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E-Service Quality: A Conceptual Model

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Abstract. The purpose of this article is to examine the theoretical foundations of e-service quality and develop a conceptual model for it. Even though e-service quality has increasingly attracted the attention of researchers, the existing research in this area is mostly focused on identifying quality dimensions of e-services without any deeper attention to the mechanism behind the quality perception. There is a clear need for a model which integrates both the cognitive mechanism behind quality perception as well as quality dimensions relevant in the context of e-services. The present article responds to this need by suggesting a conceptual model for this purpose. This article is based on extensive literature analysis. The proposed conceptual model of e-service quality integrates characteristics common to both traditional and e-services, distinctive characteristics of e-services, relevant e-service quality dimensions, and disconfirmation mechanism on which service quality perception is based.

Keywords. E-service, quality, electronic commerce, service quality

1. Introduction

The concept of e-service has been used increasingly by researchers and practitioners from the beginning of 2000. E-service can be defined as the electronic provision of services to customers (Saanen, Sol & Verbraeck, 1999). E-service is a Web-based service delivered through the Internet (Reynolds, 2000; Sara, 2000). According to Surjadjaja, Ghosh & Anthony (2003), an e-service operation is one where all or part of the interaction between the service provider and the customer is conducted through the Internet. An e-service has a 'front-end' Web-based systems and 'back-end' information systems. It also includes the interface between them, which has an important role in the e-service (Hopker and Hole, 2001).

There are some key differences between traditional and e-services. Also, there are differences between self-service and e-service. The differences between traditional and e-services are as follows (Surjadjaja, Ghosh & Anthony, 2003). In a traditional service, only people —the employees— are involved in the interface of the service encounter. In e-service, on the other hand, ICT or employees are involved in the interface, mediated by the Internet. Moreover, during an e-service encounter, the customers are restricted to hearing and viewing whereas, in traditional services, customers can experience the service by using all their senses. Furthermore, traditional service is restricted by distance and opening hours, whereas e-service has substantially removed these barriers. The differences between self-service and e-service relate to the following aspects (ibid.). In self-service operations, the customer has to go to ICT centre, for example cash point, to receive the service. In e-service, a customer can conveniently receive the service through the Internet at home or other places. E-service is more flexible than self-service which is constrained by the location. Also, in self-service, the

functionality of ICT is mostly customized with little personalization. In e-service, on the other hand, the functionality of the ICT is tailored to offer personalized service.

The theoretical foundations of e-service quality is reviewed and examined in the sections 2-4, and the conceptual model is proposed in the section 5. This article has the following structure. First, it examines and discusses the concept and special characteristics of e-services, and provides a concluding table on characteristics of e-services. Then, it discusses the concept of quality. Next, it discusses the concept of service quality. In this context it explains the cognitive mechanism on which the quality perception is based, namely disconfirmation paradigm. After that, it examines and discusses various research findings on e-service quality dimensions, and provides a concluding table on them. Then, based on the literature analysis, it proposes a conceptual model of e-service quality. After that, it draws the final conclusions.

The contribution of this article relates to the fact that the proposed model integrates in a holistic way various relevant factors affecting e-service quality into a single model. These factors are characteristics common to both traditional and e-services, distinctive characteristics of e-services, relevant e-service quality dimensions, and disconfirmation mechanism.

2. The Concept and Characteristics of E-Services

The existing research has identified and suggested several special characteristics related to e-services. These characteristics are discussed next. The main findings of the analysis are presented in the concluding table (Table 1).

Grönroos, Heinonen, Isoniemi and Lindholm developed the NetOffer model for the virtual marketplace (2000). In the hart of their model is the core service, such as cinema. This core service is augmented into an Internet offering with service concept, customer participation, and communication. By facilitating user-oriented communicate in the Internet marketer helps customers to purchase and consume goods and services offered in the Internet. Through this communication and assuming appropriate customer participation skills, the process quality of the Internet offering is enhanced and the customer is able to perceive the outcome quality of what is offered. Cinema services, for example, are augmented into an e-service by offering the tickets in the Internet.

Rust and Lemon (2001) explain the role of service in cyberspace. They argue that the strategy of e-service needs to be centered on the interactive flow of information between customer and the firm. The true nature of e-service is providing consumers with a superior experience with respect to the interactive flow of information. Since the Internet is the instantaneous and two-way communication link with customers several opportunities arise from this basis. These opportunities include situation-specific and personalized communication. Also, they include real-time adjustment of the firm's offering based upon customer input. Moreover, they cover collaborative product development, new opportunities for access by the customer, and new "buy" channels. Furthermore, they include an unprecedented opportunity to develop the firm's key assets—its customers.

Van Riel, Liljander and Jurriëns (2001) suggested a conceptualization of an e-service. Their model of e-service offering includes five components. They are core services, facilitating services, supporting services, complementary services, and the user interface. Core services

include, for example, journals, news, advice, display of medical books, and information on new products. Facilitating services entail, for example, archives, search facilities, help functions, online account, and browsing. Supporting services cover, for example, discussion group, knowledge test, links, and company information. Complementary services include, for example, travel information, downloading software, financial advice, and supply of medicine. The user interface, through which the customer accesses the service, is characterized, for example by design, easy to use, quick download, problem free access, and language.

