P1 + P2 + P3…+ P22/22) – (E1 + E2 + E3 + … + E22/22)), the SERVQUAL gap. The SERVQUAL instrument is administered twice in different forms, first to measure expectations and second to measure perceptions.

SERVQUAL (Parasuraman, Zeithaml and Berry, 1985) has been widely applied and it's highly valued by both researchers and practioners. During the time, critics (Carman, 1990; Babakus and Boller, 1992; Teas, 1994; Buttle, 1996) showed the weakness of SERVQUAL instrument for measuring PSQ. For example, Buttle (1996) postulates the most important *theoretical critics* (e.g., (1) SERVQUAL fails to draw on established economic, statistical and psychological theory; (2) studies do not support the idea that customers evaluate service quality in terms of P – E gaps); (3) focuses on the process of service delivery, not the outcomes of the service encounter; (4) SERVQUAL's five dimensions are not universals; the number of dimensions comprising SQ is contextualized) *and operational problems of SERVQUAL* (e.g., (1) customers don't use the term *expectations* to assess SQ; (2) the items cannot capture the variability within each SQ dimension; (3) the reversed polarity of items in the scale causes respondent error; (4) the administrations of the instrument causes customers a discomfort, and (5) the over SERVQUAL score accounts for a disappointing proportion of item variances.

As an answer to these critical studies, scholars developed alternative measures of PSQ for specific service settings. For example, to measure the PSQ for a restaurant Stevens, Knutson and Patton (1995) proposed DINESERV - a scale with 29 items and the five SERVQUAL dimensions. Knutson et al. (1991) developed LODGSERV, a model based on SERVQUAL, with three dimensions: *(1) tangibles, (2) reliability, and*

(3) contact for assessing PSQ in tourism and hospitality industry. Another adaptation of SERVQUAL scale is DIVEPERF model, developed by O'Neill et al. (2000) for evaluating perceptions of diving services. ECOSERV was proposed by Khan (2003) for measuring PSQ in eco-tourism and contained 30 items and the five SERVQUAL dimensions.

As we can observe, all these models have the same foundation: SERVQUL and are developed in order to improve the original instrument for different service sectors.

An alternative at SERVQUAL is SERVPERF scale. Cronin and Taylor (1992) proposed SERVPERF, a scale for evaluating the performance of a service and tested in four industries. The findings were important: SERVPERF explained more of the variation in service quality than SERVQUAL was appropriate for all four industries and contained only half the number of items that must be measured. These outcomes supported the idea that SERVPERF was better than SERVQUAL scale for measuring the service quality. Researchers used SERVPERF to assess service quality in tourism and hospitality settings. Travelers' perceptions of hotel attributes were measured in Hong Kong's hotels (Choi and Chu, 2001), hotels of Mauritius (Juwaheer, 2004) and Malaysian hotels (Poon and Lock-Teng Low, 2005).

The debate of using SERVQUAL or SERVPERF in order to evaluate PSQ is still continuing. In fact, the main concern is if PSQ should be measured as the difference between customers' perceptions and expectations, or through a performance-only scale. The conceptualization and measurement of PSQ is still problematic in the service marketing literature. This is because SERVQUAL and SERVPERF could not be adapted for the new industries or to replicate their conceptual structure (e.g., Kettinger and Lee, 1995) in new environments (such as online).

Although there has been considerable progress as how PSQ can be measured, it remains an "elusive" concept (Parasuraman, Zeithaml, and Berry 1985). The discrepancies from the literature and the importance of service quality (Zeithaml, Berry, and Parasuraman, 1996) are an argument for an integration of PSQ studies and a clear perspective on this issue.

In the next section, we will refer to measurement of PSQ in online environments which has been even more problematic than in offline settings, due to World Wide Web's characteristics.

4. Measurement of online perceived service quality (PeSQ)

Considering the growth of online market (in 2012, 43% of the EU population aged 16 to 74 years used e-commerce in the three months before being surveyed - Eurostat), practitioners and scholars proposed different models and instruments to measure PSQ in the virtual world (see Appendix 2 for an overview of existing models measuring service quality in offline and online). Measuring PeSQ has proven to be a challenge, and deserves more attention from scholars. Researchers carried out studies for developing measures of PeSQ in two directions, according to their focus (Cristobal, Flavián, and Guinalíu, 2007): online retailing services and Web site design. We will analyze the most important studies that reflect various aspects of measuring online perceived service quality (PeSQ) using the structure proposed by Cristobal, Flavián, and Guinalíu (2007).

