

The Role of Quality in Online Higher Education

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Approximately 7.1 million college students have taken at least one online course (Allen and Seaman, 2014), which indicates an increase of 12% since 2011 (Wisloski, 2011). This study examines the generalizability and nomological validity of the E-S-QUAL scale, originally developed in 2005 by Zeithaml, Parasuraman and Malhotra for assessing e-service quality in higher education. Data collected from online college students from a US university show satisfactory fit of the model to the data and indicate the 20-item E-S-QUAL scale can be adapted as a standardized method of online program quality assessment. Important impacts of the measure's utility are discussed.

INTRODUCTION

65.5% of universities are citing online programs as critical to their long-term strategic plans (Wisloski, 2011) to support the more than 5.3 million online learners (Haynie, 2015). Online education has gone beyond traditional instructional boundaries due to the sharing of knowledge via electronic communities and the ability to study anytime, anywhere. Benefits of online education include allowing students the opportunity to learn at their own pace and style, while saving the student travel time and money. The use of e-learning is argued to enhance the individual learning process and empowers students (Abdous, 2009; Raj, Walters and Rashid, 2009). Over 50% of U.S. students are returning to higher education after having worked or while currently working due to its increased mobility, accessibility, immersive learning capabilities, as well as cost and time savings (Hiltz and Shea, 2005).

The online instruction format has created a new market for universities. As a result, the #1 priority of online higher education is to obtain and maintain a consistently high level of quality that will enhance the effectiveness of the university via increased online student enrollment and retention (Alves, 2011). Currently making headlines are some online-only universities, who are seeing dramatic double-digit decreases in enrollment due to government inquiry into questionable practices and issues related to quality oversight (Haynie, 2015). Ehlers (2004) and Frydenberg (2002) highlight the importance of categorizing the various quality dimensions of online learning as learners are exposed to multiple quality touch-points prior to, during, and after the completion of online learning. Recently, research has advanced into highly-focused, quantifiable measures of online higher education program/course quality as it

pertains specifically to the preparedness and quality control of faculty (Parscal and Riemer, 2010), and rigor of instructional design, web design and course presentation (Chao, Saj and Tessier, 2006). In addition, numerous quality assurance programs have been launched to assess overall online program, course, faculty, and student interaction quality (Shelton, 2011): the Institute for Higher Education Policy's Benchmarks for Success, Khan's Eight Dimensions of e-Learning Framework, and the Sloan Consortium's Five Pillars of Quality provide comprehensive online education quality assessment benchmarks (Shelton, 2011).

The relationship between service quality and improved performance can provide a competitive advantage by repeat sales, positive word-of-mouth, customer loyalty, and competitive product differentiation (Brown and Swartz 1989; Sherden, 1988). University administrators view the development of online education as a requisite for providing the education process on demand, reaching a broader demographic, and sustaining that competitive edge in a competitive education market (Wisloski, 2011). The implementation of online education is met with a fear of the unknown, and concern over implications of organizational changes. This being stated, concerns over the future have not hindered online educators entering the mainstream. Approximately 63% of colleges and universities offering traditional undergraduate courses now also offer online degrees (Allen and Seaman, 2005). However, the quality question remains. Research has applied quality assessment for other online service providers. Zhu and Lin (2010) concluded that service quality within the online banking industry exerts an indirect influence on loyalty. Siu, Zhang, and Lam (2010) extracted five factors: trust, web site design, reliability, personalization, and responsiveness from within the online ticketing industry. Of these five factors, results showed that all were positively related to customer satisfaction, with responsiveness having the strongest relationship. Chao, Lee, and Ho (2009) extracted e-service quality, customer satisfaction, trust, and e-loyalty. Their findings show that service quality has a positive relationship with customer satisfaction also from the banking industry.

Research to-date has assessed online higher education in terms of pedagogy, instructor-student collaboration, assignment/project appropriateness, virtual educational delivery and social ramifications of online versus traditional higher education formats (O'Neill, Singh, and O'Donoghue, 2004; Raj, Walters and Rashid 2009; Unwin, 2003). Alternatively, universities are increasingly becoming concerned with more global assessments of quality and performance. As noted by Hammond, Webster, and Harmon (2006), "Baldrige Education Criteria for Performance Excellence" and AACSB-International accreditation standards both use marketing terms via journals (such as the *Journal of Marketing for Higher Education*) and conferences (such as MMA's annual Fall Educator's Conference) to provide guidance for practitioners and academics.