According to Boyer, Hallowell and Roth (2001), e-services provide a unique opportunity for businesses to offer new models for service design strategies and new service development. Firstly, all service providers, whether they are traditional 'brick-and-mortar' or pure Internet players, now have more delivery channel options for competing. Secondly, many new services can be offered more economically with both greater geographic reach and product variety. They (ibid.) argue that there have been very conflicting results in e-services. Airlines, stock trading, and office supply retailers have benefited from the Internet and e-services, but many others have spent millions without improving delivery or cost of the service.

Heinonen (2006) developed a framework for e-service value model. In her framework, customer perceived value of e-services is defined as the perceived outcome of the trade-off of benefit and sacrifice of technical, functional, temporal, and spatial dimensions. The technical dimension denotes what the outcome of the service interaction is and the functional dimension involves customer perceptions of the process how the service interaction occurs. The temporal dimension refers to customer perceptions of the time when the service interaction occurs whereas the spatial dimension denotes perceptions of the location where the service interaction occurs. Together they represent four interconnected dimensions of e-service value.

Essen and Conrick (2008) introduced a model for developing new e-services. Their model includes three main elements. They are service concept innovation, service system innovation, and service process innovation. Firstly, service concept innovation involves the assimilation of the new technology and service. It includes clarifying the service user, i.e. the type of the service. It also includes formulating benefits relevant and acceptable to this party. It also includes determining criteria for service eligibility. Secondly, service system innovation involves comprehension and adaptation. This means distinguishing between technical possibilities and benefits in the actual context. This includes defining the role of the new technology and internal and external actors. It also includes allocation of resources and authority to support these roles. Thirdly, service process innovation involves the implementation. It includes implementing the roles and configuring the technical system. It covers extending technology executed tasks with human elements. It also includes creating routines for how personnel should act on the technology specific solutions. It also entails designing the customer's role.

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Table 1: Characteristics of e-services

Grönroos, Heinonen, Isoniemi & Lindholm, 2000	Rust & Lemon, 2001	Van Riel, Liljander & Jurriëns, 2001	Boyer, Hallowell & Roth, 2001	Heinonen, 2006	Essen & Conrick, 2008
● Core service ● Augmented Internet offering with service concept, customer participation, and communication	● Situation-specific, personalized communication ● Real-time adjustment of the firm's offering ● Collaborative product development ● Opportunity to develop customers	● Core services ● Facilitating services, ● Supporting services ● Complementary services ● User interface	● Increased options for service delivery ● New services can be offered more economically with greater geographic reach and product variety	● Value as a function of benefit and sacrifice ● Value dimensions: technical, functional, temporal, spatial	● Concept innovation ● Service system innovation ● Service process innovation

3. The Concept of Quality

There are several definitions and meanings for the concept of "quality" as discussed by Ojasalo (2006). Reeves and Bednar (1994) argue that, no universal definition of quality exists; instead, different definitions are appropriate under different circumstances. Multiple definitions are needed to capture the complexity of the of the quality construct and in order for firms to address quality issues that change as products move through various stages, from design, through production to the market (Garvin, 1984; Sebastianelli and Tamimi, 2002). The conceptualization of the quality in different companies and industries is affected, for example, by the attitude towards possessing a quality certificate and the dominance of front-room/back-room activity (Dick, Gallimore and Brown, 2001). Firms which do not consider ISO 9000 important have quality emphasis that reflects their process structure. Companies in industries where a minority of the stuff have direct customer contact emphasize internal quality (conformance quality) over external quality (interactive quality). On the other hand, companies in industries that have a majority of the staff with direct customer contact emphasize more external quality measures (interactive quality) in their quality definitions. Companies that rate the possession of ISO 9000 as important, emphasize both internal (conformance) and external (interactive) quality dimensions in a balanced way.
Quality has sometimes been defined as value (Feigenbaum, 1951; Abbott, 1955). In this definition, the price is also included in the product or services attributes that are evaluated by customers when purchasing and consuming the product or service. In other words, value is a function of results achieved for customers and costs to the customers (Heskett et al., 1994).
Quality has been understood as conformance to specifications (Levitt, 1972; Gilmore, 1974). When quality is defined as conformance to specifications then objective and measurable standards are established by the product engineers or service designers for the product/services performance and fitness for use.

Particularly in the services context, quality has usually been defined as meeting or exceeding customer expectations (Grönroos, 1983; Parasuraman, Zeithaml and Berry, 1985). This definition draws on the widely accepted idea of *customer perceived* quality or user perceived quality. According to this view, quality is whatever the customer says it is, and the quality of a particular product or service is whatever the customer perceives it to be (Buzzel and Gale, 1987).

Quality has also been defined as fitness for use (Juran, Gryna and Bingham, 1974). In such definition, quality refers to the extent to which a product successfully serves the purpose of the user.

Garvin (1984; 1987) suggested eight dimensions to understand quality. These dimensions include product-, user- and manufacturing-based approaches to quality. The product-based approach focuses on performance, features, and durability. The user-based approach focuses on aesthetics and perceived quality; and the manufacturing-based approach focuses on conformance and reliability. The eight dimensions are as follows. (1) *Performance.* Refers to the primary operating characteristics of a product. (2) *Features.* Refers to the secondary characteristics of a product that supplement its basic functioning. (3) *Reliability.* Refers to the product's probability of failure-free performance over a specific period of time. (4) *Conformance.* Refers to the degree to which a product's physical and performance characteristics meet design specifications. (5) *Durability.* Is a measure of useful product life, in other words the amount of use a customer gets from a product before it deteriorates or must be replaced. (6) *Serviceability.* Refers to the ease, speed, courtesy, and competence of repair. (7) *Aesthetics.* Refers to how the product looks, feels, sounds, tastes or smells, a matter of personal preferences. (8) *Perceived.* Refers to quality based on image, brand name, or advertising rather than product attributes, and is subjectively assessed.

