

# A Comparative Study on Online Service Quality Perception of Two Major Regional Economies

Mahmood A. Awan, Habib Ullah Khan, and Wenqing Zhang

**Abstract**—Information Technology has redefined the parameters of doing the business in almost all industries. The use of online mode of selling products and services has opened doors of new opportunities for companies on one hand and on other hand many obstacles and challenges are also coming in the way of effective and successful use of these new tools. Banking industry is one of the most growing service sectors to shift their major components of services online to their customer. This study aims to examine the service quality of banking websites offering services using E-S-Qual and E-RecS-Qual models in two markets – China and Kingdom of Saudi Arabia (KSA). The outcomes of this study will help in understanding the perception of the online service quality in two countries and also the variation in the culture. Questionnaire was used as a tool of data collection to collect the data from 107 customers in KSA and 115 customers in China, who were using the online banking facilities on regular basis. The constructs were measured using established E-S-Qual and E-RecS-Qual scales for service quality, after essential minor modification. Fulfillment and privacy appears to play a very critical role in perceived value for Chinese online customers while it is not very important for KSA customers. Similarly, efficiency and responsiveness were more important for KSA customers compared to their counterparts. In addition to this the outcome of the results advocated that scales of E-S-Qual and E-RecS-Qual can be successfully implemented in the online banking sector. The finding of this study can provide a solid base to replicate the same or related studies in the respective regions.

**Index Terms**—Chinese online banking customers, E-S-Qual, E-RecS-Qual, online banking, perceived online service quality, Saudi Arabian online banking customers.

## I. INTRODUCTION

Recent technological advancements and changing social trends such as heightened customer pro-activity and increased preferences for convenience have caused intense restructuring of the financial services sector. Collectively, these internal and external forces have caused banks to re-evaluate their marketing strategies and have subsequently triggered growth in the adoption of self-service banking technologies. However, although banks have focused their attention on improving their online banking service quality, many of them are still lagging behind their customers' ever increasing demands and expectations [1].

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There are a numerous studies identifying the key service quality dimensions in the traditional banking environment, where personal interaction between customers and bank employee is a primary service delivery and communication channel. However, relatively little literature has investigated service quality attributes in the online banking industry, when non-human interaction via the Internet is a main service delivery and communication channel.

Within recent years there has been a concerted effort by banking institutions to increase the number and range of services provided online. To encourage participation, banks are both rewarding customers by using online services and concurrently penalizing customers for utilizing offline services. In addition, banks have created specific online services and products that can only be accessed or managed online.

E-service is an interactive information service that provides a means by which a firm can differentiate its service offerings and build a competitive advantage [2]. Key themes within the E-service quality include the dimensions and measurement of E-service, elements of the web experience, and the relationship between the web experience, trust, customer satisfaction, intention to purchase and loyalty [3]. Parasuraman, Zeithaml, and Malhotra [4] have developed a comprehensive service quality scale, E-S-Qual scale, which is a multiple item scale for measuring the service quality delivered by the websites by which customers shop online.

China has become the largest internet market in the world [5]. Thus it's believed that online banking, if well implemented, can become very successful given the size of the Chinese population. In spite of the opportunities, very little research has been carried out in China on online banking in general, and perceived service quality of online banking, specifically. Laforet and Li [6] have studied the status of online banking in China and concluded that main barriers to online banking were the perception of risks, technological skills, and Chinese cash-carry banking culture.

Kingdom of Saudi Arabia (KSA) customer preference for online banking has been rising due to convenience it offers like making it possible to undertake banking transactions outside of bank hours and from any where, if internet is available [7]. Thus, banks in KSA have increasingly been offering online banking services. Most of the banks have adopted the integrated approach whereby they keep their existing services as an extension to their service. Sohail and Shaikh [7] have studied the online service quality of KSA banking customers and identified three factors influencing the service quality evaluation of online banking. However, further study is recommended.

This current study focuses on the perceived service quality

of online banking. The study covers customer of the China and Saudi Arabian Markets. Both countries have significant importance in their respective regions. Saudi Arabian population is the main dominating population in rich oil based Gulf and China is leading producer and consumer of the producer in the Far East. The outcomes of the study can guide bankers of both countries to apply any commonalities among their customers perception of online quality.

