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Service Quality Measurement: Past and Future

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Keywords: Service quality, measurement, SERVQUAL, WEBQUAL, e-ServQual

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ABSTRACT

Organizations seek to measure their quality of services as a basis for improvements. Many service quality measures from marketing, supply chain, and information systems have been formulated and tested over the last 50 years, developing generic customer satisfaction measures. This research reviews the research from the three disciplines, developing directions for future research on service quality. Suggested future research directions include a more context-specific, medium-sensitized approach to services, that is able to measure not only human services but also co-produced and machine-produced services.

INTRODUCTION

In this research a service is one or more organizational capabilities delivered through processes to provide an experience of value to a user through deeds performances, or actions (Berry, 1980; Conger, 2010; Vargo and Lusch, 2008). Service value may relate to a product, such as health care delivery, or from the meeting of some user need.

Service quality is a broadly researched area with more than 100,000 research articles found in library databases. Three strains of research on service quality relate to marketing, supply chain, and information technology. Each discipline defines 'service quality' slightly differently and the definitions change over time. In general, the focus of service quality definitions is on perceptions, delivery time, or web technology, depending on the discipline. The extent to which there is a cumulative tradition in this research is limited and, therefore, as derivatives of original scales proliferate, the research becomes of increasingly limited value. The purpose of this paper is to explore the three disciplines of service quality research to develop common themes and areas to maintain plus identify areas where current research is lacking, then to develop a research agenda for future work. Revamping of service quality research is important as services understanding is evident in social networking, transaction and other types of service activities that organizations deliver both in real-life and on the Internet. Since elements of the three disciplines are evident in Internet service delivery contexts, it is important for research to include the elements of relevance from each discipline in research.

RESEARCH REVIEW

Marketing Research

Much of the services quality research originated in the marketing discipline with seminal works by Parasuraman, Bitner, Zeithaml, Berry, and their cohort (Parasuraman, et al., 1985, 1988, 1991, 1994; Zeithaml, et al., 1988, 1996, 2000). Service quality is a perception of expected versus actual received experiences with an organization that transcends individual transaction satisfaction (Parasuraman, et al., 1988). The outcome of service quality is satisfaction, which is a "psychological state resulting [from] the emotion surrounding …" a current transaction (Parasuraman, et al., 1988, p. 27). Three main models and scales of service quality are developed in marketing research for SERVQUAL, ServPerf, and e-SERVQUAL (ESQ). Each is discussed in this section.

SERVQUAL is a gap model measuring the difference between expected and actual service quality information, design, fulfillment, and communications. The gaps are measured through a series of service attributes. In SERVQUAL, service quality is an attitude toward the sum of experience with the

organization while satisfaction relates to a single transaction (Parasuraman, et al., 1988). Eventually, SERVQUAL was expanded to include service characteristics, including responsiveness, assurance, tangibles, empathy, and reliability (RATER) (Parasuraman, et al., 1985, 1988, 1991, 1994). SERVQUAL assumes purchase transactions and that all transaction processing is the same and that media does not matter.

SERVQUAL enjoys broad application and success. Over 1,000 studies based on SERQUAL are found, covering over 100 countries and many industries. In addition, offshoots of SERVQUAL proliferate, characterizing services that compare perceived service quality to ideal measures (Mattson, 1992; Teas, 1993), customer value (Oh, 1999), and attributes relating to 'pivotal,' 'core,' and 'peripheral' elements (Philip and Hazlett, 1997). Despite its success, SERVQUAL has come under increasing criticism for lack of conceptual clarity, non-generic applicability, and difficulty of the original expectations versus perceptions approach (cf. Tate and Evermann, 2010).

The second major marketing instrument, SERVPERF, sought to simplify the SERVQUAL instrument by direct measures that reduced the number of questions (Cronin and Taylor, 1992; Jain and Gupta, 2004). Also, the notion that customer perception of quality explains more variance in service quality than gap analysis was introduced in SERVPERF. Cronin and Taylor (1992, 1994) favorably compare the gap model (Parasuraman, et al., 2002, 2004) to their perceived SERVPERF performance-only model and scales. SERVPERF enjoys modest success with over 200 studies found. In addition to not being widely adopted without modification, SERVPERF, when compared to SERVQUAL yields inconclusive results. SERVPERF appears to explain library and higher education services better than SERVQUAL (Basayraktaroglu and Atrek, 2010; Jain and Gupta (2004; Landrum, et al., 2010).