Kano, Seraku, Takahashi and Tsuji (1984) categorized the quality attributes of product or service based on how well they are able to satisfy customers' needs. They introduced three categories of quality attributes. (1) *Basic attributes requirements.* These attributes often go unnoticed by most customers, since they expect these requirements to be met in the product or service, but their absence is very dissatisfying. Basic requirements are called as must-be- or expected attributes. They are also called "taken for grated quality", even though they should not be taken for granted and regarded as easy to satisfy. (2) *Performance factors* are usually in existence already. They are neutral, causing neither satisfaction nor dissatisfaction. (3) *Attractive attributes* are beyond customers' expectations. They refer to "surprising quality." Their absence does not make customers dissatisfied, but their presence excites them.

Juran, Seder and Bingham (1962) identified eight primary meanings in industry for the term quality. They are as follows. (1) *Market place quality*. This refers to the degree to which a specific product satisfies the wants of a specific consumer. (2) *Quality of design.* Refers to the degree to which a class of products possesses potential satisfaction for people generally. (3) *Quality of conformance.* Refers to the degree to which a specific product conforms to a design or specification. (4) *Consumer preference.* Refers to the degree to which a specific product is preferred over competing products of equivalent grade, based on comparative tests of consumers. (5) *Quality characteristic.* This is a distinguishing feature of a grade or product, for example appearance, performance, reliability, or durability. (6) *General excellence*. This refers to a vague expression of general excellence but without being specific enough to be classified. (7) *Function or responsibility in industry.* This refers to the name of

a function or responsibility in industry, related to achievement of quality of product. (8) *Department in organization.* This refers to the name of a specific department in a company.

4. Service Quality

As referred earlier, in the context of services, quality is often understood as subjective customer perception. Customer perceived service quality is usually understood to result from how well customer expectations are met by actual experiences/performance. This is called as disconfirmation, and is accepted by several service quality researchers (Grönroos, 1982; Parasuraman, Zeithaml and Berry, 1988; Bitner, 1990; Bolton and Drew, 1991; Gummesson, 1991; Oliver, 1993). The idea of disconfirmation has its roots in adaptation-level theory (Helson, 1948; 1964). Disconfirmation paradigm suggests that when the performance is at the same or higher level than expectations, then service quality is good or excellent. If the performance is at lower level than expectations, service quality is inferior or bad. The following simple model (c.f. Ojasalo, 2008) explains how customer perceived service quality results from disconfirmation (Figure 1).

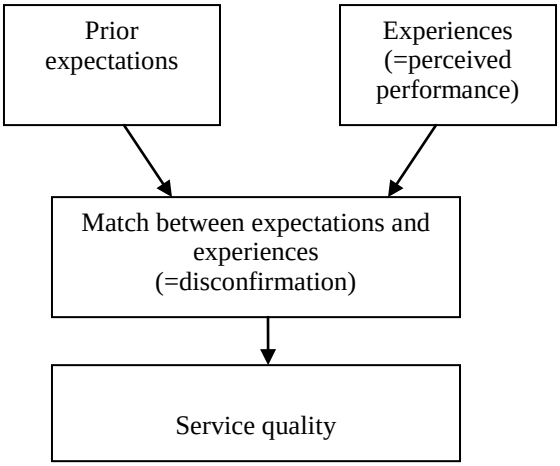

Figure 1. Customer perceived service quality

Next, two fundamental service quality models are discussed in more detail: Grönroos' and Parasuraman's et al. models. Most of the service quality models are based on these two early models.

Grönroos' model of total perceived service quality was one of the earliest frameworks to illustrate service quality (Grönroos, 1982; 1988; 1990; 2000). The model is based on the disconfirmation principle. In this model, good service quality is obtained when the experienced quality meets the expectations of the customer, in other words, the expected quality. If expectations are unrealistic, the total perceived quality will be low, even if experienced quality measured in an objective way is good. The expected quality is a function of several factors. These are marketing communication, word of mouth, company and/or local image, price, customer needs and values. Marketing communication includes advertising, direct mail, sales promotion, web sites, Internet communication, and sales campaigns. These are under the control of the service firm. The image and word of mouth

factors, and public relations, are only indirectly controllable by the service firm. They are mostly a function of the previous performance of the service firm, and supported, for example, by advertising. The needs of the customer as well as the values that determine their choice also affect the expectations. Experienced service is affected by two dimensions: a technical or outcome dimensions, and a functional or process related dimension. The former relates to the question "what," and the latter to the question "how." Outcome quality refers to what the customer is left with when the service production process and it buyer-seller interactions are over. The customer is also affected by the way in which the outcome or end result of the process is delivered to him.

Indeed, the customer is influenced by how he receives the service and how he experiences the simultaneous production and consumption process. In other words, this is close related to the customer interaction. Thus, experienced service is affected by what the customer receives, and how he receives it. Functional or process quality cannot be evaluated as objectively as the technical or outcome quality, and often it is perceived very subjectively. Grönroos' (ibid.) model of total perceived service quality also includes the image element. This is important because in most cases customers are able to see the firm, its resources, and its operating methods. In other words, service company cannot hide behind brand names or distributors. Thus, company and/or local image is very important for service companies. It functions like a filter in of the customer perceived service quality. If the service company has a favorable image in the customers' minds, then minor mistakes will be forgiven. However, if such mistakes occur frequently, the service company's image will be damaged. If the image is bad, the impact of any mistake will be grater than it otherwise would be. The function of image in service quality perception resembles what Ojasalo (1999) calls satisfaction capital of a customer relationship.

