

Exploring the Factors Associated With Quality of Website

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Miss. Kausar Fiaz Khawaja¹, Dr. Rahat Hussain Bokhari²

Abstract-Web portals are considered as a way, for providing information about product/services to the customer. Many instruments have been developed to measure business/general website quality, and its impact towards customer satisfaction. But there is a need to examine the factors associated with the quality of university website. Present study developed and validates 30-items instrument for measuring student satisfaction. Task based approach was adopted and 123 usable questionnaires were collected. The analysis indicates that instrument is a nine-factor model, including: reliability, navigability, responsiveness, efficiency, functionality, ease of use, usefulness, information accuracy and web appearance. Only last four factors are significantly related to student satisfaction. It was noted that student use university portal: for getting information, prefer to use it frequently if it is easy to use, and apparently look good.

Keywords-Website quality, Student Satisfaction, Task analysis

I. INTRODUCTION

Today world is experiencing an IT revolution due to the wide spread of internet, web technologies and software application. An increase in the usage of technologies can be seen within the organizations of various types and sizes, resulting in the integration of web technologies and operations (Currie, 2000; Poon & Swatman, 1999; Westland & Clark, 1999; Teo & Tan 1998). Through web, organization can get in touch with customers and provide not only information but can also sell goods and services online. Basically website incarcerates the attention of those people who know very little about the company and are interested in it. It tells users what company is doing within the perspective of the industry in which it is competing (Iwaarden et al., 2004). Some websites are developed by organizations that require logo, color scheme, animated graphics, mouse-over effects, graphic art, connectivity with the databases and several other requirements. Hence resulting, high costs and tough time competing (Iwaarden et al., 2004). Other are developed over the weekend, not connected to large database, and had no standards. For the organizations that are successful in selling over the internet, require websites that are attractive, full of standards and offer excellent services on the web (Chiagouris & Wansley, 2001). Service provided by web sites is different from customary ones as it involves human interactions (Loiacono

et al., 2002; Wang, et al., 2001; Yoo and Donthu, 2001; Cho and Park, 2001; zeithaml and parasuraman, 2001) i.e. 1. Connection between customer and online employees, 2. Relationship between customer and website, and, between users and employees via forums and e-mail etc (Zhang and Dran, 2001 & 2002; Liu and Arnett, 2000; Bell and Tang, 1998). Inorder to make this relationship stronger the quality issue of web has to be discussed, which include designing and integration between traditional and web quality (Yang et al., 2005). In past researchers (Huizingh, 2000; Liu & Arnett, 2000) investigated the quality of website by involving students in their study. But the present study empirically test factors that add quality to University web site and measures its impact towards student satisfaction. The purpose of research is to explore:

- I. Which factors determine the University website quality?

II. LITERATURE REVIEW

Services are intangible in nature, cannot be measured, counted, and tested. They are heterogeneous, and its value changes from customer to customer (Zeithaml, 1981; Beteson, 1977). It is difficult for the organization to evaluate the quality of services they are providing to their customers i.e. with zero defects and in time delivery. In past, researchers have studied the aspects of service quality in traditional situation (Kettinger and Lee, 1997; Hedvall and Paltschik, 1989; Parasuraman et al., 1988). But due to technology these traditional service quality factors were re-analyzed. Now the question arises: Is traditional service quality factors can be applied to online context; as it contains some unique features like: distant communication and the Web as an information system (Cox and Dale, 2001)?

