



Advancement in Efficiency of Online Transaction Mechanism in E- Business System

Dr. Abhay Upadhaya,* Mr. Rohit Barotia¹ Mr. Vijay Sharma² Ms. Meenakshi Sharma³

*Associate Professor, Department of A.B.S.T, University Of Rajasthan

¹ Head, Department of Computer Science, Stani Memorial P.G. College, Jaipur, India

²Lecturer, Department of Computer Science, Maharishi Arvind school of Mgt. Studies, Jaipur, India

³ Lecturer, Department of Computer Science, Stani Memorial P.G. College, Jaipur, India

Abstract— *The purpose of this research is to provide an approach, that how users feel the improvement in online e-business transaction processing system design and services, and standard procedures that should be considered the quality attributes in design and development of transaction processing systems, then developing a different service quality dimensions, that can be used to measure the betterment in online e-commerce transaction processing services.*

Keywords: *Transaction Process Mechanism, Quality Dimension, Scale development, E-business, Efficiency.*

I. INTRODUCTION

Internet is the most important channel for selling goods and services. Companies such as Flipkart, Amazon.com, snapdeal.com etc. and many more sell their products and services solely through E-business systems, and all companies are creating web channel as a sources for information before buying the product, and alternative ways to buys the products, ways to expands the services, ways to capture time conscious consumer who rely on online banking for their payment of their products. If these channels are viable, they must be recognized by consumers as effective and efficient. Even though low price of the product and Web presence were is considered as drivers of success, the quality of services and transaction process mechanism issues soon became crucial. When consumers could not complete transactions, products were not delivered, and information could not be accessed, the viability of a transaction was at risk. Mounting business demonstrated a widespread lack of adequate quality of transaction process mechanism delivered through the Internet. This problem exist, if Web sites are to be accepted by consumers, companies must shift the focus of e-business from e-commerce to e-service, all cues and encounters that occur before, during, and after the transactions. To deliver superior quality of transaction process mechanism, managers of companies first understand how consumers feel and evaluate online customer service. Although there are many dissimilar types of Internet sites, the research discussed in this article focuses only on online e-business sites. The article does not deal with other Internet sites such as online newspapers, portals, free download sites, sites that are collections of links, or job sites such as Naukri.com—that exist for purposes other than online transaction processing system. The purpose of this article is to describe the growth, improvement, psychometric evaluation, properties, and potential applications of a multiple-item scale for measuring the quality dimension of a transaction process of sites. The process that produced the scale involved a sequence of steps consistent with guidelines for scale development. Figure 1 provides an overview of the steps

II. E-BUSINESS TRANSACTION PROCESSING SYSTEM FROM USERS PERSPECTIVES

2.1 Customer's Perspective

From a customer's side, the purpose of an e-commerce transaction processing system is to enable the customers to locate the web site and purchase a desired good or service on the Internet when the customer is interested in making the purchase online. After getting a desired goods or services, the function of web site is to provide a virtual store.

2.2 Seller's Perspective

From a seller's perspective, the main function of an e-commerce transaction processing system is to generate more revenues than the seller would achieve without the system. In order for this to happen, the e-business system must recreate or utilize existing data and business processes online. All of the same processes the merchant must have be in one place to support an catalog purchase must also be in place for an electronic purchase: e.g. product information, inventory systems, customer service, and transaction capabilities (including credit authorization, tax computation, financial settlement, and shipping). Other functions of an e-commerce transaction processing system, related to revenue generation, are to help redefine and enhance an enterprise's brand strength, and customer-service capability.