Parasuraman, Zeithaml and Berry (1985) conceptualized service quality as the relative perceptual distance between customer expectations and evaluations of service experiences. Thus, their model is also based on the disconfirmation paradigm. In their model of perceived service quality both expected service as well as experienced service is affected by ten determinants of service quality. Expected service, in addition, is also affected by word of mouth, personal needs, and past experience. The ten service quality dimensions presented in Parasuraman's et al. model are as follows (ibid., p. 47).

(1) *Reliability* involves consistency of performance and dependability. It means that the firm performs the service right the first time. It also means that the firm honors its promises. Specifically, it involves accuracy in billing, keeping records correctly, and performing the service at the designated time.

(2) *Responsiveness* concerns the willingness or readiness of employees to provide service. It involves timeliness of service, for example mailing a transaction slip immediately, calling the customer back quickly, and giving prompt service and setting up appointments quickly.

(3) *Competence* means possession of the required skills and knowledge to perform the service. It involves knowledge and skill of the contact personnel, knowledge and skill of operational support personnel, and research capability of the organization, for example in a securities brokerage firm.

(4) *Access* involves approachability and ease of contact. It means that the service is easily accessible by telephone, waiting time to receive service is not extensive, hours of operation are convenient, and the location of service facility is convenient.

(5) *Courtesy* involves politeness, respect, consideration, and friendliness of contact personnel (including receptionists, telephone operators, etc.). It includes consideration for the consumer's property as well as clean and neat appearance of public contact personnel.
(6) *Communication* means keeping customers informed in language they can understand and listening to them. It may mean that the company has to adjust its language for different consumers—increasing the level of sophistication with a well-educated customer and speaking simply and plainly with a novice. It involves explaining the service itself, explaining how much the service will cost, explaining the trade-offs between service and cost, and assuring the consumer that a problem will be handled.
(7) *Credibility* involves trustworthiness, believability, and honesty. It involves having the customer's best interests at heart. Contributors to credibility are company name, company reputation, personal characteristics of the contact personnel, and the degree of hard sell involved in interactions with the customer.
(8) *Security* is the freedom from danger, risk, or doubt. It involves physical safety (Will I get mugged at the automatic teller machine?), financial security (Does the company know where my stock certificate is?), and confidentiality (Are my dealings with the company private?).
(9) *Understanding/knowing the customer* involves making the effort to understand the customer's needs. It involves learning the customer's specific requirements, providing individualized attention, and recognizing the regular customer.
(10) *Tangibles* include the physical evidence of the service, such as physical facilities, appearance of personnel, tools or equipment used to provide the service, physical representations of the service, such as a plastic credit card or a bank statement, and other customers in the service facility (Parasuraman, Zeithaml and Berry, 1985).

4. E-Service Quality Dimensions

E-service quality can be defined as overall customer evaluations and judgments regarding the excellence and quality of e-service delivery in the virtual marketplace (Lee and Lin, 2005). Next, e-service quality dimensions identified in different studies are reviewed and discussed. The results of the literature analysis are summarized in Table 2.
Barnes and Vidgen (2002) indentified five e-service quality dimensions. They are usability, design, information, trust, and empathy. Usability relates to appearance, ease of use and navigation, and the image conveyed to the user. Design refers, for example, to attractive appearance and aesthetics. Information relates to the suitability of the information for the user’s purposes. Trust refers to reputation and safe transactions, and secured user’s personal information. Empathy relates to communication, community and personalization.
Santos (2003) identified several determinants for e-service quality. They are ease of use, appearance, linkage, structure and layout, content, reliability, efficiency, support, communication, security, and incentive. Ease of use is defined as how easy the Web site is for customers to conduct external search in cyberspace as well as internal navigation and search within the Web site. External search refers to the extent to which customers can easily find the Web site on the worldwide Web. Appearance is defined as the proper use of colors, graphics, images, and animations, together with the appropriate size of the Web pages. This is usually the first determinant observed by Web users. Linkage relates to the number and quality of links that the Web site offers. Structure and layout refers to the organization and presentation of the Web site’s content and information. Content refers to the presentation and layout of factual information and functions on the Web site. Too much information and too

little information are both negative. Reliability refers to the ability to perform the promised service accurately and consistently, including frequency of updating the Web site, prompt reply to customer enquiries, and accuracy of on-line purchasing and billing. Efficiency relates to the speed of downloading, search, and navigation. Support relates to the technical help, user guidelines, and personal advice available to customers from a Web site. Communication is defined as keeping customers properly informed and communicating with them in language they can understand. Security refers to freedom from danger, risk, or doubt (including financial insecurity) during the service process. Incentive is the encouragement given by Web providers to consumers to browse and use the Web site, including rewards for doing so.

Wolfinbarger and Gilly (2003) identified four e-quality dimensions. Their dimensions were fulfillment/reliability, website design, customer service, and security/privacy. Fulfillment/reliability refers to the accurate display and description of a product so that what customers receive is what they thought they ordered, as well as to delivery of the right product within the time frame promised. Website design includes all elements of the consumer's experience at the website -except for customer service- including navigation, information search, order processing appropriate personalization and product selection. Customer service should be responsive, helpful, willing service that responds to customer inquiries quickly. Security/privacy refers to security of credit card payments and privacy of shared information.