4.1. Online retailing services studies

Continuing the research on perceived service quality in online settings, Zeithaml et al. (2001, 2002) developed an e-SQ scale that contained 5 dimensions: (1) information availability and content (2) ease of use or usability, (3) privacy/security, (4) graphic style, and (5) reliability.

In other study, Cox and Dale (2001) argue that a few of traditional dimensions of SQ are not relevant for online sale (clarity, courtesy, competence, comfort, and friendliness). The two researchers identified other dimensions as being important for virtual world, such as: *communication, accessibility, appearance, and credibility*. A year later, Madu and Madu (2002) identify 15 dimensions of PeSQ: (1) features, (2) structure,

(3) performance, (4) reliability, (5) aesthetics, (6) storage capacity, (7) security and system integrity, (8) serviceability, (9) trust, (10) product/service differentiation and customization, (11) responsiveness, (12) Web store policies, (13) assurance, (14) reputation, and (15) empathy.

Wolfinbarger and Gilly (2002) proposed .comQ scale with 14 items and four factors: (1) reliability, (2) privacy/security, (3) Web site design, (4) customer service.

As a conclusion, the instruments developed for measuring PeSQ contained dimensions from traditional PSQ instrument, but also new dimensions, specific to online environment.

4.2. Web site design quality studies

Studies of PeSQ also emerged from Web site design quality research area. This is due to view that a Web site is similar to a service in virtual world. So, other scholars developed instrument to measure the perceived quality of Web sites. For example, an adapted version of SERVQUAL was proposed by Yoo and Donthu (2001) to measure the perceived quality of an online shop. The adapted SERVQUAL scale had nine items and four dimensions: (1) aesthetic design, (2) ease of use, (3) security, and (4) processing speed.

Loiacono et al. (2002) proposed WebQual[TM] scale to assess Web site quality, and is composed of 36 items and 12 dimensions: (1) informational fit-to-task, (2) interactivity, (3) trust, (4) response time, (5) ease of understanding, (6) intuitive operations, (7) visual appeal, (8) innovativeness, (9) emotional appeal, (10) consistent image, (11) online completeness, and (12) better than alternative channels.

Aladwani and Palvia (2002) also developed an instrument for measuring user perceived Web quality. The instrument measures Web quality in four dimensions: (1) content quality (information accuracy, usefulness, clarity, currency, uniqueness, and originality), (2) content specificity (privacy policies, customer support, specific details about product/services), (3) appearance (attractiveness, organization, proper use of colors, fonts, graphics, language, and graphics-text balance), and (4) technical adequacy (navigation, links, reliability, customization, speed, interactivity, speed, accessibility). The division of categories and sub-categories varies slightly from previous studies, but overall, it does not add any significant new dimensions to the study.

Based on SERVQUAL (Parasuraman, Zeithaml, and Berry, 1988) Wolfinbarger and Gilly (2003) developed the e-TailQ to establish a general model of e-tail quality. The two researchers used a hierarchical cluster analysis with 8 dimensions and 40 items extracted by exploratory factor analysis. Then, a confirmatory factor analysis was conducted to configure the final set of 14-17 items. The resulted instrument contained four major e-quality dimensions: (1) fulfillment/reliability, (2) Web site design, (3) privacy/security, and (4) customer service. Their study did not investigated the effect of different product categories and that might affect the four factors in predicting quality.

Lee and Lin (2005) proposed a revised version of SERVQUAL for measuring e-service quality, with six dimensions: (1) Web site, (2) design, (3) reliability, (4) responsiveness, (5) trust, and (6) personalization.

In a more recent study, Ho and Lee (2007) identified the dimensions of e-travel service quality and developed a reliable and valid measurement instrument on e-travel service Web sites. Initially, 44 items were generated to capture the dimensions of e-travel service quality. After purification, the scale contained five dimensions: (1) information quality, (2) security, (3) Web site functionality, (4) customer relationship, and (5) responsiveness. Also, the researchers found that the e-travel quality service scale should have a strong predictive capability in relation with online customer satisfaction and loyalty.