1) Dimensionality of Web quality

Many studies have been conducted to explore customer perception towards website quality (Barnes et al., 2001; Loiacono, 2000; McGoldrick et al., 1999). It was found that company's website is a key tool for communicating and attracting customers. It is an interface provided to internet users for searching information or buying product/services (Kim and Stoel, 2004a). Present study identified nine University WEBQUAL dimensions i.e. reliability, navigability, responsiveness, efficiency, functionality, usefulness, ease of use, accuracy and web appearance. It is said users prefer website that provide accurate, update and reliable information. Riseley, and Schehr (2000) reported that website reliability is something that deals with the

¹About - PhD Scholar - Department of Technology Management International Islamic University, Islamabad, Pakistan. Kausar.khawaja@gmail.com

²About - Director - Computer Centre Quaid-i-Azam University, Islamabad, Pakistan bokhari_bokhari@yahoo.co.uk

convenience company is providing to its customer, in the form online information, online purchases. Basically reliability revolves around consistency and dependability a website provide to a customer by helping them in performing their work in time. Hence an increase in reliability of organization can be seen as they provide accurate information and record keeping in systemic order (Parasuraman et al., (1985). Moreover users prefer websites which are quick and give prompt services. Iwaarden et al., (2004) reported that 70% users' leave the website if the page response exceeds 12 seconds. Because of technological advancement, people prefer websites that are quicker, visually appealing, and easy to use. Study conducted at Manchester school of Management, developed an instrument for measuring WEBQUAL by adapting the SERVQUAL instrument (McGoldrick et al., 1999). Based on literature review and focus group data, instrument of 22 items was designed to evaluate the service quality of university website. Factor analysis showed that four factors (user-friendly design, marketing communication, information management, and maintenance) influences user perception towards website quality. These dimensions could be differing with respect to the website. After a year Liacanno (2000) proposed 12 unique dimensions to measure website quality for selling goods and services to the user.

Originally 14 dimensions were selected, as a result of indepth review of market and IS research 12 dimensions shows significant result towards purchase intention. Yang et al., (2005) measured business web quality on the basis of five-dimension: usability (ease of use), usefulness of content, adequacy of information, accessibility, and interaction. A scale development procedure was used to develop an instrument that measured users perceived service quality of web portals. Each construct verified a positive impact towards overall service quality, which further leads to customer satisfaction. Liu et al., (2009) conducted a study to develop an instrument to measure general portal quality. Four factors (usability, privacy and security, adequacy of information, appearance) were identified, among which adequacy of information and appearance contribute significantly towards customer satisfaction. As general portals attract more visitors, hence a good design and accurate information appeal more users. In past 10 years, many researchers examined website quality and found it multidimensional, depending upon its type and users. Present study develops an instrument to measure university website quality, using task based approach. Table 1 summarizes university web quality dimensions and supporting reference.