Assumptions of this research are that users are able to clearly articulate their needs and perceptions from any number of experiences and that those needs and perceptions are universal and the same across experiences. Further, like SERVQUAL, SERVPERF assumes that all transaction processing is the same and that media does not matter.

The other notable marketing instrument relates to web site quality of service: e-SERVQUAL (or ESQ). The team that created SERVQUAL also created ESQ after an exhaustive literature review, rejecting extant quantitative research on web service delivery (Zeithaml, 2000; Zeithaml, et al., 2002a, 2002b). ESQ consists of four dimensions for efficiency, fulfillment, reliability and privacy. ESQ assumes that web users are able to clearly articulate their needs and perceptions from any number of web experiences and that those needs and perceptions are universal across web uses and the same across all usage experiences. Specifically, the only Web experience assumed is product information search leading to a purchase transaction. Further ESQ assumes that all transaction processing is the same, that there is a single set of media differences for the Internet, and that all media differences are incorporated fully into ESQ.

While problems, both large and small, can be found with *any* research instrument, the service quality instruments all seem to have significant issues about which some rethinking is needed. First, SERVQUAL and eSQL have been criticized by many as having conceptual confusion, measurement confusion, and lack of contextual identify (Bayraktaroglu and Atrek, 2010; Brown, et al., 1993; Collier and Bienstock, 2006; Gilmore and McMullan, 2009; Tate and Evermann, 2010). For instance, the SERVQUAL constructs as defined mix formative and reflective measures for which no consideration or differentiation is taken in the statistical analysis, resulting in spurious and unreliable outcomes (Tate and Evermann, 2010).

SERVQUAL assumes that RATER metrics and the gaps distinguish good from poor service. That SERVQUAL does indeed differentiate something is evidenced in many studies. But, no studies are found that verify that service designated as 'poor' or 'excellent' based on SERVQUAL gap analysis, is in actuality poor or excellent. In other words, the research relies on statistics to tell the story without validating the story. SERVPERF and SERVQUAL are compared in many studies but neither is consistently more explanatory across, or even within settings (Bayraktaroglu and Atrek, 2010; Herington and Weaven, 2009).

The main shortcoming of ESQ research is that it ignores qualities of the web site and its underlying application functionality, which are germane to service delivery in a computer-mediated setting. Plus, renaming constructs, such as the change from reliability to fulfillment, confuses instrument comparability. ESQ assumes that questions on overall service quality are equivalent to asking if the user's original goal was met through the medium. It would seem that having the goal met is a more immediate metric for the satisfaction aspect of service quality. ESQ also ignores the impact of web site mediation on service delivery.

Like SERVQUAL, ESQ assumes purchase transactions are the only service delivered through the Internet. With today's technology, services for social networking, co-production, entertainment, internet relay chat (IRC), text messaging, information delivery, and many other digital services are produced. These non-purchase services exhibit unique characteristics that render the assumption of their universal interchangeability with purchase transactions suspect.

Information Technology Research

In addition to the marketing research, IT-based service quality research focuses on web site quality as providing service quality through well designed applications. Web site mediation of service quality is measured in many different ways. The most widely accepted and validated model is WebQual (Barnes and Vidgen, 2000; Loiacono, Watson, and Goodhue 2002, 2007), which identifies 12 important aspects of web site design: Information fit to task, trust, design, visual appeal, flow, business process, interaction, response time, intuitiveness, innovativeness, integrates communication, and substitutability. In addition, an alternative WebQual measure (also named WebQual) analyzes transaction quality as service delivery (Barnes and Vidgen, 2002).

The Loiacono, et al., (2007) WEBQUAL development was based on Theory of Reasoned Action (TRA, Fishbone and Ajzen, 1975) and Technology Acceptance Model (TAM, Davis, et al., 1989). A measure of web site quality, WebQual was not originally intended as a replacement for ESQ or SERVQUAL, but rather as a guide to web site developers in creating quality web sites. WEBQUAL has however shown some relationship to quality of service when delivered through a web site. As such, it is often perceived as a service quality instrument.