We conclude that studies on PeSQ are very fragmented and differ, in term of how the concept is measured. The instruments proposed for measuring PSQ in online environment differ in terms of origins and number of suggested dimensions. So we agree with the idea that research in this area is still at an early phase (Cristobal, Flavián, and Guinalíu, 2007). In this context, we believe it is important to make an analysis of measuring PSQ in offline and online settings in order to clarify the similarities and differences.

5. A comparison of measuring offline and online PSQ

A comparison of measuring PSQ in offline and online settings reveals important differences in terms of PSQ definition, customer expectations, number, and nature of dimensions. This is due to online environment characteristics (e.g., interactivity, speed, immediate feedback). In this section we compare the measuring instruments of PSQ in offline and online settings. First, we refer to differences and further to similarities.

Assessing PSQ in offline environments is a challenge because researchers don't agree on which is the best measurement approach. Also, adapting the existing instruments to evaluate PSQ for the new industries was difficult. Measuring PSQ in online settings is even more complex due to Web characteristics. For example, in case of e-SQ customers' expectations are not as well formed as they are in SQ (Zenithal et al., 2000).

A comparison of SERVQUAL and e-SERVQUAL scales dimensions (Zeithaml et al. 2000) shows that the two instruments are different, but share some core dimensions. For example, half of the SERVQUAL dimensions (Parasuraman, Zeithaml, and Berry 1985; 1988) are used by consumers when they evaluate e-SQ. The new dimensions are due to online environment characteristics and are extremely important. Several dimensions of e-SERVQUAL (Zeithaml, 2000) are specific to online environment: *flexibility, efficiency, ease of navigation, site aesthetics, and security*. Zeithaml, Parasuraman and Malhotra (2002) point out that not all new dimensions relate specifically to technology and they give an example: *ease of navigation*, which involves "having functions that help customers find what they need without difficulty and possessing a good search engine"(Zeithaml, Parasuraman and Malhotra, 2002).

Zeithaml, Parasuraman and Malhotra (2002) argue that many of the perceptual attributes pertaining to e-SERVQUAL remain the same as in SERVQUAL - honoring promises, being available when the customer wants to do business, having a reputable name, and knowing customers. However, some of the perceptual attributes of reliability and access dealt with online-specific issues such as system crashes and operation and availability of the network - attributes not present in SERVQUAL.

Also, discrepancy between service expectations and perceptions form the original model of PSQ developed by Parasuraman et al. (1985) can be used for measuring PeSQ (Zeithaml, Parasuraman and Malhotra, 2002). The "gaps" in SQ (management gap, quality specification gap, service delivery gap, communication gap) are not the same as in e-SQ (for example, "fulfillment gap" contains: information, design, and communication gaps - that can occur in the process of designing, operating, and marketing Web sites) and their importance differs, the approach is the same.

We conclude by arguing that measuring PSQ in offline and online settings share the same approach, but differ greatly because of Web characteristics.

6. A new PeSQ conceptual model

Measuring PSQ has been problematic in offline settings. In online environment are even more challenges due online environment characteristics and adapting the measurement instruments to assess PSQ was difficult.

After reviewing the existing studies on PSQ and PeSQ, we believe that there is a need for a new conceptual model in order to measure the perceived service quality online. In our view, the measurement of PeSQ should also focus on user's traits (e.g., *autotelic personality*) and states (e.g., *flow*) that occur in online environment.

We included in our conceptual model the most frequent dimensions proposed by scholars in order to measure PeSQ and add some new dimensions that could be relevant for measuring user's perception on service quality in online settings from *flow theory* (Csikszentmihalyi, 1975).

According to Csikszentmihalyi (1975), *flow* is a "crucial component of enjoyment" and is "the holistic sensation that people feel when they act with total involvement". In a flow state, the consumer is concentrated on the task, lose track of time the experience stands out as being exceptional compared with daily activities (Csikszentmihalyi, 1997). Hoffman and Novak (1996) applied flow theory to computer-mediated