Table 1: Major web quality dimensions

Dimension	Sample support reference
Reliability	Barnes and Vidgen (2001), Zeithaml et al. (2001), Wolfenbarger and Gilly (2003), Webb and Webb (2004), Iwaarden et al., (2004), Lee and Kozar (2006), Aladwani and Palvia (2002), Zeithaml(2002), Madu and Madu (2002), Albuquerque and Belchior (2002), Wan (2000), Devaraj et al. (2002), Iwaarden et al., (2003)
Navigability/Empathy	Madu and Madu (2002), Wan (2000), Palmer (2002), Cox and Dale (2002), Lee and Kozar (2006), Iwaarden et al., (2004), Aladwani (2006), Webb and Webb (2004), Romm, Smith and Eroglu (2009), Devaraj et al. (2002), Barnes and Vidgen (2001), Wu et al., (2003), Iwaarden et al., (2003), Cao et al., (2005), Nusair and Kandampully (2008), Jayawardhena and Foley (2000)
Responsiveness	Madu and Madu (2002), Wan (2000), Zeithaml(2002), Palmer (2002), Iwaarden et al., (2004), Lee and Kozar (2006), Jun et al., (2009), Webb and Webb (2004), van Riel et al. (2004), Zeithaml et al. (2001), Kaynama and Black (2000), Jeong and Lambert (2001), Devaraj et al. (2002), Palmer (2002), Iwaarden et al., (2003), Aladwani (2006), Cao et al., (2005), Nusair and Kandampully (2008)
Efficiency	Zeithaml et al. (2002), Parasuraman et al., (2002), Parasuraman et al., (2005), Olsina et al.(1999), Araban and Sterling, (2004), Zeithaml et al. (2001), Lin et al., (2010), Lucia and Robaina (2005), Albuquerque and Belchior (2002), Wu et al., (2009)
Functionality	Chung and Law (2003), Liang and Law (2003), Yeung and Law (2004), Law and Hsu (2005), Bai et al., (2008), White and Manning, (1998), Liu et al., (2000), Liu and Amett (2000), Mistic and Johnson (1999), Olsina et al.(1999), Albuquerque and Belchior (2002), Wu et al., (2009), Law and Bai (2008)
Usefulness	Devaraj et al. (2002), Koufaris (2002), Loiacono et al. (2002), Davis (1989), Kim and Stoel (2004b), Cho and Fiorito (2009), Davis (1989), Gefen et al. (2003), Cao et al., (2005), Jeong and Lambert (2001)
Ease of use	Yoo and Donthu (2001), Madu and Madu (2002), Liu and Amett (2000), Jeong and Lambert (2001), Barnes and Vidgen (2000), Olsina et al.(1999), Davis (1989), Raykov (1997), Saraph et al., (1989), Seddon (1997), Adams et al., (1992), DeLone, and McLean (1992), Devaraj et al. (2002), Argawal and Venkatesh (2002), Koufaris (2002), Loiacono et al.(2002), Aladwani and Palvia (2002), Chen and Wells (1999), Kim and Stoel (2004b), Cho and Fiorito (2009), Gefen et al. (2003), Sweeney and Lapp (2004), Romm, Smith and Eroglu (2009), Cao et al., (2005)
Information accuracy	Aladwani and Palvia (2002), Barnes and Vidgen (2000), Jeong and Lambert (2001), Kaynama and Black (2000), Liu and Amett (2000), Loiacono et al. (2002), Ranganathan and Ganapathy (2002), Bell and Tang (1998), Heath (1997), Longwell (1999), Mistic and Johnson (1999), Rowell, Kessler and Berke (1999), Schubert and Selz (1999), Argawal and Venkatesh (2002), Barnes and Vidgen (2001), Palmer (2002), Wu et al., (2003), Chen and Wells (1999), Cao et al., (2005), Zeithaml et al. (2001)
Web appearance	Angelo and little (1998), Heath (1997), Huizingh (2000), Mechitov et al., (1999), Mistic and Johnson (1999), Morti (2000), Schacklett (2000), Schmeiser (1999), Kim and Stoel (2004a), Liu et al., (2009), Aladwani and Palvia (2002), Cox and Dale (2001), Yoo and Donthu (2001), Wu et al., (2003)

2) Website quality and satisfaction

Website plays an important role in creating a connection between customer and organization. To strengthen the relationship, company offers quality interface to users. Hence providing a way using which customers could attain satisfaction with the company service. Researchers in past developed different instruments to measure customer's satisfaction, using which companies can explore: service factors that satisfy the customers and which dissatisfies them? McQuitty et al., (2000) and Erevelles and Leavitt, (1992) reported satisfaction as one of the important construct and main objective of marketing. Oliver (1997) defined satisfaction as "the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with a consumer's prior feelings about the consumer experience". Basically satisfaction is a way for evaluating customer expectation and needs towards product or services. It helps in building customer trust, increase positive word of mouth, and helps in predicting customer purchase behavior (Flavian et al., 2006; Bhattacharjee, 2001; McQuitty et al., 2000). Studies conducted over user satisfaction, measured quality of a service to satisfy user. Basically quality is a process of evaluating error free, in time delivery and cost effective service. A conceptual model of e-service quality dimensions

was proposed by Santos (2003), where user satisfaction and service quality were separately measured; and resulted that satisfaction is influenced by service quality dimensions (Oliver, 1993; Zeithaml and Bitner, 2000). Based on the literature review, a conceptual framework (Figure: 1) has been developed and the following hypothesis has been proposed

H1: There is a positive relationship exist between University website quality dimensions and Student satisfaction.