E-S-Qual

Parasuraman, Zeithaml, and Berry (1985) developed SERVQUAL, a scale that has been applied to a vast array of traditional face-to-face service industries (e.g., SERVQUAL evaluates a company based on five dimensions: tangibles, reliability, responsiveness, assurance, and empathy). While SERVQUAL works well in face-to-face business encounters, online sales require a different set of measures entirely. In a brick-and-mortar setting, customers may extract a certain sense of comfort in being able to interact with an employee and put a face with their purchase experience, whereas online transactions may be more likely to produce feelings of vulnerability (Zeithaml, Parasuraman and Malhotra, 2005). Accordingly, the authors suggest that customers' assessment of a web site's quality includes not only experiences during their interactions with the site, but also post-interaction service aspects (i.e., fulfillment, returns) (2005). Frydenberg (2002) categorizes defined policies, procedures and fair and informative communication as "delivery quality" from the perspective of the learner. The E-S-QUAL measure broadly assesses the extent to which a web site facilitates efficient and effective shopping, purchasing, and delivery (Zeithaml, et al 2005). The 22-item scale has four dimensions: efficiency (i.e., Is navigation easy? Can transactions be completed quickly? Does the website load fast?), fulfillment (i.e., Are orders delivered as promised and offers described truthfully?), system availability (i.e., Is the site always available? Does it launch

right away?), and privacy (i.e., Information privacy is protected and personal information is not shared with other sites).

For the purposes of this study, all items were adapted for an online education setting. Two items for the fulfillment dimension were removed initially due to the inability to adapt them to the online higher education setting while maintaining the integrity of the questions. For these reasons, “it sends out the items ordered” and “it has in stock the items the company claims to have” were removed prior to initial scale administration. Responses for the remaining E-S-QUAL’s 20 items are given on a 5-point strongly disagree to strongly agree Likert-type scale.

The four dimensions of ESQ as assessed by E-S-QUAL: efficiency, fulfillment, service availability and privacy (Zeithaml, et al, 2005). Efficiency refers to the simplicity and quickness of entering and using the site (Zeithaml, et al 2005). The variable of fulfillment recognizes the extent to which the site’s claims about order delivery and item availability are fulfilled (Zeithaml, et al 2005) and may also refer to the ability of the site to meet the user’s expectations. The correct technological performance of the site is analogous to system availability (Zeithaml, et al 2005). Privacy is the level to which the site is safe and protects customer information (Zeithaml, et al 2005). The privacy of a site can have a significant impact on the level of security felt by users.

Self-report data was collected from undergraduate and graduate students at a 4-year brick and mortar university located in the Southeastern US. The University offers undergraduate degrees as well as Master degrees wholly online. The sample collected was 127 (out of 941 students). This sample size exceeds the minimum standard of 5 respondents per item needed to conduct factor analysis (Stevens, 1996). Approximately 70% of the sample indicated taking solely online classes for their purely online degree, while the remainder took a mixture of both live and online classes to complete their degrees. The majority of students ranged in age between 23 and 47. Student classification consisted of primarily juniors, seniors, and those in a graduate program at 22%, 33%, and 18%, respectively.

RESULTS

Electronic service quality was measured using the 20- item E-S-QUAL scale assessing the 4 dimensions proposed by the scale’s creators (Zeithaml, et al 2005). Responses were given on a 5 point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The structural integrity of E-S-QUAL was assessed by performing Confirmatory Factor Analysis using Maximum Likelihood in AMOS as suggested by Zeithaml, et al (2005) (Table 1). The CFA of the 2nd- order measurement model suggests that each of the four dimensions load significantly onto ESQ with loadings exceeding .40. More specifically, the four factors account for approximately 81% of the variance in ESQ. Each dimension demonstrates significant linkages onto ESQ as each factors’ critical ration exceeded 1.96.