Ribbnink, van Riel, Liljander and Straukens (2004) bring forward five e-service quality dimensions. They are ease of use, e-scape (i.e. web site design), customization, responsiveness, and assurance. Ease of use includes aspects such as functionality, accessibility of information, ease of ordering and navigation. Besides being easy to use, the Web site should be pleasing to the eye. Thus, another quality dimension directly related to the user interface is web site design. One benefit of online technologies is that the web site can be personalized to the user's needs, even though this may be a challenging task, because of the lack of a human touch. Personalization may be done based on past purchases as well as other information provided by customers. Customers of e-services expect quick feedback on requests, and also, when they suggest improvements. Security and privacy are of great concern to e-service customers. Customer's perceived security and privacy have an important role when using e-services.

Lee and Lin identified (2005) five e-service quality dimensions. Their dimensions are website design, reliability, responsiveness, trust, and personalization. Web site design describes the appeal that user interface design presents to customers. Reliability represents the ability of the web site to fulfill orders correctly, deliver promptly, and keep personal information secure. Responsiveness describes how often an online store voluntarily provides services –for example customer inquires, information retrieval and navigation speed– that are important to its customers. Trust is defined as customer willingness to accept vulnerability in an online transaction based on their positive expectations regarding future online store behaviors. Personalization involves individualized attention, personal thank you notes from online stores, and the availability of a message area for customer questions or comments.

Parasuraman, Zeithaml and Malhotra (2005) found in their study that two different scales should be used for capturing e-service quality, the basic E-S-QUAL scale and E-RecS-QUAL. The basic E-S-QUAL scale is composed of four dimensions: efficiency, fulfillment, system availability, and privacy. Efficiency refers to the ease and speed of accessing and using the site. Fulfillment is the extent to which the site's promises about order delivery and

item availability are fulfilled. System availability means the correct technical functioning of the site. Privacy refers to the degree to which the site is safe and protects customer information. E-S-QUAL is relevant for a Web site's entire customer base. E-RecS-QUAL is a subscale of E-S-QUAL and it contains items focusing on handling service problems and inquiries. E-RecS-QUAL is salient only to customers having nonroutine encounters with the sites. It includes three quality dimensions, namely responsiveness, compensation, and contact. Responsiveness means effective handling of problems and returns through the site. Compensation refers to the degree to which the site compensates customers for problems. Contact is defined as availability of assistance through telephone or online representatives.
Raman, Stephenaus, Alam and Kuppusamy (2008) suggested six e-service quality dimensions. These are ease of use, appearance, reliability, customization, communication, and incentive. Ease of use is related to an easy-to-remember URL address, well- organized, easy in site navigability, concise and understandable contents, terms and conditions. Appearance means that the graphics, colors, and images are attractive enough to the customers. The website should also be clear and well organized. Reliability includes accurate order, updated content and keeping promises. Fast support service and availability of technical service were also included in the reliability variable. Personalization should be done in the form of individual attention. Customization should be the customization of the interface that the customer might enjoy. Communication relates to the accessibility of the website's user to communicate to the website provider and availability of various communication methods to contact the support service through the website. Incentive refers to encouragement that is given by the website provider in order to maintain their current customers and also attract the prospective users
Swaid and Wigand (2009) found the following e-service quality dimensions. They are website usability, information quality, reliability, responsiveness, assurance, and personalization. Website usability refers to customer perception of degree of user friendliness in using the website and ease of navigation. Information quality relates to customer perception of usefulness and quality of website content. Service reliability relates to customer perception of reliability of the site (for example confirmation emails, order tracking functions) and accuracy of service promises (for example delivering what is ordered). Responsiveness refers to customer perception of getting the help when needed by automated or human factors. Assurance relates to customer perception of the confidence and trust toward the website. Personalization refers to customer perception of the individualized attention and differentiated service that are tailored to meet individual's needs and preferences.

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Table 2: E-service quality dimensions

Barnes and Vidgen, 2002	Santos, 2003	Wolfinbarger and Gilly, 2003	Ribbnink, van Riel, Liljander and Straukens, 2004	Lee and Lin, 2005	Parasuraman Zeithaml and Malhotra, 2005	Raman, Stephenaus, Alam and Kuppusamy, 2008	Swaid and Wigand, 2009
● Usability ● Design ● Information ● Trust ● Empathy	● Ease of use ● Appearance ● Linkage ● Structure and layout ● Content ● Reliability ● Efficiency ● Support ● Communi-cation ●Security ● Incentive	● Fulfillment /reliability ● Website design ● Customer service ● Security /privacy	● Ease of use ● E-scape (i.e. web site design) ● Customization ● Respon-siveness ● Assurance	● Website design ● Reliability ● Respon-siveness ● Trust ● Personali-zation	Web site's entire customer base: ● Efficiency ● Fulfillment ● System availability ● Privacy For customers with nonroutine encounters: ● Respon-siveness ● Compen-sation ● Contact	● Ease of use ● Appearance ● Reliability ● Customization ● Communication ● Incentive	● Website usability ● Information quality ● Reliability ● Respon-siveness ● Assurance ● Personali-zation

5. A Conceptual Model of E-Service Quality

The purpose of this article is to examine the theoretical foundations of e-service quality and develop a conceptual model for it. The above literature analysis provided the theoretical foundation for model development. So far, based on an extensive literature analysis, this article has discussed the characteristics of e-services, the quality concept, service quality, and e-service quality dimensions. Drawing on this analysis, a conceptual model of e-service quality is suggested (Figure 2).

