

The Main and Complementary effects of Online Service and Information Quality on Purchase Intentions

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Abstract

It is very common to observe the role of service quality and information quality in online businesses across the world. An essential issue still to be resolved that the direct and their fit leads to a complementary effects on online retailers' reputation. In order to add in this discussion, we proposed the research framework which comprises four hypotheses to examine the direct and complementary relationship between online service and information quality and their effects on retailers' reputation. Exploratory factor analysis (EFA) was conducted to design the constructs and confirmatory factor analysis (CFA) was performed to ensure the reliability and validity of the measurement model. Then, hypotheses were tested using multiple regression and data were obtained from 415 university students of Pakistan. The results show that online service quality and information quality has direct and complementary association and significant effects on retailers' reputation which in turn to develop purchase intentions. Finally, managerial implications and academic contributions are discussed.

Keywords: Online Business, Service Quality, Information Quality, Purchase Intentions

Introduction

In current years, online business has been developing rapidly across the world and particularly in Pakistan. According to express tribune (2015) it is pointed out that Pakistan e-commerce business surpasses the sales volume \$1 billion by 2020. Thus, Pakistan is developing a solid national policy regarding e-business to attracting foreign investment to develop desirable electronic market (The Times of Islamabad, 2017). As Ali baba group (a leading Chinese e-commerce company) is initiating to develop e-platform in Pakistan (Dawn news, 2017).

Luo et al. (2011) defined purchase intentions as “an individual’s intentions to buy products and services”. Chen et al. (2016) pointed out

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that rapid technological development has been changing our living style, work and play patterns. Similarly, consumers spending and shopping patterns and overall purchase behaviors are also undergone change. Though, an advent of internet is considered as a unique and attractive platform for conducting business.

In past studies it is highlighted that product and brand image, and online store image are the important factor which reduces the risks (financial, physical and time) that impact on customer purchase intentions (Aghekyan-Simonian et al., 2012). Ziaullah et al. (2017) examined that online justice dimensions are the antecedents of online retailers' reputation which in turn into purchase intentions. Similarly, perceived product return policy fairness and trust are also determinants of purchase intentions. Dabholkar and Sheng (2012) demonstrated that greater customer's participation in using recommendation agents lead to greater customers trust, more satisfaction and higher purchase intentions.

To the best of our knowledge, there is no prior research in the subject of online business which had studied the direct and interaction effects of online shopping service quality and information quality on developing electronic retailers' reputation and customers' purchase intentions. Thus, current study is essential step towards filling this research gap. The objective of this article is to develop a conceptual framework and proposes hypotheses based on the online retailing literature review. This paper attempts to describe how online service and information quality develop retailers' reputation in the market space. And also discuss that how online service and information quality may interact in impacting on online retailers reputation which in turn into purchase intentions. This is a valid convincing point which makes this study be unique and distinguished from the past literature. This paper also develops a solid road map and presents constructive guidelines for academicians and practitioners to promoting online business in Pakistan.

The remainder of the article is structured as follows. The theoretical background, research framework and hypotheses are described in Section 2. Section 3 discusses the research design and methodology. Construct development and further data analysis is given in Section 4. Section 4 state logical discussion on results, present useful managerial implications and academic contributions. Finally, article concluded on limitations and future research directions.

Theoretical Background and Hypotheses Development

Interrelationship between online service quality and retailers' reputation
Parasuraman et al. (2005) defined online service quality as "the extent to which a website facilitates efficient and effective shopping, purchasing,

and delivery. Online service quality means that an organization is comprised of various processes and each process objective is to providing high quality of services to customers. In e-business, service quality refers as the availability of multiple communication mechanisms for receiving customers' complaints promptly and providing timely resolution to them. Meanwhile, firms should assist their customers' in using products effectively and recommending certain complementary goods or services (Bhattacharjee, 2001). In online retailing context, service quality is essential due to lack of face to face communication on the websites. While it is much more important for online shopping mall, because internet shopping malls should provide different types of online services for instance product ordering, finding, and delivering tangible products. Thus, such dimensions are tangibility, reliability, assurance, empathy and responsiveness (Barnes and Vidgen, 2001). All these dimensions are likely to support and improve the usability of websites and also guide customers in each essential step of online purchasing process.