environments and suggested "optimal experience" to contribute to online marketer's success by creating exciting experiences to consumers. In our opinion, *flow* antecedents can influence customer PeSQ. The most important antecedents of *flow experience* are: *perceived skills* and *perceived challenges*. *Skills* are a person's ability to successfully perform a task (Csikszentmihalyi, 1975). *Challenges* are the necessary efforts to perform a task (Csikszentmihalyi, 1975). Also, a person's traits, such as *autotelic personality,* can influence PeSQ. According to Csikszentmihalyi (1997) people who are internally driven, and exhibit a sense of purpose and curiosity have an *autotelic personality*.
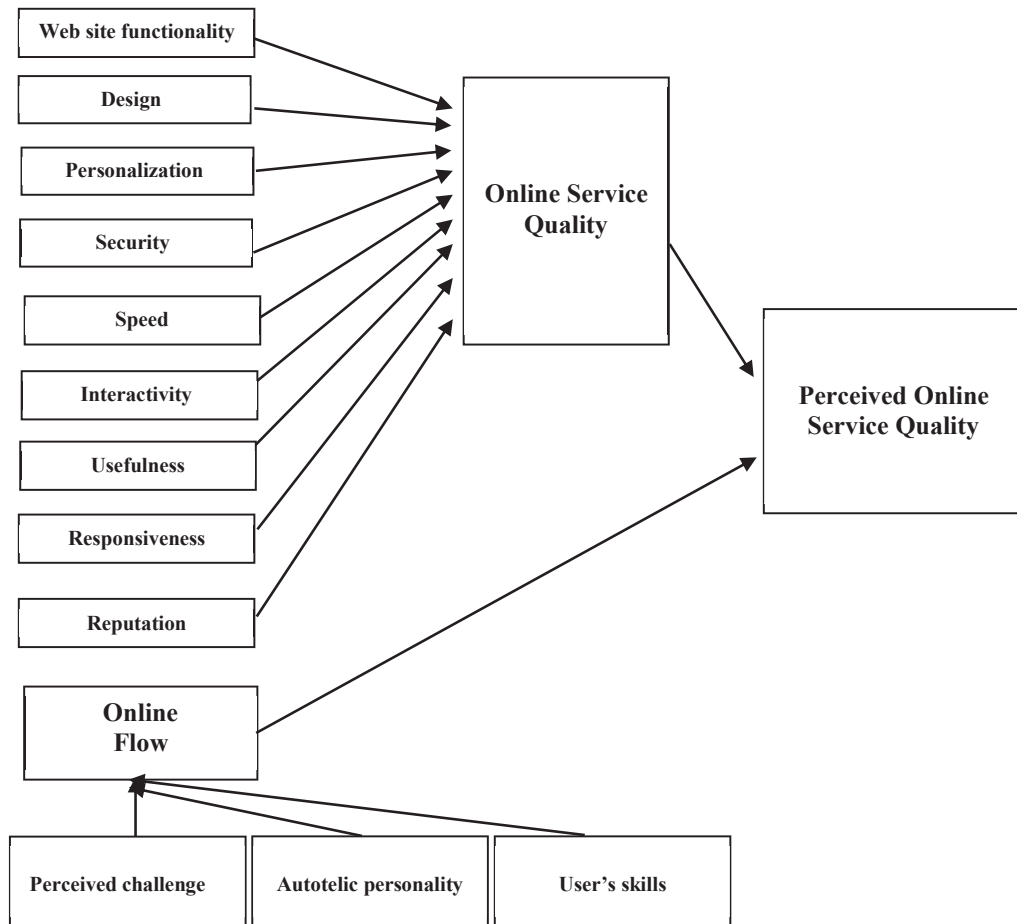

Fig. 1. Conceptual Model for Assessing Perceived Service Quality in Online Environment

As we can see in Figure 1, we consider that for evaluating PeSQ is important to take into consideration new variables such as: *consumer's skills*, *perceived challenge* and *autotelic personality* which represent antecedents of online *flow state*. *Flow state* is viewed as dimensions of PeSQ. Also, in our conceptual model,

Web site functionality, *design, personalization, security, interactivity, usefulness, responsiveness, reputation* are dimensions of PeSQ. We believe that the value of our conceptual model consists in using flow theory for a better understanding of online customer behaviour. Our hypothesis is that consumer's experience (e.g., *flow state*) affects their perception of e-service quality. Future studies should test our model and determine if online flow state is a dimension of perceived service quality in online environment.