The remainder of this paper is organized as follows. Following the introduction, the second section provides a relative literature review on both service quality and e-service quality construct. The third section presents the research methods use, and analyses. The fourth section discusses the results and the findings of this study. Finally, the study concludes with a discussion of the limitation of the study, and the future research in this field is presented as well.

## II. LITERATURE REVIEW

Service Quality is referred to as the difference between customer expectation of what a firm should provide (i.e. expectations) and perceived service performance. E-service is conceptualized as an interactive information service [3] that provides a means by which a firm can differentiate its service offerings and build a competitive advantage [2]. Some of the themes within the E-service quality literature include elements of the web experience and trust, dimensions and measurement of E-service, also the relationship between the web experience and trust, customer satisfaction, intention to purchase, and loyalty [3]. Thus emphasis on the role of technological service facilitators contrasts to traditional service quality research which emphasis the human element of service delivery [8].

Assessment of service quality is largely based upon the work of [9] who constructed a measure of perceived service quality termed, SERVQUAL. SERVQUAL has been widely used in a variety of service industries, including the banking industry [10]-[12]. Although a number of different scales have been developed to measure E-service quality, most identified E-service dimensions lack commonality providing a fragmented view of service quality in online environments [13]. In particular, researchers have criticised the value of adapting traditional SERVQUAL dimensions to suit E-service environment. For example Gefen [14] found that tangibles were the most important dimensions of increasing customer loyalty. The measure of tangible are mostly based upon an item measuring the appearance of websites rather than service quality.

Perhaps the biggest source of criticism relates to past studies that have focused upon the evaluation of website quality rather than entire service quality dimensions [13]. Additional concerns relating to E-service quality studies are that many of them do not assess the consumer buying process, thus limiting their value in ascertaining service quality dimensions [15]. Similarly, you and Donahue [16] developed a four-item SITEQUAL scale focusing mainly on web-site characteristics including, ease of use, aesthetic design, processing speed and security.

In recognizing to these differences, Parasuraman, Zeithaml, and Malhotra[4] advocated the need for a measure

of online service quality to be differentiated from the traditional SERVQUAL instrument on account of distinct differences in the focus of two measures. Thus a multiple-item scale (E-S-Qual) for measuring the service quality delivered by websites was developed by [4]. The model suggested a subscale of E-S-Qual, called E-RecS-Qual containing items focusing on handling service problems and inquiries, and being salient only to customers who had nonroutine encounters with the sites. It was also proved that both scales demonstrated good psychometric properties based on findings from a variety of reliability and validity tests. In addition, an 11-item scale was developed in the same study to measure the quality of service recovery offered by the web site. This sub-scale consists of three dimensions: responsiveness, compensation, and contact. Both of these models were tested separately by Parasuraman, Zeithaml, and Malhotra [4] using data evaluating the two popular sites of Walmart.com and Amazon.com. They empirically tested the model fit to data through structural equation modeling. The goodness of fit statistics validated the model structure.

### A. E-Service Quality in Banks

Although there have been many studies assessing E-service quality in banking contexts, most have emphasized the importance of technological aspects of website delivery [17]. Balasubramanian, Korana, and Menon [18] determined that the extent to which an investor trusted an online investing firm was reliant upon security, timelines of stock market information, quality of stock market research, ease of navigation, and the number of steps needed to conduct the transaction. In addition, Ibrahim et al. [19] explored service quality with all forms of electronic banking services (including ATM's, phone and websites) and uncovered six dimensions including, convenient/accurate operations, accessibility & reliability, good que management, service personalization, friendly and responsive customer service provision, and target customer service provision.

The primary goal of provision of online service quality by banks is customer retention according to [20]. Herington and Weaven [21] have explored the impact of line service quality on the level of customer delight and on the development of customer relationship in the banking sector. They found that online service quality has no impact on customer delight, e-trust or the development of stronger relationship with customers, thereby implying that banks can achieve customer loyalty through attending to their personal needs in an online situations as well as providing a well organized website.