Many researchers acknowledged that service quality is important to customers' satisfaction in online purchases (Parasuraman et al., 2005; Ziaullah et al., 2015). Santos (2003) described that service quality is the overall customers' satisfaction and judgments about the excellence and quality of online service delivery in the market space. Online customers positive perceptions regarding online services can play vital role to making purchase decisions from specific electronic retailers. Anderson et al. (1996) pointed out that e-service quality has a positive effect on customers' satisfaction which in turn to increase online retailers profitability. Hence, we proposed subsequent hypothesis:

*H1: Online service quality has positive effects on retailers' reputation.
Interrelationship between online information quality and retailers' reputation*

Generally, information quality is considered the quality of reports that the system produces. In online shopping environment information is related to reports and also user presentation itself. In past researches, scholars have suggested the various dimensions for information quality i.e. accuracy, completeness, concurrent, understandability and timeliness (Lederer et al., 2000; Lin and Lu, 2000). Online information quality is essential and helpful to buyers to finding products, comparing products and make better purchase decisions. Similarly, previous studies suggest that information contents and their quality are the most frequently used measures in online business context (Ranganathan and Ganapathy, 2002). Therefore, contents and their

quality has been appeared to enhance extrinsic an intrinsic customers' belief toward adapting and using online retailing (Lin and Lu, 2000).

During online shopping process, customers provide their personal information to online retailers. Thus, in the context of online business information quality played a vital role in customers' satisfaction (Lin, 2007; Ziaullah et al., 2015). We argue that such online retailers who have designed their websites with good information quality. They can easily attract potential customers towards online shopping. Therefore, online retailing information quality might become the cause of developing retailers' reputation. Hence, we proposed subsequent hypothesis:

H2: Online information quality has positive effects on retailers' reputation.

Complementarities between service quality and information quality effects on retailers' reputation

In 1881, Edgeworth introduced the idea of complementarities and described that the activities concerned as complementary if doing more of any one of them increases the returns of doing more of the others. Ennen and Richter (2010) acknowledged that some activities and the practices which are mutually complementary and tend to be adopted together that each improved the contribution of the others.

A complementary association of online service quality and information quality could create super additive synergies. Thus, we use the complementary effect and argue that neither online service quality nor information quality by itself is sufficient to develop online retailers' reputation. Instead, this phenomenon required to operate in tandem in order to accomplish their objectives. Therefore, this paper is mainly concerned with conceptually proposing the direct and complementary effects of online service quality and information on retailers' reputation. So, we argue that complementarities between service quality and information quality will be greater than the sum of their parts because of the synergistic impacts of bundling both together. Hence, we proposed subsequent hypothesis:

H3: The complementarities between online service quality and information quality are essential for online retailers' reputation, and therefore for customers' purchase intentions.

Interrelationship between online retailers' reputation and purchase intention

Online retailers' reputation refers as "observer's collective judgments of a corporation based on assessments of the social, environmental and financial impacts attributed to the firm over a period of time" (Barnett et al., 2006). Moreover, electronic retailers' reputation is a casual and significant contributor to customers' behavior and

judgments (Caruana and Ewing, 2010). Similarly, reputation is a precursor which impact consumers' store patronage (Ou et al., 2006). Online customers purchase intention is a consequence of retailers' reputation that is affected by website design, services and perceived value (Caruana and Ewing, 2010). Zeithaml (2000) stated that online buyers consider the firm's reputation in order to taking a specific purchase decision. Likewise, Chiu et al. (2014) suggest that online retailers' reputation can induce online buyers purchase decision. Hence, we proposed the subsequent hypothesis:

H4: online retailers' reputation has positive effects on customers purchase intentions.