7. Conclusions

The aim of this paper was to propose a new conceptual model which can be used to evaluate PeSQ based on a critical literature review of existent service quality (PSQ) studies in offline and online environments. The article began by presenting the origins and the meaning of *quali*ty construct. Then, we referred to different conceptualizations of perceived quality in offline and online settings by reviewing the most important studies and focusing on the measurement issue of PSQ and PeSQ. A comparative analysis of them was undertaken. Researchers agree that e-SQ is a multidimensional construct, although the elements of what constitute PSQ and PeSQ varies across studies. Some dimensions of e-SQ are similar to those of SQ, but others are entirely new and take into account WWW characteristics. In our paper, we used flow theory in order to propose new model for evaluating PeSQ.

We believe that future empirical studies should examine our conceptual model and determine if online flow can be used for evaluating PeSQ.

8. Limitation

This paper has also limitation. First of all, is a conceptual paper and its aim is to propose a model for evaluating PeSQ based on a critical literature review of measuring service quality in online and offline environments. We consider important to test this model in a series of empirical studies.

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Appendix 1. A short review of PSQ main conceptualization
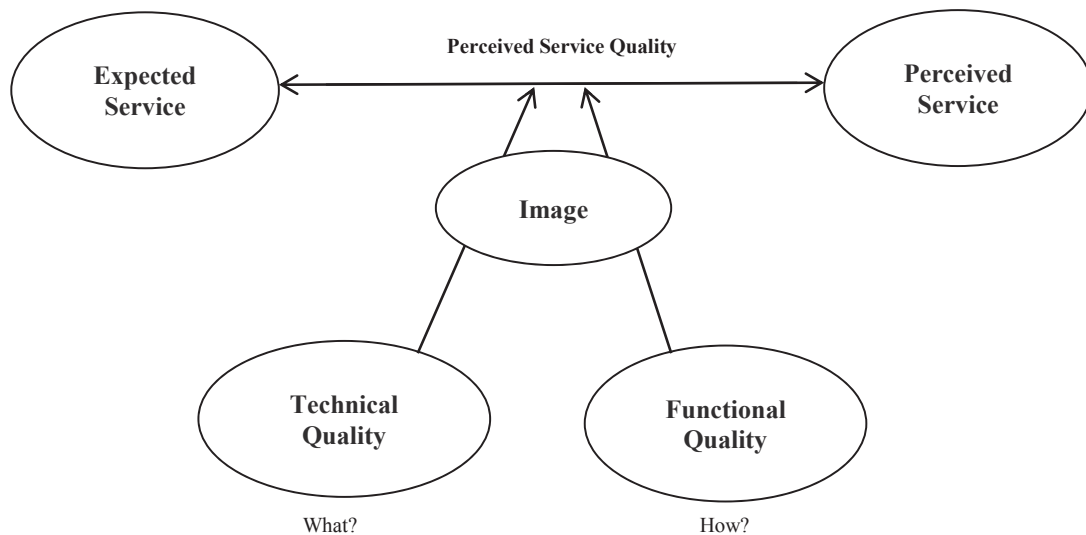
Fig. 2. The Nordic Model (Grönroos)
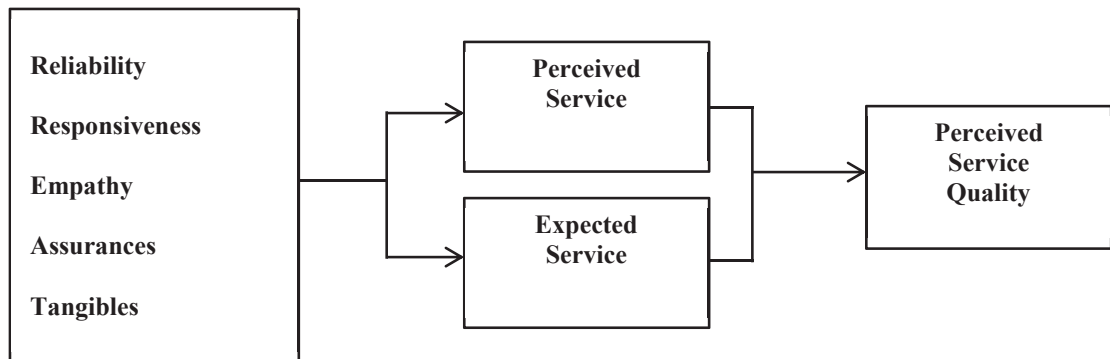
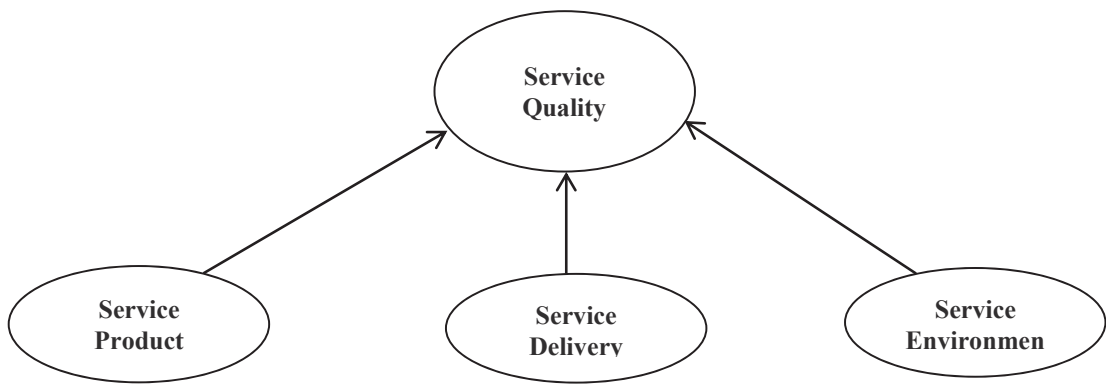Fig. 3. The SERVQUAL Model (Parasuraman, Zeithaml, and Berry, 1988)