2.3 Traditional Service Quality

By traditional Service Quality, we refer to the quality of all non-Internet-based customer interactions and experiences with companies. Traditional service quality suggested that Service Quality stems from a comparison of what customers feel, a company should offer (i.e., customers expectations) with the company's actual service performance. Early articles

on Service Quality (Grönroos 1982; Lehtinen and Lehtinen 1982; Lewis and Booms 1983; Parasuraman, Zeithaml, and Berry 1985) suggested that Service Quality stems from a comparison of what customers feel a company should offer (i.e., customer expectations) with the company’s actual performance regarding sale and services. Using these studies, conducted a studies in several on transaction many web sites, to develop and refine TRANSQUAL, a multiple-item instrument to quantify the transaction assessment. This scale measures the advancement in transaction along with six dimensions: Performance, Services, Security, web-site characteristics, Communication, Efficiency. Three broad conclusions that are potentially relevant to defining, conceptualizing, and measuring perceived TRANSQUAL emerge from the traditional literature: (a) The notion that quality of transactions rises from a comparison of actual service performance with what it should be, although some still question the observed value of measuring expectations and operational transaction as a set of gap scores; (b) the five TRANSQUAL dimensions captures the general domain of transaction fairly well, although questions remain about whether they are six distinct dimensions; and (c) customer assessments of transaction are strongly linked to superficial value and behavioral intention.

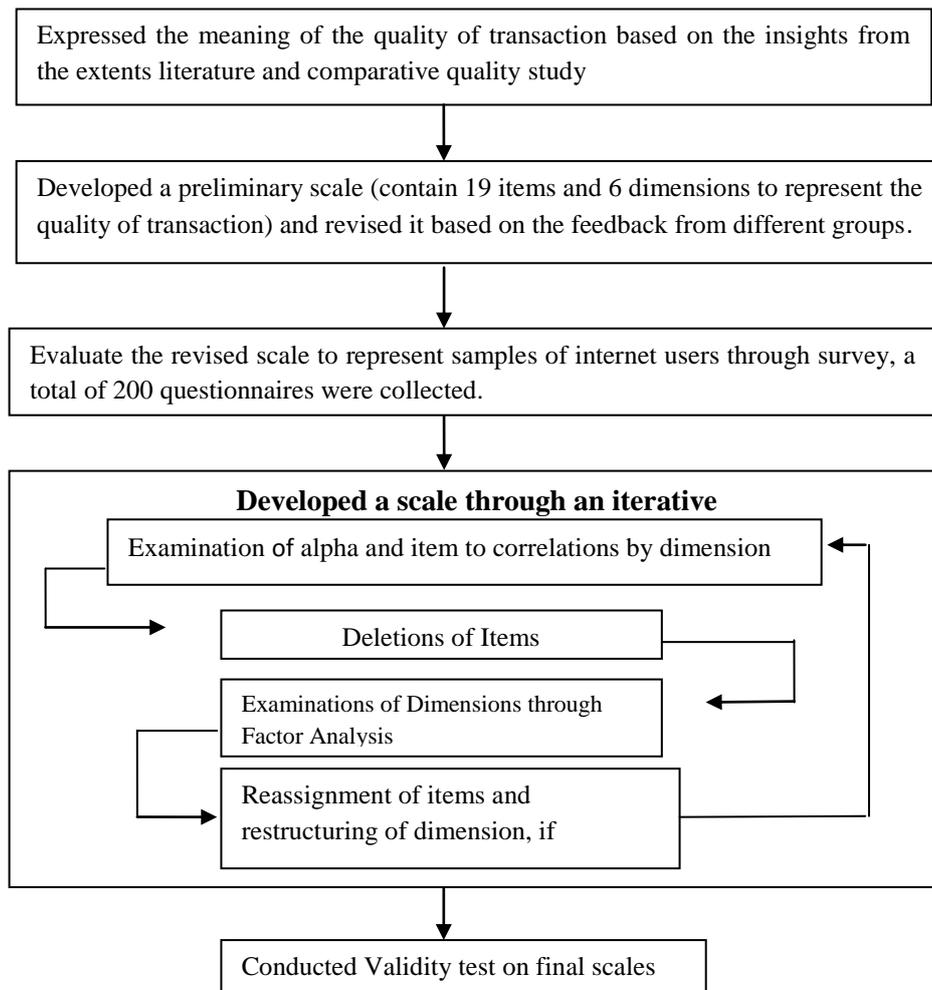


Figure 1: Process involved in developing the scale to measure transaction process mechanism