III. METHODOLOGY

Different research methods are used as a tool for extracting the result, and among them four are considered as the major classification of research design i.e. observational research, Correlational research, True Experiments, Quasi-Experiments. Among these, the research method used for the paper is Observational research, out of which survey method is used. Wikipedia define surveys as "aprocess to collect quantitative information about items in population". It is divided into two categories: questionnaire and interview. Questionnaire (also known as instrument) is a collection of questions asked from respondents, to evaluate a particular subject.

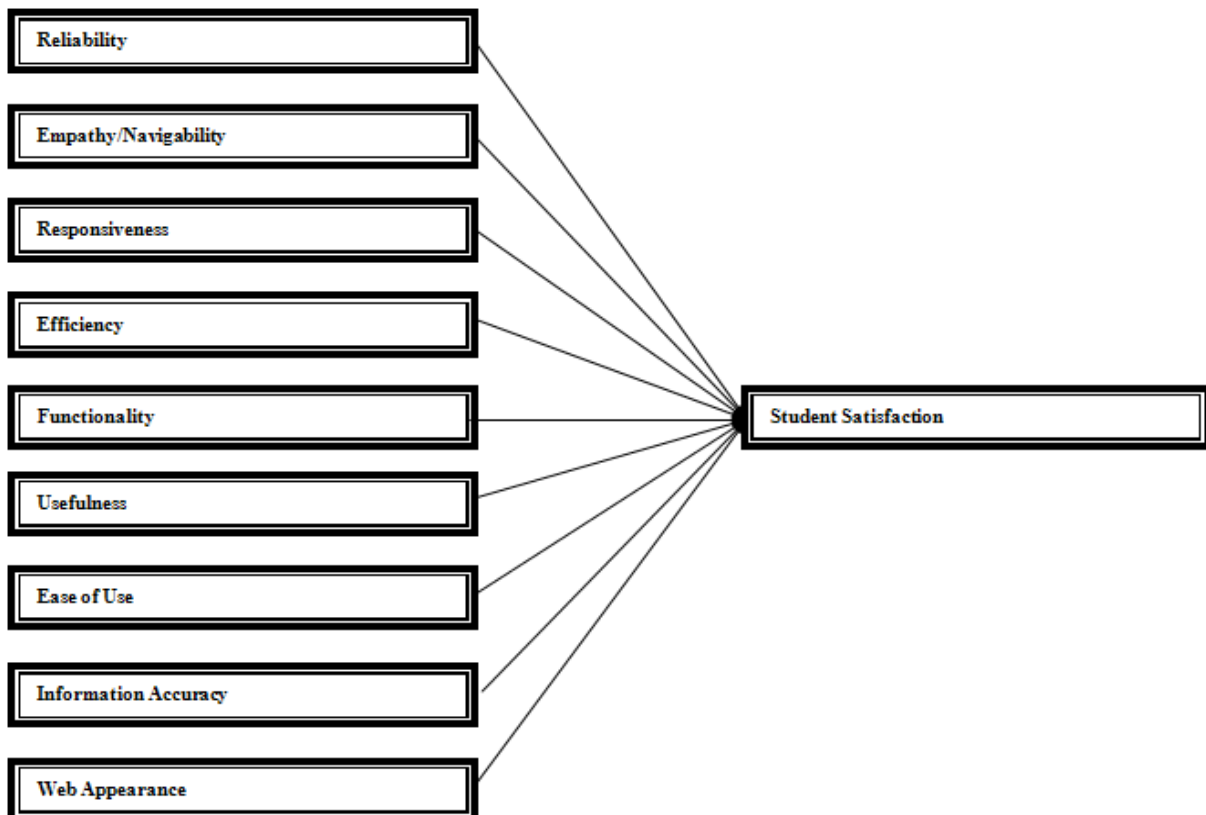


Figure 1: Conceptual Framework of University Website Quality and Student

3) *Study two*

In second study the refined instrument of 30-items was used and was distributed among the respondents, using Task based approach. A total of 150 responses were collected, of which 123 were usable. Exploratory factor analysis was conducted again, to recheck the instrument, and was found successful. Reliability analysis was then conducted. According to online dictionary Reliability measures the

consistency of the instrument, and ensures that it will measure in the same way each time it is used under the same condition with the same subjects.” Cronbach’s α for each factor had to be greater than 0.7 to ensure reliability. Luckily reliability values for all the factors were greater than 0.7 (shown in Table: 3).