TABLE 1
NOMOLOGICAL ASSESSMENT 2ND-ORDER MEASUREMENT MODEL RESULTS (ML)
E-S-QUAL SCALE
(N=127)

Factor	CFA Loadings^a	C.R.^b	Construct Loading	Critical Ratio
Efficiency ($\alpha=.95$)			.87	4.95
EFF1	.86	12.7		
EFF2	.87	13.6		
EFF3	.89	14.1		
EFF4	.88	13.8		
EFF5	.91	14.9		
EFF6	.74	10.1		
EFF7	.73	10.0		
EFF8	.71	9.7		
System Availability ($\alpha=.92$)			.71	4.56
SYS1	.82	11.0		
SYS2	.92	13.0		
SYS3	.88	12.3		
SYS4	.83	11.2		
Fulfillment ($\alpha=.94$)			.96	5.02
FUL1	.88	14.2		
FUL2	.80	12.1		
FUL3	.92	16.1		
FUL4	.90	15.1		
FUL5	.85	13.5		
Privacy ($\alpha=.99$)			.45	4.95
PRI1	.96	30.0		
PRI2	.99	33.8		
PRI3	.99	35.5		

Goodness of Fit Indices:

$\lambda^2 = 608.34$

$df = 166$

CFI = .86

CMIN = 3.67

NFI = .82

RFI = .80

TLI = .84

RMSEA = .14

^a = standardized loadings per CFA measurement model using AMOS

^b = critical ratio values significant >1.96 ($p < .05$)

Discriminant validity among each of the four factors was also assessed by examining the inter-factor correlations. These inter-factor correlations among privacy, system availability, fulfillment and efficiency ranged from .45 to .69, indicating that each factor is distinct from the others. The standardized regression coefficients, or construct loadings, of the four factors to the second-order construct of ESQ are largely

acceptable ($> .70$) with one exception of the privacy factor (.45). The 20-item E-S-QUAL measure also demonstrates a satisfactorily high inter-item reliability ($\alpha=.96$).

The 2nd-order measurement model demonstrated relatively good fit of the data to the model with $\lambda^2 = 608.34$. Further, the goodness of fit indices indicate that the data fits the model well, all exceeding the .80 standard (CFI = .86, NFI = .82, RFI = .80). RMSEA, however, was slightly high, at .14. Coincidentally, Zeithaml, et al (2005) also identified a high RMSEA for the E-S-QUAL in their original nomological assessment of the scale. In their study, the authors offered large sample sizes as possible explanation of the high RMSEA. This study's sample size was significantly smaller, and resulted in a slight decrease in RMSEA from .16 to .14. The measurement model also indicated that each item properly loaded onto its respective factor, with factor loadings all exceeding .70 (Nunnally, 1978). Finally, the reliability of each factor is listed exceeds .80.

CONCLUSIONS AND DISCUSSION

Online higher education should be concerned with several aspects of performance excellence, as outlined by the "Baldrige Education Criteria for Performance Excellence" (2005). Academia should be focusing on adequately measuring e-service quality to better understand vital experiences and consequences. The relationship between service quality and improved performance in higher education can provide a competitive advantage in terms of repeat sales, positive word-of-mouth, customer loyalty, and competitive product differentiation (Brown and Swartz 1989; Cronin and Taylor, 1992; Parasuraman, Zeithaml, and Berry, 1988). This study examines a popular e-service quality scale in an online higher education setting in order to assess its nomological and external validities. Evidence suggests that the E-S-QUAL scale has satisfactory nomological validity for online higher education applications. The 2nd-order measurement model fit indices, as well as scale reliabilities, interfactor correlations, and factor loadings point to the utility and validity of the scale.

Studies have shown that high levels of service quality positively influence customer satisfaction (Cronin et al. 1992; Parasuraman, Zeithaml, and Berry 1988). This is also true by companies gaining a competitive edge from high levels of service quality (Brown and Swartz 1989; Swaid and Wigland, 2012). Hallowell (1996) links customer satisfaction to loyalty and profitability. More specifically, Yu, Gin-Yuan and Yung-Ching (2009) assessed customer loyalty in an online environment. The competitive edge was outlined by Sherden (1988) into three key aspects: value-added differentiation, enhanced productivity, and improved human resource environment. Further, research has positively linked electronic service quality with customer satisfaction (Rao, Goldsby, Griffis and Iyengar, 2011).

This study presents preliminary evidence for the use of the E-S-QUAL scale in the evaluation of e-service quality in online higher education settings. Specifically, in the setting of online higher education, the use of E-S-QUAL to assess quality demonstrates promise for future administration. The generalizability of the E-S-QUAL scale to online higher education demonstrates (1) the utility of Zeithaml, et al's (2005) scale, and (2) the relative ease of assessing service quality in online higher education.

Gathering data from one state public university within the US certainly limits the external validity to other private or other public universities. Data should be collected internationally in order to further substantiate the external validity of E-S-QUAL as an indicator of e-service quality in online higher education (Hanover Research, 2013).

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