The above analysis revealed some aspects which are common for both quality of e-services as well as traditional services? It was found that the interaction between customer and service provider is critical in both e-services and traditional services. Also, they both include core services, facilitating services, supporting services, and complementary services. Moreover, the literature suggests that it is relevant to understand quality as customer perceived service quality –a subjective phenomenon.

The above analysis revealed also distinctive characterists of e-services. In the case of e-services, the interaction with customer is conducted through the Internet. Moreover, communication in e-services may be highly personalized based on multiple sources of information. Also, customer specific and dynamic adjustment of service offering is possible in e-serves. In addition, the service delivery is not restricted by opening hours and distance in the case of e-services. Furthermore, customers of e-services are restricted by viewing and hearing, whereas in traditional service the experience is based on all senses

The concept of quality has been defined in several ways. Since e-services are based on technology, often there is a natural temptation in this context to understand quality as conformance to technical specifications. This is one of the definitions of quality. However, from the business point of view, this may not be the best alternative. The customer always

makes the final buying decision. This is based on the overall subjective quality and value perception of the e-service offering. Thus, the most suitable theoretical foundation of quality for e-business is based on the principle of customer perceived service quality. Customer perceived service quality, on the other hand, is based on the disconfirmation principle. This means that quality results from how well the experiences service performance meet the prior expectations.

Based on the above literature analysis, it is clear that certain e-service quality dimensions are referred to in most of the studies dealing with this phenomenon. However, the terminology varies. Thus, for example, when the usability of the information presented in Web service is referred, terms such as information, content, and information quality are used. Drawing on the above literature analysis, the following eight quality dimensions can be suggested to be highly relevant in the context of e-services. They are ease of use, web site design and appearance, personalization, information, responsiveness, communication, security, and reliability. Quality dimensions affect both the customer's prior expectations towards the service as well as the actual experiences.

Ease of use refers to functionality, accessibility of information, ease of ordering and navigation in the Web service. It is also related to an easy-to-remember URL address, well-organized, easy in site navigability, concise and understandable contents, terms and conditions. Web site design and appearance means that graphics, colors, and images are attractive enough to the customers. It is also affected by how well the web site is organized. Web site should also be pleasing to the eye. Personalization should be based on the user's needs and create enjoyable interface for each user. Personalization can be based on the past purchases and other information provided by customers. Information refers to suitability of the information for the user's purposes. Quality of information is influenced by the presentation and layout of factual information and functions on a Web site. Responsiveness refers to quick feedback on requests and suggestion for improvements. What influences responsiveness, is getting help when needed by automated or human factor. Communication refers to accessibility of the website's user to communicate to the website provider and availability of various communication methods to contact the support service through the website. Security means customer's perceived security and privacy. It is freedom from danger, risk, or doubt during the service process. Finally, reliability refers to ability to perform the promised service accurately and consistently. It involves accurate orders, updated content, keeping promises, fast support service, and availability of technical service.

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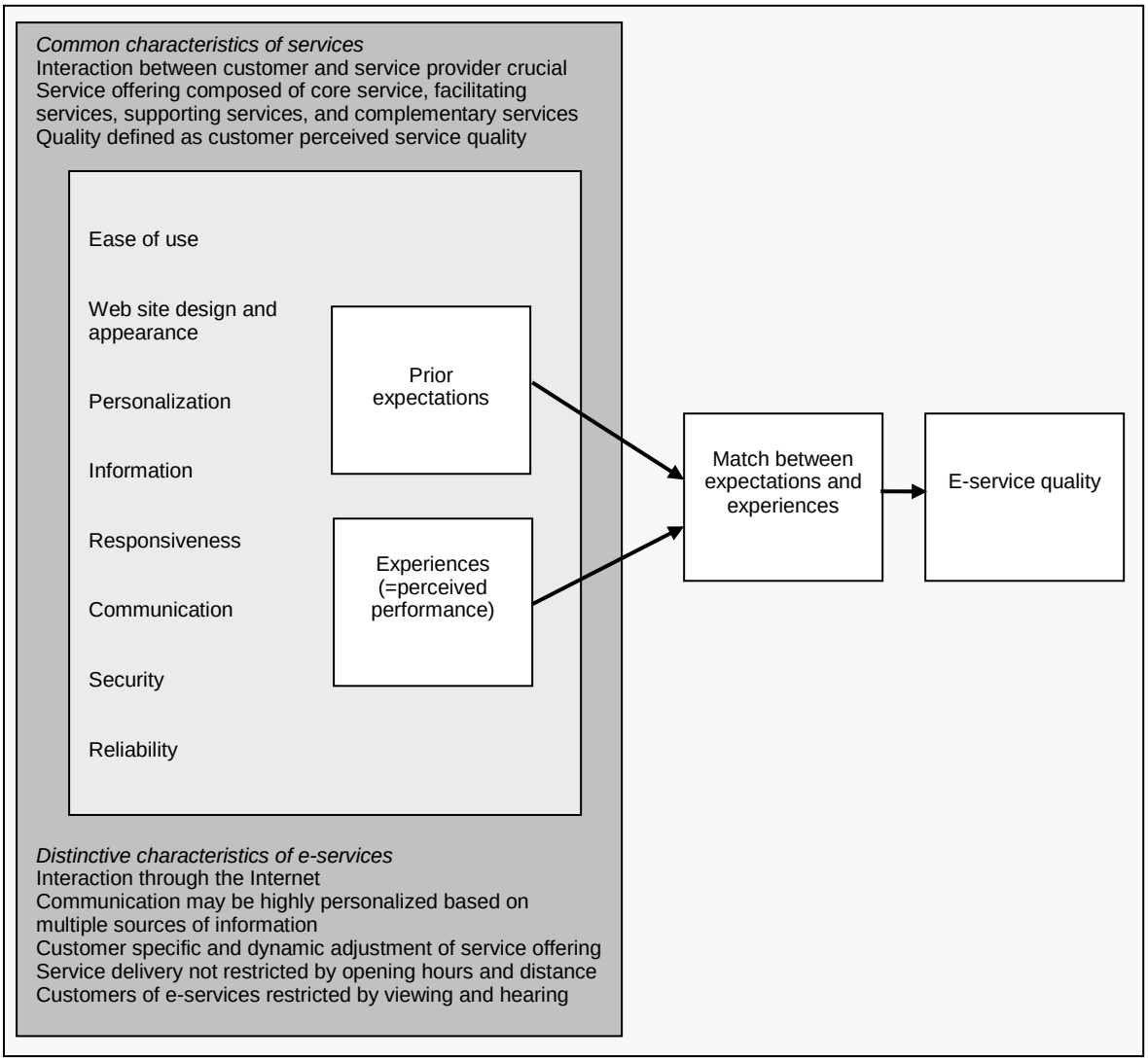