III. TRANSACTION QUALITY MEASUREMENT

The questioner is based on transaction relating to online shopping experience and frequency of usage. In order to fill the gaps that were left by previous research, especially, aspect related to easiness of the transaction on the Web site use, we conducted semi-structured interviews. Interview is conducted on 200 people with the users that are more involved in online shopping. The informants were all either graduate-level students or middle age people, a group likely to be early technology adopters having prior experience in using online shopping. The focus of the interview was to tap consumers' feelings and expectations, regarding online shopping and Net banking transactions; which was achieved by asking the informants to describe their experiences with online shopping and Net Banking transactions. To guarantee that all significant aspects of electronic service transactions were captured, we capitalized on the above-described four-stage framework in the interviews

3.1 Pragmatic study

The quantitative data used to extract the dimensionality of a process-based e-service quality (TRANSQUAL) scale were collected by means of a structured questionnaire. Participants were asked to recall a recently used online transaction and refer to that provider regarding their answers. We only considered respondents that completed a transactions process mechanism to assure that participants had sufficient online transaction experience so that all aspects of the transaction

chain could be evaluated. This process supports our basic intention to develop an e-service quality scale covering all four stages of the service transaction process. Respondents judged the performance of quality attributes on a five-point Likert-type scale anchored by 1 =“strongly disagree” and 5 =“strongly agree”. Overall the quality of the transaction was measure with a statement ‘The overall quality of my transaction is good’. In addition to the quality items, the questionnaire included statements on customer’s perceived value and satisfaction. These dependent variables are used to evaluate the predictive validity of our transaction. Customer satisfaction was assessed by four items suggested by Henning Thurau et al. (2002). The final sample size was 200, below a table contains the descriptive profile of the sample. They had been using the web sites transaction for 12 months or more

Table 1: Profile of the sample

Variable	Percentage
Gender	
Male	64
Female	36
Age in years	
<20	7
20 – 40	63
41 – 55	25
>55	5
Education	
High school or less	26
University students	32
Graduates	42
Lengths of the web site transaction use	
<3 months	7
3- 6 months	7
6-12 months	12
>12 months	74
Frequency of usage in the last 12 months	
< 3 times	16
3 – 6 times	39
> 6 times	45

Table 2: Psychometric properties and Confirmatory Factor Analysis results for the retained 19 items of the TRANSQUAL scale

Dimension / Items	Mean	Factor Loadings	Cronbach's Alpha
Fulfillment			0.77
1. Always available For business	3.50	0.72	
2. Transaction is always accurate	3.76	0.81	
3. Bank Possess a good reputation	2.72	0.81	
4. Quickly resolve problems	3.47	0.84	
Web Site Characteristics			0.73
5. Esthetically attractive	3.24	0.84	
6. Easy to fmd what I need.	3.13	0.71	
7. Doesn't require a lot of efforts To use bank web site.	3.22	0.83	
8. Structure of online content is Easy to follow.	3.68	0.82	
9. Pages does not freeze after I Enter my account for transaction	3.09	0.92	
Communication			0.62
10. Prompt responses to my request	2.98	0.80	
11. The site has customer service Representative available online	.33	0.81	
Efficiency			0.80
12. Transaction is quick through Bank's website.	2.90	0.81	
13. Service of the web site is quick	2.80	0.80	
14. Is query performance is fast	3.75	0.87	
15. Transaction through website Fast	3.67	0.91	
Services			0.61
16. Is the site easily accessible	2.75	0.61	
17. Are the bank services reliable	3.55	0.79	
Security			0.76
18. Bank does not Misuse my data	3.59	0.83	
19. My transaction is safe with bank	2.96	0.83	