Alternately, if banks wish to develop strong relationships with customers, they must provide user-friendly and efficient websites while also developing trust in the website. Herington and Weaven [21] research has provided an insight into the impact of Online Service Quality on relationship building with customers. However no such research has been conducted studying the affect of various cultures on service quality in the online context for banking. Current research attempts to study the differences in perception of online service quality for banking by Chinese and KSA customers.

### B. Status of Online Banking in China

The drivers of online banking in China were underlined in

part, by the IT development, the Internet access, computer ownership and especially, and the emergence of internet bankers. AC Nielsen Consult [22] found that the drivers of growth in online banking in China were a combination of convenience provided to those with internet access, the availability of secure highstandard online banking, functionality, cost savings, and the necessity of banking services. According to China Financial Certification Authority (CFCA) report [23] around 20% of bank account holders have adopted e-banking in the urban areas, while around 40% of corporate account holders conducts their transactions online in 2008.

Since Chinese consumers tend to be more resistant to change, they might prefer and keep on using the familiar branch banking services. Chinese are collectivist, however despite of national culture and sub-culture; there are always some individuals who are inclined to adopt new ways of thinking and behaving than others. Laforet and Li [6] studied the Chinese consumer attitudes towards online banking. Main barriers to online banking were the perception of risks, computer and technical skills and, Chinese traditional cash-carry banking culture.

As a result of such a distrustful culture, many Chinese banks have not been successfully attracted new customers despite their significant marketing efforts. With the distrustful culture deeply rooted into the mind of the Chinese consumers, Chinese banks are facing an uphill battle overcoming the effect of the Chinese culture and convincing the consumers' of their credibility. This observation reinforces the findings in the previous studies [6], [24] assessing the consumers' perception of e-banking in China.

### *C. Banking Environment in KSA*

Due to a good internet infrastructure, banks in KSA have increasingly been offering banking services. With a local population of 18 million and additional 7 million expatriates, banks in KSA are expanding the way business is done in the Kingdom and investing more in alternative delivery channels to tap the potential. With more banks offering services online, the competition is increasing, banks are enlarging their customer base, potentially cutting transaction costs and consequently boosting efficiency.

With the increasing online services, KSA banks face challenges in identifying and addressing customer concern about transacting online as well as building and sustaining the confidence of the customer. Sohail and Shaikh [7] have measured the quality of service of KSA online banking from the customers' perspective. Their study identified three factors that influence users' evaluation of service quality of internet banking services. The factors are efficiency & security, fulfillment, and responsiveness.

Thus the current study focuses on the perceived service quality of online banking. The study covers customer of the China and Saudi Arabian Markets. Both countries have significant importance in their respective regions. With this study we can compare the cultures. Further, the outcome of the study can guide bankers of both countries to apply any commonalities among their customers perception of online quality.

## **III. RESEARCH METHODS AND ANALYSES**

In order to investigate the service quality perception of online banking users in both China and Kingdom of Saudi Arabia (KSA), we conducted a survey in both countries (questionnaire can be found in online version). Our survey structure mostly follows the well-known version from the study of Parasuraman, Zithaml, and Malhotra [4]. They developed a 22-item scale (E-S-QUAL) measuring service quality and an 11-item E-RecS-QUAL scale measuring e-recovery. In our study, items from both scales were utilized with very little modifications. The E-S-QUAL and E-RecS-QUAL items are Likert-type questions with responses ranging from "strongly agree" (5) to "strongly disagree" (1). The reliabilities were calculated for each dimension, and most of them were above 0.8. In addition to the service quality perception scales, consumer's online shopping experience, value assessment and likelihood of shopping online, were also measured using the scales developed by Parasuraman, Zithaml, and Malhotra [4]. The final section of the questionnaire sought demographic information from the respondents.

### *A. Data Collection and Sample Characteristics*

Data were collected using a convenience sample of 115 Chinese and 107 KSA customers who had prior experience in online banking services. The online survey technology was used to collect the data from the respondents. The questionnaire consisted of five sections. In the first section, respondents are asked to provide their demographic information, including gender, education, annual household income, etc. In the following section, respondents were asked to evaluate e-service attributes based on the seven dimensions of e-SQ given their experience with the e-service provider. In the last section, respondents were asked to evaluate the e-service provider's overall perceived value of e-service quality and the loyalty intension.