Figure 2: Model of e-service quality

6. Conclusions

The purpose of this article was to examine the theoretical foundations of e-service quality and develop a conceptual model for it. Even though e-service quality has increasingly attracted the attention of researchers after 2000, the existing research in this area is mostly focused on identifying quality dimensions of e-services without any deeper attention to the mechanism that explains quality perception. Thus, there was an evident need to develop an e-service quality model which integrates the quality dimensions and disconfirmation paradigm. This article, first, discussed the concept and special characteristics of e-services based on the

existing literature. The main findings of the analysis were presented in a concluding table. Then, it discussed the concept of quality. Next, it discussed the concept of service quality, and explained the cognitive mechanism on which the quality perception is based, the disconfirmation approach. Then, it examined and discusses various research findings on e-service quality dimensions. It also provided a concluding table on them.
After that, based on the literature analysis, it proposed a conceptual model of e-service quality. The model of e-service quality integrated characteristics common to both traditional and e-services, distinctive characteristics of e-services, relevant e-service quality dimensions, and disconfirmation mechanism on which service quality perception is based. The contribution of this article relates to the fact that the proposed model integrates in a holistic way several relevant factors affecting e-service quality into a single model.
Following alternatives for further research can be suggested based on the present study. The model proposed in this article could be tested with quantitative studies to receive information on generalizing it. Also, cross-cultural studies could be conducted to explore the role of different quality dimensions in the model in different cultural environments. Moreover, a comparative study on e-service quality between consumer and b-to-b-customers could be carried out by using the proposed model as a theoretical framework.

References

Abbott, L. (1955). Quality and competition. New York, Columbia University Press.

Barnes, S.J. & Vidgen, R.T. (2002). An Integrative Approach to the Assessment of E-Commerce Quality, Journal of Electronic Commerce Research, vol. 3(3), 114-127.

Bitner, M-J (1990). Evaluating Service Encounters: The Effects of Physical Surroundings and Employee Responses, Journal of Marketing, vol. 54 (April), 69-82.

Bolton, R.N. & Drew, J. H. (1991). A Multistage Model of Customers' Assessments of Service Quality and Value, Journal of Consumer Research, vol. 17 (March), 375-384.

Boyer, K.K., Hallowell, R.& Roth, A.V. (2001). E-Services: Operating Strategy-A Case Study and A Method for Analyzing Operational Benefits. Journal of Operational Management, vol. 20, 175-188.

Buzzel, R.D. & Gale, B.T. (1987). The PIMS principles: linking strategy to performance. New York, NY, Free Press.

Dick, G., Gallimore K.& Brown, J.C., (2001). ISO 9000 and quality emphasis. An empirical study of front-room versus back-room dominant service industries. International Journal of Service Industry Management, 12(2), 114-136.

Essen, A. & Conrick, M. (2008). New e-service development in the homecare sector: Beuyond implementing a radical technology. International Journal of Medical Informatics, vol. 77, 679-688.

Feigenbaum, A.V. (1951). Quality control: principles, practice, and administration. New York, McGraw-Hill.

Garvin, D.A. (1984). What does product quality really mean?, Sloan Management Review, vol. 26(1), 25-43.

Garvin, D.A. (1987). Competing on the eight dimensions of quality. *Harvard Business Review, vol. 66(6),* 101-109.

Gilmore, H.L. (1974). Product conformance cost. Quality Progress, vol. 7(5), 16-19.

Grönroos, C. (1982). Strategic Management and Marketing in the Service Sector. Helsinki, Finland: Swedish School of Economics and Business Administration.

Grönroos, C. (1983). Strategic management and marketing in the service sector. Cambridge, MA: Marketing Science Institute.

Grönroos, C. (1988). Service Quality: The Six Criteria of Good Service Quality. Review of Business, St. John's University, No. 3.

Grönroos, C. (2000). *Service Management and marketing. A Customer Relationship Management Approach.* England, Wiley.

Grönroos, C., (1990). Service Management and Marketing. Managing the Moments of Truth in Service Competition. Massachusetts, Lexington Books.

Grönroos, C. Heinonen, F., Isoniemi, K. & Lindholm, M. (2000). The NetOffer model: a case example from the virtual marketspace. Management Decision, vol. 38 (4), 243-252.