3.2 Scale Validation

The empirical validation of the TRANSQUAL scale was performed by Cronbach's Alpha test for internal reliability. When performing this test, I have grouped the different items pertaining to the different quality dimensions and performed the test on each dimension. For reminding about the quality dimensions and the items that they include, Applying this test specifies whether the items pertaining to every dimension are internally consistent and find out whether they can be used to measure the same dimension. Subsequently, successive repetition of the Factor Analysis and eliminate those items which has low factor loadings, and inadequate item-to-total correlations resulted in a pool of 19 remaining quality indicators. Further, the extracted dimensions were tested for their reliability and validity one by one by means of confirmatory factor analyses (CFA). The local index indicator reliability, Cronbach's α was employed to evaluate each dimension. The measures suggest a good fit of the extracted six quality dimensions of the TRANSQUAL scale that are defined as Fulfillment, Web-Site Characteristics, Communication, Efficiency, Services and Security. (Table 2).

According to Garson (2002), when the α -scores increase and when the number of items in the scale increases, which means the assumption that the yield lower than 0.7 α -scores on some of the dimensions could be the very low number of items pertaining to each of these dimensions. All of the dimensions with lower than 0.7 α -scores have two items each, but this is so because the size of the questionnaire was expected not to be that long and because of the time constraints and the conditions under which the survey was conducted. I have assumed that if each of these dimensions was described using more items, the results would have been different, but that were confined by the conditions under which the survey was performed. Furthermore, performing the Cronbach's alpha test of reliability showed that a removal of any of the items pertaining to the dimensions that include more than two items would not increase the α -score of the given dimension. To analyze the collected data and confirm the usefulness of the theoretical model to the Transaction Processing context, I have performed Factor Analysis on the items of the model with the Principal Component Analysis as an extraction method and Varimax as Rotation method with Kaiser Normalization. A check for outliers was also carried out in order to be examined whether there are outliers and whether they can manipulate the results. Furthermore, Bartlett's Test of Sphericity and KMO Measure of Sampling Adequacy were performed to confirm the suitability of the data for Factor Analysis. After that, when performing the Factor Analysis, in order to decide what number of factors to retain, I have used the Kaiser's measure.

After the leaving out the extreme outliers, Bartlett's Test of Sphericity and KMO Measure of Sampling Adequacy have been performed, the result of Bartlett's Test of Sphericity is 0.0386, which meets the criteria of value lower than 0.05 in order for the Factor Analysis to be considered appropriate. Furthermore, the result of the KMO Measure of Sampling Adequacy is 0.863, which exceeds the minimum value of 0.6 for good factor analysis (Tabachnick & Fidell, 2001), the Correlation Matrix also confirms the suitability of the data for Factor Analysis as it includes considerable number of correlation coefficients higher than 0.3

3.3 Predictive validity of the TRANSQUAL scale

The model is tested for analytical validity by investigating the relationship of each TRANSQUAL dimension to the quality of the transaction in the Web site. The values (Mean, factor loading and Cronbach's alpha) for the multi-item constructs perceived value and customer satisfaction regarding transaction are shown in below Table are indicative of the psychometric reliability of these measures.

Table : Psychometric properties of perceived values and customer satisfaction

Dimension/ Item	Mean	Factor loading	Cronbach's alpha
Perceived Values			0.83
1. Convenience in transacting Through Web site	4.3	0.79	
2. Structure of online content Is easy to follow	4.0	0.90	
3. Transaction is quick	3.8	0.79	
Satisfaction			0.95
4. Transaction is safe with bank	4.2	0.91	
5. Bank's site is available for Business	4.1	0.93	
6. Quickly resolve problem you Face with Online transaction	4.0	0.85	

The relationships between the quality dimensions and the dependent variables were examined by means of multiple regression analysis. For each quality dimension we used summed-score measures of their corresponding items. All extracted quality dimensions have a strong significant impact on an overall service quality judgment

Table: Relationship between TRANSQUAL dimension to quality of the transaction, perceived value, and satisfaction.