Table 3: Results of factor Analysis (study 2), Cronbach Alpha and Regression Analysis

Factors	Item	Factor Loading	Cronbach α	β value	t-value	Sig.
Reliability	SQ 1	0.803	0.842	-0.117	-1.653	0.101
	SQ 2	0.751				
	SQ 3	0.751				
	SQ 4	0.88				
Empathy	SQ 5	0.726	0.852	0.045	0.846	0.399
	SQ 6	0.71				
	SQ 7	0.679				
Responsiveness	SQ 8	0.857	0.851	0.066	1.088	0.279
	SQ 9	0.877				
	SQ 10	0.76				
Efficiency	SQ 11	0.808	0.849	0.055	0.719	0.474
	SQ 12	0.892				
	SQ 13	0.881				
Functionality	SQ 14	0.877	0.849	0.026	0.376	0.708
	SQ 15	0.904				
	SQ 16	0.875				
	SQ 17	0.819				
Usefulness	SQ 18	0.822	0.84	0.317	5.59	0.000
	SQ 19	0.933				
	SQ 20	0.812				
Ease of use	SQ 21	0.913	0.826	0.178	2.059	0.042
	SQ 22	0.906				
	SQ 23	0.849				
Information Accuracy	SQ 24	0.937	0.870	0.248	4.648	0.0000
	SQ 25	0.806				
Web Appearance	SQ 27	0.653	0.855	0.519	8.619	0.000
	SQ 29	0.672				
Satisfaction	SAT1	0.914	0.826			
	SAT2	0.937				
	SAT3	0.933				

$$R = 0.914, R^2 = 0.836, \text{adjusted } R^2 = 0.823, F = 63.893, p < 0.000$$

4) Multiple Regression

Multiple regression analysis was employed for investigating the relationship between the service quality factors and student satisfaction. Table 3 depicts significant F value and 91% strong relationship, with adjusted R^2 of 0.82; indicating that 82% variance in student satisfaction has been explained by WEBQUAL factors. Looking into the relationship between factors individually, it was found that positive relationship exist only between *usefulness*, *ease of use*, *information accuracy*, *web appearance* and satisfaction. Based on β values, more importance was given to web appearance (0.519) followed by accurate information on the portal (0.248), usefulness (0.317), and ease of use (0.178). Other factor did not contributed significantly towards the student satisfaction for university portal.

IV. DISCUSSION AND CONCLUSION

Factor analysis was conducted to evaluate the consistency, stability of the instrument, i.e. it can measure the service quality of university website plus its effect on student satisfaction. Nine University WEBQUAL dimensions were identified (*reliability*, *navigability*, *responsiveness*, *efficiency*, *functionality*, *usefulness*, *ease of use*, *accuracy*, *web appearance*) which were different from the instrument developed for general/business/E-commerce portals, where items related to Technical adequacy, up-to-date web content, Usability, Privacy and security and Appearance were found to be important. The analysis of present research indicates that only last four WEBQUAL factors were significantly related to student satisfaction, depicting that respondents use university portal: for getting information, prefer to use it frequently if it is easy to use, and apparently look good. In contrast the first five factors show an insignificant impact towards satisfaction. When investigated found that dissatisfaction was due to incomplete details of programs, courses and fee structure; no tab of FAQ was found for handling the queries and resolving the problem; and it is not easy to find what one need on the website. The relationship between service quality and customer satisfaction is different for business and E-commerce portal. These websites focuses more towards ease of navigation and security issues in order to attract the customers, whereas general portals and online blocks deal mainly with the appearance, information adequacy, usability, and ease of use. This study helps web developers to design an effective university website and develop its functions accordingly.

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