The Barnes and Vidgen (2000) WebQual was designed as an aid to Web site designers to improve their designs. Barnes and Vidgen (2000) developed the first version of WebQual using the quality function deployment methodology (QFD) to develop its content. This measure focused on web site and information quality eventually identifying usability, information quality, and service interaction quality as the key components (Barnes and Vidgen, 2002).

Other IT-based service models have been proposed (Berkley and Gupta, 1994; Broderick, et al., 2002; Dalholkar, 1996; Santos, 2003; Yoo and Donthu 2001; Zhu, et al., 2002). None of these studies provide the depth or breadth of instrument validation or testing of SERVQUAL and none are shown to be superior. In addition, though many of these studies use SERVQUAL (or Web Qual) as the starting point, they mostly ignore prior work, appearing to reinvent the wheel of service measurement but without the rigor of the many predecessor studies.

IT services research provides a technological aspect to service quality measures lacking in SERVQUAL and its alternatives. The criticisms of WebQual, SiteQual, and the alternatives are inattention to the details of service delivery, insufficient attention to outcomes, and use of undergraduate respondents who were not customers of the sites assessed (Connolly and Bannister, 2009; Zarei, 2010; Zeithaml, et al., 2002a, 2002b). IT-based research seems to meet its intended purpose of measuring web site quality; however, it falls short in measuring services since they were not a focus for IT-based instrument development.

Supply Chain Research

Supply chain research, also begun in the 1980s originally focused on retail supply chain delivery services. This research addresses aspects of timely goods delivery and placement by wholesalers in retail

stores, such as delivery and placement of cereal in a supermarket. Sparked by supermarkets and Wal-Mart's desire for vendors to manage their own inventory, this research developed formulae and processes to assist manufacturers and replenishment organizations to determine optimal inventories, inventory locations, and methods for inventory management at retail sites (Grosspietsch, 2004; Richey, et al., 2007; Seth, et al., 2005; Xiao, et al., 2011). While still conducted, the research was not used significantly outside of the supply chain milieu and, as a result, has not been integrated into the services quality research of other disciplines.

The supply chain discipline has several areas of service quality research: fast, accurate, timely delivery of manufactured items and reverse logistics services (return items). The first area of research focuses on delivery services in manufacturing. In this research, service quality is viewed as the reciprocal of delivery lead-time (Xiao, et al., 2011). The outcome of this type of research is an algorithm of optimal lead-time, inventory level, locations for decentralized distribution centers, partnership management, or other manufacturing issue that relates to customer delivery satisfaction (Grosspietsch, 2004, Richey, et al., 2007; Xiao, et al., 2011).

Other delivery services research develops scales to assist companies in defining quality delivery services (Seth, et al., 2005). Seven characteristics in Seth et al.'s (2005) study define service quality, including error-free service, credible staff, competent and consistent staff, status communication, flexible process, timely product delivery, and high level of human interaction. This research is the most similar to SERVQUAL but measures are unique to supply chain definitions.

Reverse logistics services relate to recovery from failed service delivery or to return of goods in retail and manufacturing. Failed service delivery results in an unsatisfied customer; thus, how firms deal with recovery from the failure affects both customer relationships with the organization and customers' future intentions toward use of the organization's service (Ha and Jang, 2009).

A different line of supply chain research borrows from marketing to develop measures of the 'total retail experience' (Berman and Evans, 1998; Heskett, 1994, 1997; Terblanche and Boshoff, 2001). The total retail experience is a combination of knowing, friendly employees, rapid service, high quality products, convenience of shopping, shopping process quality (called service quality in this research), store layout and servicescape (Berman and Evans, 1998; Heskett, 1994, 1997; Terblanche and Boshoff, 2001).

The most noticeable difference in the supply chain literature is that there appears to be less of a research tradition than in marketing. There are many research studies that develop their own algorithms for determining, e.g., optimal in-store inventory level. Even in the two recognizable sub-disciplines relating to services, measures tend to be customized to each researcher with little cumulative tradition.

Reconciling supply chain services research with that of marketing, in terms of how research is conducted, is unlikely. However different from marketing conceptions of service quality the supply chain research, some concepts seem pervasive and worth analogizing to all service situations. The concepts that appear universal are the importance of time (but related to more than product delivery), the need for full-service processing, and the importance of fit of process and staff reaction to the customer's need.