Research framework

Based on the literature review, an overview of the theoretical framework is presented in Figure 1. Online retailers' reputation is a consequence of service quality and information quality. Online Service quality consists of six essential items i.e. responsiveness, reliability, empathy, follow-up service, competence and confidence. While information quality comprised of seven important aspects including contents variety, detail information, complete information, accurate information, timely information, reliable information in an appropriate format. Similarly, it is pointed out that online customers' purchase intentions is the consequence of retailers' reputation. Online retailers' reputation comprises the items for instance, good reputation in market, reputation for being fair, reputation for being honest and reputation for being consumer oriented. Similarly, purchase intention is consists of the three main dimensions as consumer willingness to purchase from specific online store, consumers are very likely that they would purchase from online store and high probability to buy from specific online store.



Fig.1-Research framework

Research Methodology

Research instrument

We surveyed the literature, and then a self-administered questionnaire was developed to obtain data from the customers of online shopping. The measurement scale of online retailing service quality and information quality were adapted from (Ahn et al., 2005). Service quality and information quality constructs comprised of six items and seven items respectively. Online retailers' reputation and customers purchase intentions were adapted from Pei et al. (2014). The measurement items of retailers' reputation and purchase intentions were consists of four and three of each respectively.

The present study questionnaire was comprised of two sections. In first section questions were asked to obtain information about respondent profile for instance, gender, age, education, experience and most frequently bought items. We used nominal scale for first section. Second section comprised of constructs i.e. online service quality, information quality, retailers' reputation and purchase intentions. We used a seven-point Likert scales to capture data where 1 indicates strongly disagree and 7 states strongly agree. Questionnaires were used in English, as it is the official language of Pakistan including public and private sectors.

Sampling procedure

Kaymu research indicates that young population of Pakistan is actively engaged in online business. In this regard, young individuals (25-34 years) are considered highest online shopping users in Pakistan (Haris et al., 2017). Therefore, the survey of present study is conducted from university students that are an attractive segment of online business in Pakistan. This consumer segment is suitable due to their education level, and they are also technically sound in using computers and internet facilities (Barnes and Vidgen, 2002).

We used convenience sampling approach and data were collected since February to June, 2017. Data was obtained from most convenient universities locations for instance, (libraries, mini-markets, research labs and canteens) from major cities (Karachi, Lahore, Rawalpindi and Islamabad) of Pakistan. As Haris et al. (2017) pointed out that more than 50 percent online shopping transaction are being carried out in Karachi, Lahore, Rawalpindi and Islamabad. We also used encouraged survey response rate by offering incentives as previously same approaches used by Ziaullah et al. (2017).

Initially, five hundred questionnaires were distributed among the respondents. Then 445 questionnaires were received, the response rate was 89 percent. Out of 445 received questionnaires, 30 were unreliable

due to inappropriate filling or missing value. Subsequently, data analysis was conducted on 415 reliable questionnaires that yielding a useable response rate of 83 percent. Respondent profile is described in Table 1.

Tab.1-Respondents profile

Characteristics	class	Sample	Ratio
Gender	Male	226	54.5
	Female	189	45.5
Age	Below 20 years	83	20.0
	20-29 years	327	78.8
	30-39 years	5	1.2
Education	High School	3	0.70
	Diploma	1	0.20
	Bachelor	244	58.8
	Master	152	36.6
	PhD	15	3.60
Occupation	students	415	100
Experience	Under 1 year	52	12.5
	1-4 year	264	63.6
	Over 4 year	99	23.9
Shopping items	Apparel	82	19.80
	Electronic goods	19	4.60
	Groceries	12	2.90
	Household goods	19	4.60
	Sports equipment	1	0.20
	Books & CDs	16	3.90
	More than 1 items	266	64.10

Data Analysis

Construct Design

We used SPSS (Ver. 22) to test Kaiser-Meyer-Olkin (KMO) for examine the sampling adequacy and Bartlett test of sphericity. The result shows that KMO 0.939 value which significance of Bartlett’s test at 0.000 levels. This result value explains that data is suitable for exploratory factor analysis (EFA). Maximum likelihood extraction and Promax rotation (Kaiser Normalizations) was used for data reduction to specifying the factor of all measurement constructs. However, exploratory factor analysis indicate that cumulative variance explanation 66.50 percent, while all the items loading were higher than 0.30. This critical value is recommended by Hair et al. (2010). Table 2 shown the exploratory factor analysis.