Gummesson, E. (1991). Kvalitetsstyrning i tjänste- och serviceverksamheter. Tolkning av fenomenet tjänstekvalitet och syntes av internationell forskning.Karlstad: Högskolan I Karlstad: Centrum för tjänsteforskning – CTF.

Heinonen, K. (2006). Temporal and Spatial E-service Value. International Journal of Service Industry Management, vol. 17 (4), 380-400.

Helson, H. (1948). Adaptation-Level as a Basis for a Quantitative Theory of Frame of Reference. *Psychological Review*, vol 55 (,November), 279-313.

Helson, H. (1964). Adaptation Level Theory. New York, Harper & Row.

Heskett, J.L., Jones, T.O., Loveman, G.W., Sasser Jr.E.W. & Schlesinger, L.A., (1994). Service-profit chain audit. Harvard Business Review, vol. 72(2), 170-174.

Hopker, O. & Hole, S. (2001). Small and medium-sized enterprises in the e-world – an application of quality standards. In. Ho, S.K & Donnelly, M. (Eds), Proceedings of the 6th International Conference on ISO 9000 and TQM.

Juran, J.M., Seder, L.A. & Bingham, R.S. (Eds) (1962). Quality control handbook, 2nd ed. New York, NY, McGraw-Hill.

Juran, J.M., Gryna, F.M. & Bingham, R.S. (Eds) (1974). Quality control handbook. New York, NY, McGraw-Hill.

Kano, N., Seraku, H., Takahashi, F. & Tsuji, S. (1984). Attractive quality and must be quality. Quality, vol. 14(2), 39-48.

Lee, G-G. & Lin, H-F. (2005). Customer Perceptions of E-Service Quality in On-Line Shopping, International Journal of Retail & Distribution Management, vol. 33(2), 161-176.

Levitt, T. (1972). Product-line approach to service. Harvard Business Review, vol 50(5), 41-52.

Ojasalo, J. (1999). Quality Dynamics in Professional Services. Helsinki, Swedish School of Economics and Business Administration, Finland.

Ojasalo, J. (2006). Quality for the individual and for the company in the business-to-business market Concepts and empirical findings on trade-offs. International Journal of Quality & Reliability Management, vol. 23(2), 162-178.

Ojasalo, J. (2008). The Concept and Nature of Quality Dynamics in Services. iProceedings of 2008 IEEE International Conference on Service Operations and Logistics, and Informatics, Vol. 2, October 12-15, 2008, Beijing, China, 3069-3074.

Oliver, R.L. (1993). A Conceptual Model of Service Quality and Service Satisfaction: Compatible Goals, Different Concepts. In Swartz, T.A., Bowen, D.E. & Brown, S.T. (Eds.), *Advances in Services Marketing and Management, 2,* Greenwich, Connecticut: JAI Press, 65-85.

Parasuraman, A., Zeithaml, V.A. & Berry, L.L. (1985). A conceptual model of service quality and its implications for future research. Journal of Marketing, vol. 49(Fall), 41-50.

Parasuraman, A., Zeithaml V.A. & Berry, L.L. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality, Journal of Retailing, vol. 64(1), 12-40.

Parasuraman, A., Zeithaml, V. & Malhotra, A. (2005). E-S-Qual: A Multiple-Item Scale for Assessing Electronic Service Quality. Journal of Service Research, vol. 7 (3), 213-233.

Raman, M., Stehenaus, R., Alam, N.& Kuppusamy, M. (2008). Information Technology in Malaysia: E-Service Quality and Uptake of Internet Banking, Journal of Internet Banking and Commerce, vol. 13(2), 1-18.

Reeves, C.A. & Bednar, D.A. (1994). Defining quality: alternatives and implications. Academy of Management Review, vol. 19 (3), 419-445.

Reynolds, J. (2000). The Complete E-commerce Book: Design, Build and Maintain s Successful Web-based Business, New York, CMP-Books.

Ribbink, D., van Riel, A.C.R, Liljander V. & Streukens, S. (2004). Confort your online customer: quality, trus and loyalty on the internet, Managing Service Quality, vol. 14(6), 446-456-

Rust, R.T. & Lemon, K.N. (2001). E-Service and the Consumer, International Journal of Electronic Commerce, vol. 5(3), 85-101.

Saanen, Y.A., Sol, H.G & Verbraeck, A. (1999). Snapshots of e-commerce's opportunities and threats. Electronic Markets, vol. 9 (3), 181-189.

Sara, L. (2000). The Electronic Commerce Market Impact. In Keyes, J. (Ed.), Internet Management, London, Auerbach.

Sebastianelli, R.& Tamimi, N. (2002). How product quality dimensions relate to defining quality", International *Journal of Quality &Reliability Management, vol. 9(4),* 442-453.

Surjadjaja, H., Ghosh, S. & Antony, J. (2003). Determining and assessing the determinants of e-service operations. Managing Service Quality, vol. 13 (1), 39-53.

Swaid, S.I. & Wigand, R.T. (2009). Measuring the quality of e-service: Scale development and initial validation, Journal of Electronic Commerce Research, vol. 10(1), 13-28.

Van Riel, A.C.R., Liljander, V. & Jurriëns, P. (2001). Exploring consumer evaluations of e-service: a portal site. International Journal of Service Industry Management, vol. 12 (4), 359-377.

Wolfinbarger, M. & Gilly, M. (2003). eTailQ: dimensionalizing, measuring and predicting etail quality. Journal of Retailing, vol. 79, 183-198.