CONSOLIDATING SERVICES RESEARCH

From marketing, the most consistent aspects of service quality include dimensions of responsiveness, empathy, and assurance. From supply chain the most relevant, apparently universal aspects of service quality are the importance of time, the need for full-service processing, and the importance of fit of process and staff reaction to the customer's need. From IT research, the most relevant aspects of service quality are web site quality, information quality, and recognition that services are comprised of more than purchase transactions. With these aspects of service quality in mind, this section discusses how to go about consolidating services research to improve the measures both in explanatory and predictive performance. Three key areas for discussion and change are service differences, media differences, context differences, and service delivery differences. There is some overlap in these key areas but all can be thought of as distinct and separate as well. In the next sections, each of the key areas is elaborated.

Service Differences

Probably the most important change needed is to alter the conceptualization of service quality as a single, undifferentiated construct into the overarching definition of web service similar to the supply chain notion of total retail experience. This change would cause a renaming of the service quality construct to characteristics of the entity providing the service.

"Website user's satisfaction is … driven by web site functionality, i.e., the number and quality of functions and value-added services offered on the Internet" (Zarei, 2010, p. 7). Little attention is paid by extant research to different types of interactions. Most research assumes transaction quality of some type. But, no taxonomy of transaction or interaction types is used. Such at taxonomy would alter which questions are asked, and each question should be examined for medium effects. In addition, such a taxonomy and research would highlight key differences to the interaction types that cause differences in how services should be designed and delivered. Thus, a taxonomy of service interactions would be useful in future research to guide contextual customization of an instrument.

Media Differences

The main media of service delivery include face-to-face interaction, email, phone, Internet relay messaging (IRC or chat) and Web forms. Human interaction is direct communication between the service provider and the client, possibly with differences similar to those between face to face and phone communication due to media richness differences (Daft and Lengel, 1986; Rice, 1992).

Mediated services differ from human-offered services. Differences relating to email include expectations, delays and response times, and lack of clarity about request resolution. Similarly, Web-mediated services differ on elements of functionality, infrastructure, user interface, and possibly RATER dimensions; further, technology-mediated methods – IRC, web forms, and email -- may differ by user demographics such as age, computer efficacy, or media comfort. As a result, measures of mediated service must accommodate critical aspects of these differences.

To remedy the shortcomings of prior service quality research, the media for service delivery – human, telephone, email, IRC, and web, should be decomposed to identify component aspects that are relevant to determinations of service quality. For instance, analysis of media richness features of each medium may improve understanding of how to provide feedback and other communication about customer need status. Thus, there is a need to tease out the key aspects of each critical facet of web site, email, and human service provision to develop an instrument that directly measures service quality.

Context Differences

Another main aspect of service quality measurement relates to context. Different settings have different types of services and, therefore, may or may not support the development of a one-size-fits-all service measure. For instance, healthcare, restaurant service, banking (whether online or onground), help desk, call centers, and other forms of services differ in substantive ways in terms of *how* the service is delivered – with or without a tangible component, and *synchronicity* of service, the timings and delays between interactions. These aspects of services are known to be relevant to specific context assessment of service quality yet both are ignored by current methods of service measurement (Philip and Hazlett, 1997; Tate and Evermann, 2010).

Further, contextualizing service concepts may lead to more accurate service design. For instance, in e-commerce, service and system quality are used interchangeably and no known research has teased out the nuances of their differences.

Service Delivery Differences

Real world and Internet-based service delivery differ in substantive ways and, therefore, should not be measured by the same criteria. Real world aspects of services delivery include servicescape, product quality, product availability and selection, store layout, and service quality (Bitner, 1990;

Stodnick, 2004), are well-understood constructs that can be retained and continued use. However, Internet-based services delivery differs in substantive physical, psychological, and emotional ways from real-world experiences. As a result, attention to some of the aspects of web sites and Internet media that measure these differences should be included in surveys of Internet-based services.