As it appears, the first significant difference between two samples is the gender. The proportion of male to female in China is approximately half-half (45.2% - 54.8), while about 92.6% of the respondents from KSA are male. The reason that KSA is a very conservative society and researchers found it very challenging to find the female respondents; personal references were used to get this number of female responds to get the data. We can also see that respondents from China are more young college students (56.5%) than those from KSA (where college graduates account for 62.037%).

Our data analysis of e-SQ was conducted using confirmatory factor analysis (CFA) via IBM AMOS V20. In order to access each factor's internal consistency, alpha coefficients were calculated for each of the factors. We also conduct regression analyses to test conceptual model. The reliability of each factor was investigated by computing the Cronbach's alpha. The reported Cronbach's Alpha values range from .804 to .957 for E-S-QUAL and .802 to .879 for E-RecS-QUAL, all exceeding the conventional minimum of 0.7 [25].

The four dimensions of E-S-QUAL have consistently strong and positive correlations with perceived value (.583 to .655 for China and .474 to .599 for KSA) and loyalty

intentions (.445 to .549 for China and .435 to .567 for KSA). These results attest to E-S-QUAL's predictive validity. The correlations for the three E-RecS-QUAL dimensions with perceived value and loyalty intentions are all large and significant for both China and KSA. Therefore the results from the scale-development phase of our research provided equally strong support for the reliability and validity of both E-S-QUAL and E-RecS-QUAL.

CFA results for E-S-QUAL and corresponding results for E-RecS-QUAL. All items that exhibit large standardized residuals were removed from our samples in accordance to Anderson and Gerbing [26]. The goodness of model fit for each sample was evaluated based on the chi-square value, comparative fit index (CFI), the normed fit index (NFI) and the root mean square error of approximation (RMSEA). In Chinese group, the final CFA results exhibit an acceptable fit for E-S-QUAL with  $\chi^2 = 1400.43$ ,  $df = 656$ ,  $p < 0.05$ ,  $CFI = 0.666$ ,  $NFI = 0.523$ ,  $RMSEA = 0.100$ , and for E-RecS-QUAL, we have with  $\chi^2 = 365$ ,  $df = 145$ ,  $p < 0.05$ ,  $CFI = 0.763$ ,  $NFI = 0.667$ ,  $RMSEA = 0.115$ . For KSA group, we have results for E-S-QUAL with  $\chi^2 = 1824.381$ ,  $df = 656$ ,  $p < 0.05$ ,  $CFI = 0.730$ ,  $NFI = 0.637$ ,  $RMSEA = 0.129$ , and for E-RecS-QUAL, we have with  $\chi^2 = 613.499$ ,  $df = 145$ ,  $p < 0.05$ ,  $CFI = 0.770$ ,  $NFI = 0.722$ ,  $RMSEA = 0.074$ . The coefficient Alpha values and the strong loadings of the scale items on their corresponding factors support the convergent validity of each scale's component dimensions. The various fit indices for the CFA are also very good, with the possible exception of the RMSEA, which is slightly above the cutoff value of .10 suggested by Hu and Bentler [27].

To determine the extent to which each E-S-QUAL dimension contributes to this impact, we conducted multiple regression analyses. Scale items of each dimension were summed and used to represent that dimension. More specifically, the summed scores on the four dimensions were the independent variables and the summed score on the four-item perceived value measure and the summed score on the five-item loyalty-intentions measure.

For respondents in China, fulfillment and compensation are significantly (positively) related to perceived value and loyalty intention. Efficiency, system availability, privacy and contact display weak relation to perceived value and loyalty intention. The adjusted R square for this model was .395 and .422 for the China case. However, The KSA results exhibit very different pattern, where efficiency and responsiveness are significantly related to perceived value and loyalty intention. However, fulfillment, privacy, system availability didn't appear to play a very critical role in perceived value and loyalty intention. The adjusted R square for KSA case were very small, .487 and .662 for perceived value and loyalty intention, respectively.