Dimensions	Quality of Transaction	Perceived values	Satisfaction
1. Fulfillment	0.19	0.22	0.21
2. Efficiency	0.36	0.26	0.41
3. Communication	0.16	0.16	0.12
4. Security	0.15	0.24	0.39
5. Web Site Characteristics	0.13	0.14	0.18
6. Services	0.12	0.15	0.16
r ²	0.61	0.63	0.64

This indicates strong external validity of our e-service quality model. Efficiency is the most important factor of the quality Perception ($\beta = 0.36$) of the transaction process mechanism. This indicates Efficiency as a strong assessor for overall quality of Transaction Process Mechanism and customer satisfaction. Other quality dimensions contribute rather equally to overall service quality with Beta weights ranging from 0.12 (Services) to 0.19 (fulfillment). Fulfillment ($\beta = 0.22$), Efficiency ($\beta = 0.26$) and Security ($\beta = 0.24$) are the strongest factors in predicting customer's perceived value. Customers become (co-producers) in the service delivery chain. Thus, customer value is created by the customer himself throughout the relationship. Consequently, the willingness to provide customers with functional tools and efficient processes for co-production is critical for value creation. In total, the derived e-service quality dimensions explain 63% of the variance in perceived value. Four of the six quality dimensions show a strong positive effect on customer satisfaction. Comparable to the result for perceived value, Efficiency and Security are the most important drivers with Beta weights of 0.41 and 0.20. Altogether, our quality factors explain 64% of the variance of customer satisfaction. Efficiency is the most powerful driver of all dependent variables; this confirms that the efficiency dimension represent the most critical factor for assessing the perceived value and satisfaction with the people who deals with transaction process mechanism.

VI. CONCLUSION AND LIMITATIONS

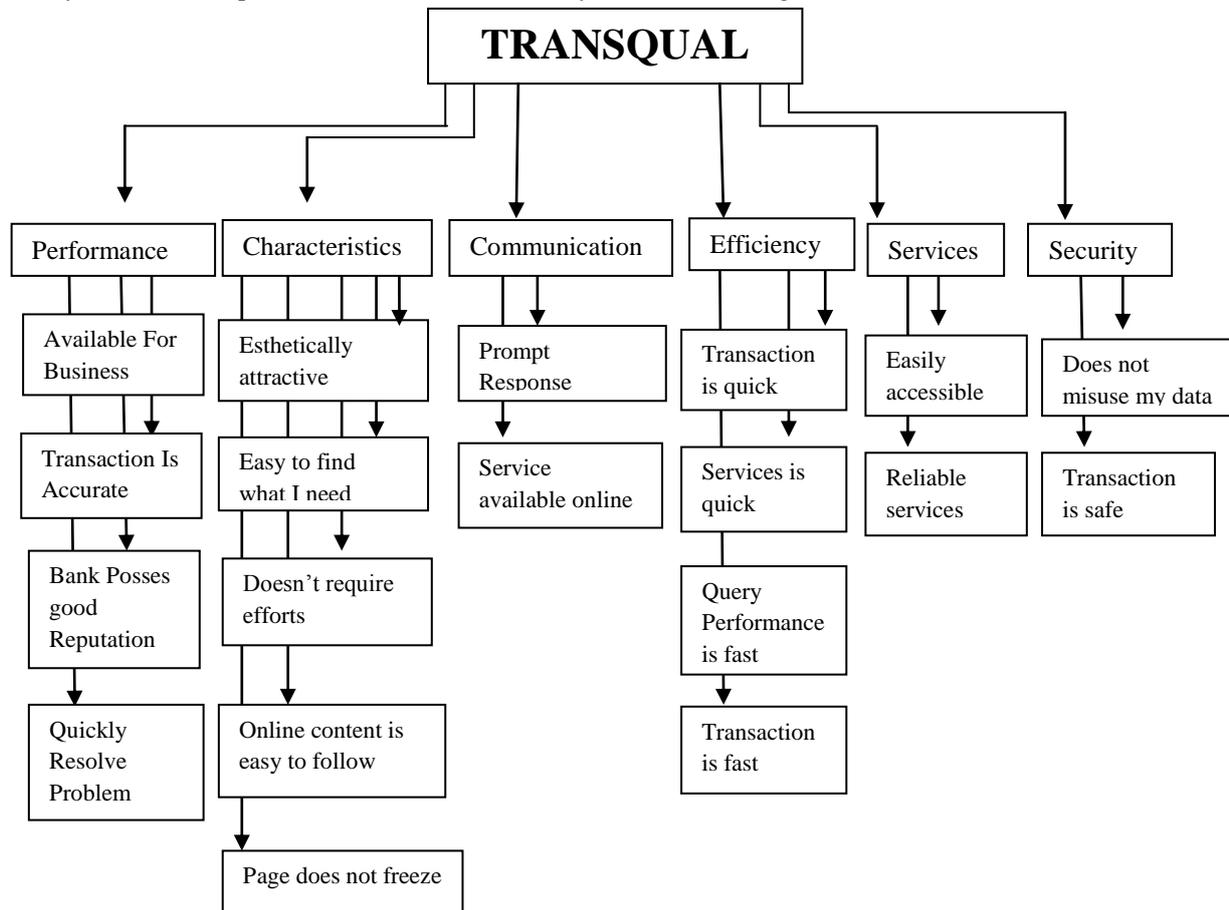
This research compares a newly developed scale, TRANSQUAL; two scales well established in the literature—the eTailQ scale developed by Wolfinbarger and Gilly and the E-S-Qual Scale presented by Parasuraman et al. (Fig.). We integrate behavioral quality aspects of the transaction which result from the transaction performed during the access of e-business system. Neither e-TailQ nor E-S-Qual considers this dimension. Strong evidence for the importance of behavioral aspects for evaluating online transaction an experience is demonstrated both by the results from the scale validation procedure. Their strong influence on perceived value indicates that the transaction performed during the access of e-business system cannot be described as purely goal-oriented and rational as suggested by several authors. Instead, behavioral and emotional motives play an important role. By providing a “flow experience”, online retailers can stoutly improve quality perceptions and thereby enhance perceived value. The weak relationship to satisfaction provides some evidence that experiencing fun and excitement during Web site usage is expected from consumers without explicit articulation as this lies in the nature of e-business system.