Internet-based service delivery includes aspects of the underlying application, user interface design, navigation, information quality, and service quality (Davenport, 2005; DeLone and McLean, 2003; Guimaraes, et al., 2009; Nielsen, 1994, 2000, 2005; Petter, et al., 2008; Price and Shanks, 2004; Wathen and Burkell, 2002; Zhang and von Dran, 2002). The aspects of each item and their importance can fluctuate over time and shift for a given user from one use of a web site to another (Zhang and von Dran, 2002). Web sites are assumed to be the primary method of Internet-based interactions.

Further, service quality outcomes span more than just customer satisfaction and should include other possible outcomes, satisfaction of the original motive (e.g., problem solves via help desk support) such as intentions to continue to use the service, intentions (or actual) word of mouth advertising of the service, and possible social media participation about the service (East et al. 2008; Huang 2008; Kozinets, et al., 2010; Loiacono, et al., 2002; Preece, 2000; Zhang and von Dran, 2002) Often these are viewed as outcomes of service quality rather than independent measures of service quality aspects (Haywood-Farmer, 1998; Brogowicz, et al., 1990; Dalholkar, 1996; Spreng and Mackoy, 1996). These measures of service quality outcomes should be consistently used regardless of medium and should be evaluated for independence of the measures (general and specific) and also for moderating and mediating influences on each other. Such evaluation would begin to bring some resolution to the notions of various authors about the relationships of generic service quality to other outcomes (cf. DeLone and McLean, 2003).

FUTURE RESEARCH CONSIDERATIONS

There are three important themes in this literature review. First, context matters. Without attention to contextual differences of services, the measurement of service quality does not support service improvement that could provide competitive advantage. Second, development of generic service measures seems to be an unmet goal. As technology has changed, delivery methods and innovations on what it means to be a 'service' also have changed. As a result, generic measures that might have been accurate when developed, no longer are adequate for measuring services quality. Third, without integrating the streams of research from all disciplines, measures will continue to ignore the breadth of issues that comprise service quality even though service offerings across disciplines appear to be converging as Internet-based services. Next, media varieties exhibit different characteristics and elicit different user responses. As a result, service quality research should account for media differences for media used in service delivery. Last, much useful work has been developed in the three disciplines evaluated in this research. As a result, research scales, definitions, and methods relating to responsiveness, empathy, assurance, time, full-service processing, fit of process to task, web site quality, information quality, and service quality all should be maintained in future services research. The scope of research will be quite broad and complex at first, but this breadth and complexity should lead to development of comprehensive and, eventually, parsimonious service quality measurement instruments.

Some research shows that internal service perceptions relate directly to external/customer service perceptions (Lau, 2000; Stodnick, 2009). Yet, no research links the use of frameworks for developing services (e.g., ITIL) to service quality. This is an area that needs research and may alter perceptions of service quality as well.

"In developing global beliefs about their satisfaction customers will place nearly equal weights on all five of the total retail experience dimensions: product quality, product availability and selection, service quality, store layout and servicescape" (Stodnick, 2004, p. 198). The message here is to spend equally on these five aspects of physical service delivery contexts. The analogous message for Web services is to spend significant time on Web service processes, Web site layout and navigation, and the aesthetics of Web design as the online servicescape. No research known evaluates the extent to which

these aspects of Web sites affect perceptions of service quality. Further, though some studies do evaluate the interaction of on-ground services, such as product delivery delay, to on-line transaction service, no service quality outcomes for changes to Web aspects of work have been developed.

CONCLUSION

A service is a situated process that includes its context, governance, and defined delivery quality. Three disciplines of service quality research were evaluated and found lacking in some area. In general, there is a need for significant rethinking of measures of service quality as aspects of service quality extend far beyond gaps the original research on gaps, delivery time, and web site quality. From past research constructs recommended to be used in future research include responsiveness, empathy, assurance, time, full-service processing, fit of process to task, web site quality, information quality, and service quality. From analysis of problems and gaps between service offerings and their milieu, new constructs and measures for web site quality, information quality, media, context, and service quality should be developed.

Service quality is a difficult concept to define as its meaning is idiosyncratic to individuals, the usage context, and the mediated environment. Ultimately, service quality is the extent to which the service is satisfactory in providing successful completion to a desired need. Service quality is evidenced in outcomes, including customer satisfaction, word of mouth, intentions to continue using the web site, and participation in social networking sites. Future research should develop taxonomies of types of services and media characteristics to inform new research.

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