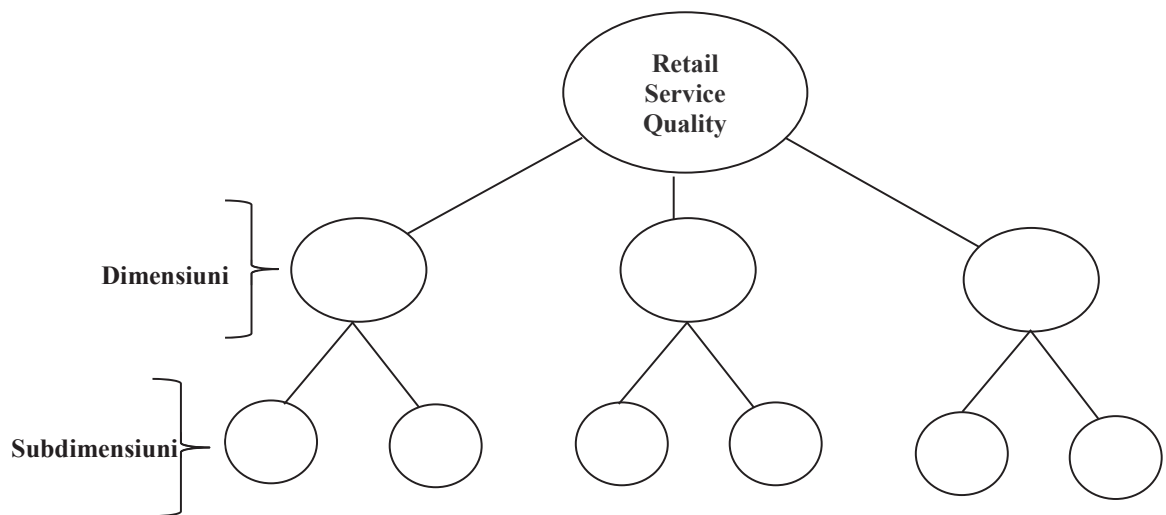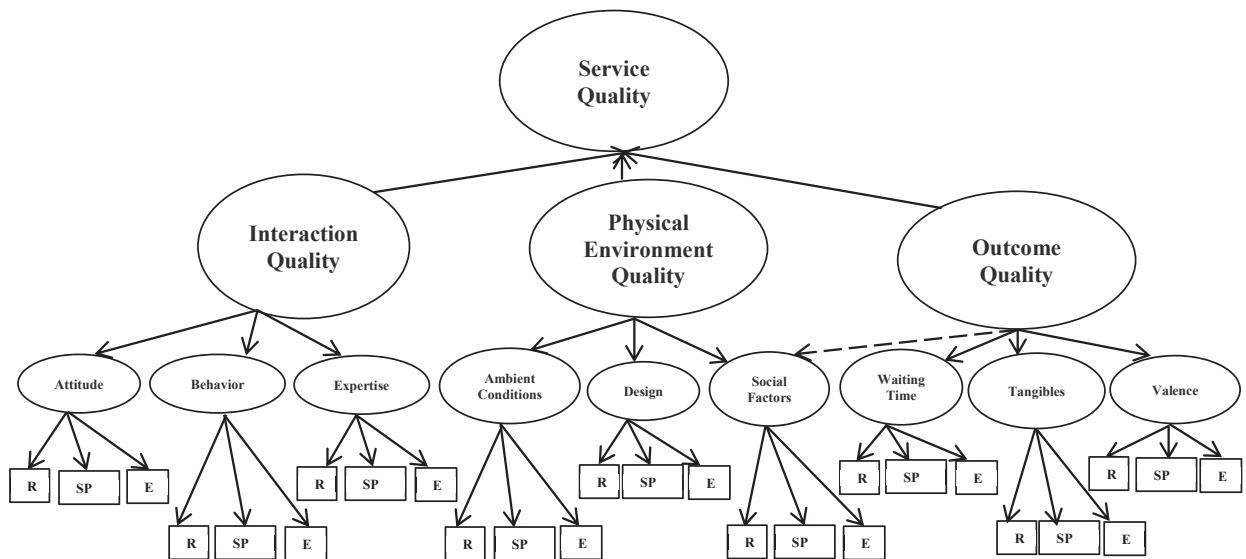**Fig. 4. The Three-Component Model (Rust and Oliver, 1988)**