eTailQ (Wolfinberger & Gilly)	TRANSQUAL	E-S-Qual (Parasuraman et al)	
		Core E-S-Qual	E-ResS-Qual
Customer Services(3)	Fulfillment(4)	Privacy(3)	Compensation (3)
Privacy(3)	Web Site Characteristics(5)	Fulfillment(7)	Contact(3)
Fulfillment(3)	Communication(2)	Availability(4)	Responsiveness(4)
Web Site Design	Efficiency(4)	Efficiency(6)	
	Services(2)		
	Security(2)		

Fig: Comparison of TRANSQUAL with two scales. The number of items shown in brackets

The study shows that the aesthetic appeal of the Web site relates strongly to the judgment of the efficiency of the transaction and usability of the Web site. As our findings suggest, users stoutly associate the efficiency of a Web site and the quality of the content with the visual appeal of the Web site design. The quality dimensions cover all stages of the transaction process enabling a full assessment of an online service experience.

The limitations of our study cover the following issues. Even though, the study succeeds in validating the measurement scale, but may not suit for the general purpose because these study refers only to a population of Internet users who have made that transaction through the web site. As a result, the potential sample bias could occur by excluding people who browsed the Web site, but did not choose to buy from this provider. This could be due to various reasons, including poor Web site design or process failures during the electronic service encounter. Future studies could test the TRANSQUAL scale for other populations of internet users and non-buyers in order to confirm the general purpose of our results. The constant technological changes along with growing outdoor service, there is a need for greater attention paid to the research on electronic services. This research reflects only electronic service quality assessments focusing on a specific point rather than longitudinal quality evaluation. Finally, research into the determinants of service quality could be a promising field for further studies in this area. In this context, the roles of the service provider's market orientation and efficiency of transaction process mechanism seem worthy of further investigation.



The Higher Model of TRANSQUAL

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