#### IV. DISCUSSION AND FUTURE RESEARCH RECOMMENDATIONS

The data of the respondents were collected through online survey. The scale of E-S-Qual and E-RecS-Qual models consider being the base of data collection. This study provided as base of understanding about the customer perception of the online services offered by different banks in KSA and China. It also focused on the loyalty and quality of

electric services in banking sector of these countries.

Data collection process was bit challenging because we were very much concern about the reliability of the data. KSA data was bigger challenge because normally people are not aware of the research projects or responding to the questions properly. This is leaving a credibility issue in the data collection phase. We tried our best to select the best sample available to collect the data to increase the reliability of the collected data. The descriptive statistics show clearly the nature and different life styles of these two prominent countries of their respective regions. In China the respondents were almost equally distributed in male and female (55% and 45%) while in KSA it was very difficult to approach female respondents, due to cultural issues. We (researchers) used our references to find a sample of educated females in KSA to collect some data from them but again it was only 7.4% of the total collected data sample from KSA. It was an achievement to have some data as compared to no data.

The education level of the respondent in China is focusing more on the some college level or college grades more, while in KSA data almost 88% are either college graduates or university graduates. This is reflecting one thing that the respondents were well educated and understand the online business and provided services well. The sample of China responds are mostly young people while in KSA mostly they are above 25 and more mature as compared to Chinese respondents. This is reflecting the life style of the country also, in China normally the young people are start getting their own bank account and financial services in a very young age, while in KSA it is a strong family based society, where the young people are not having their bank accounts until they are not involve in any business or job. In the age group also more respondents are between the ages of 25 to 44 in KSA. One other interesting descriptive statistics of this data is that the respondents of KSA are more aware of the technology like majority of them using computer from more than 11 years and their internet usage experience is also more than 5 years. This is reflecting a strong wave of IT advancement in the country like KSA and also indicating a door of opportunity for banking sector through the use of technological tools. 53% sample of China responds are using internet between 1 to 4 hours due to life style and work commitments. While in KSA 51% of the sample is using the net more nice times a day and this is possible with a huge use of smart phone in KSA now a days. Financial wise the respondents of KSA are bit stronger than the respondents of China. The sample size of China is showing little weaker income group. This is true also because KSA is a tax free rich oil producing country with higher per capital income. These all descriptive analysis was reflecting different angles of the collected data.

The country like KSA where there is less history of research data collection, the reliability of the collected data is always a challenge. The results of Cronbach's Alpha test showed results above 80% to 95%, which is far above the minimum acceptable level of 70%. The selection of correct sample helped us to reach on a reliable data in both China and KSA.

The inter-correlations among four E-S-Qual and three E-RecS-Qual dimensions are showing a strong and positive correlation among the perceived values and loyalty intentions

of the respondents of both China and KSA customers. This strong relation is showing reliability and validity of both scales.

Our multiple regression analyses showed that among the sample of Chinese Customers, fulfillment and compensation are significantly (positively) related to perceived value and loyalty intention. Efficiency, system availability, privacy and contact display weak relation to perceived value and loyalty intention. On the other side, the data of the KSA customers exhibit very different pattern, where efficiency and responsiveness are significantly related to perceived value and loyalty intention. However, fulfillment, privacy, system availability didn't appear to play a very critical role in perceived value and loyalty intention.

The results of the analysis are reflecting different angles of the target population. The china market respondents are bit concern about the fulfillment and compensation while considering the perceived value and loyalty intention about a baking website. This is one of the reasons that the China's data showed a significant impact of fulfillment and compensation on the perceived value and loyalty of the service. Contrary to China, KSA has different case. Here, people are very much careful for the efficiency and responsiveness of the online banking services. It is a very competitive market and foreign based companies are working hard to establish their name in the market. This is the reason that efficiency and responsiveness showed significant impact on the perceived value and loyalty of the customers. The customers of this part of the world prefer to have efficient systems, which should be available without any interruption all the time. Late working in the night is a common pattern in the region so system responsiveness round the clock attracts a lot to the customers. Here, it is obvious from the results that life style and cultural setup in these two countries are affecting a lot on the perception of the online services in respondents.

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