Fig. 5. The Multilevel Model (Dabholkar, Thorpe, and Rentz, 1996)

R=reliability item, SP = responsiveness, E=empathy.

Fig. 6. The Hierarchial Model (Brady and Cronin Jr, 2001)

Appendix 2. A short review of main models proposed to measure service quality in offline and online

Authors	Model	Dimension measured	Factors measured
Greenrooms (1984)	CPQ	Consumer-perceived quality	Measures consumer's expectation of service compared with the customer's perception of the service actually received.
Parasuraman et al. (1985)	SERVQUAL	Service quality	Reliability, responsiveness, assurance, empathy and tangibles
Davis (1989)	TAM	Web site quality	TAM predicts that user acceptance of any system is determined by two factors: (1) perceived usefulness, and (2) perceived ease of use
Delone and McLean (1992)	IS success	Information systems quality	IS success model proposed six main dimensions: system quality, information quality, use, user satisfaction, individual impact and organizational impact

Barnes and Vidgen (2002, 2003)	Web site quality scale	Consumer perception of online experience	The scale included: usability of web site, information quality, and interaction between consumer and web site
Yoo and Donthu (2001)	SITEQUAL	Online purchasing experience	Esthetic competitive value, ease of use, design, ease of ordering, corporate and brand equity, processing speed, security, product uniqueness, and product quality assurance
Loiacono (2002)	WebQual (TM)	Web site quality	A scale incorporating 12 items of web site quality: information fit-to-task, interactivity, trust, visual appeal, innovativeness, flow/emotional appeal, design appeal, intuitiveness, response time, integrated communications, business process and viable substitute
Schubert and Dettling (2002)			Categorized the quality characteristics of e-commerce into three dimensions: (1) ease of use; (2) usefulness and trust; and (3) use of the extend web assessment method as a tool
Wolfinbarger and Gilly (2003)	eTailQ	Consumer perception of e-retailing quality	
Park and Kim (2003)		Factors influencing consumer purchase behavior	Information quality, user interface quality, and security perception play important role in online consumer purchase behavior
Lee and Lin (2005)	Revised SERVQUAL	e-Service quality	They established a scale of dimensions such as web site design, reliability, responsiveness, trust, and personalization
Zeithaml et al. (2005)	E-S-QUAL	e-Service quality	E-S-QUAL scale consists of two parts: (1) one for routine service encounters (2) an auxiliary scale for service errors (known E-ResS-QUAL)
Su et al. (2007)	e-commerce CPQ		The study identifies six dimensions: (1) outcome quality; (2) consumer service; (3) process controllability; (4) ease of use; (5) information quality; (6) web site design

Source: Adapted and completed from Gotzamanis and Trevlopoulos (2009) study.