Tab. 2-Exploratory factor analysis

Items	OSRQ	OIQ	eRR	OPI
OSRQ1	0.937			
OSRQ2	0.873			

Future of Marketing and Management (FMM 2017)

OSRQ3	0.869	
OSRQ4	0.813	
OSRQ5	0.771	
OSRQ6	0.616	
OIQ1		0.958
OIQ2		0.894
OIQ3		0.786
OIQ4		0.759
OIQ5		0.698
OIQ6		0.621
OIQ7		0.588
eRR1		0.895
eRR2		0.827
eRR3		0.793
eRR5		0.758
OPI1		0.904
OPI2		0.822
OPI3		0.781

OSRQ-Online service quality, OIQ-Online information quality, eRR: Electronic retailers' reputation, OPI-Online purchase intentions.

Reliability and unidimensionality

We used Cronbach's alpha to examine the reliability of the constructs and this approach is recommended by Flynn et al. (1990). All the study constructs Cronbach's alpha values are higher than 0.70. Hair et al. (2006) suggest that Cronbach's alpha value should be at least 0.70, that indicate the reliability of the constructs. The results of all measurement constructs indicate the reliable theoretical constructs as described in Table 3.

Li et al. (2009) pointed out two essential prerequisite to ensure the unidimensionality of the measurement constructs. First, all the items of measurement scale should be associated to the constructs empirical representation. Second, items of each construct should be related to that specific construct. Thus, we used confirmatory factor analysis to examine the unidimensionality, and this approach is highly reliable. In this regard, CFA of measurement model was conducted and results indicate the acceptable fit indices and confirm unidimensionality which are given in Table 4.

Tab.3-Tests of reliability and validity

Items	Internal reliability		Convergent validity		
	Cronbach's alpha α	Items total correlation	Standardized factor loadings	Composite reliability (CR)	Average Variance Extracted (AVE)
OSRQ1	0.94	0.872	0.901	0.94	0.74
OSRQ2		0.835	0.848		

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OSRQ3		0.862	0.896		
OSRQ4		0.831	0.847		
OSRQ5		0.793	0.818		
OSRQ6		0.807	0.852		
OIQ1	0.95	0.856	0.851	0.94	0.70
OIQ2		0.852	0.849		
OIQ3		0.876	0.908		
OIQ4		0.699	0.673		
OIQ5		0.865	0.898		
OIQ6		0.854	0.906		
OIQ7		0.749	0.768		
eRR	0.88	0.824	0.828	0.88	0.65
eRR		0.768	0.875		
eRR		0.751	0.838		
eRR		0.690	0.666		
OPI	0.89	0.805	0.864	0.90	0.74
OPI		0.784	0.844		
OPI		0.793	0.873		

OSRQ-Online service quality, OIQ-Online information quality, eRR: Electronic retailers reputation, OPI-Online purchase intentions.

Tab. 4-Fit indices of measurement model

Fit indices	Cut-off values	Score
Absolute fit measure		404.267
Minimum fit function χ^2	The lower, the better	158
df	<5	2.557
χ^2/df	>0.80	0.91
GFI	<0.05	0.047
RMSEA		
Incremental fit measures		
AGFI	>0.80	0.98
TLI	>0.90	0.97
NFI	>0.90	0.95
CFI	>0.90	0.96
Parsimonious fit measures		
Parsimonious normed fit index (PNFI)	The higher, the better	0.788
Parsimonious goodness of fit index (PGFI)	The higher, the better	0.686

Discriminant and convergent validity

Discriminant validity was ensured through the measure of square root of average variance extracted (AVE). Fornell and Larcker (1981) suggest that the square root of AVE of each construct should be more than its respective correlations relative with another construct in order to confirm discriminant validity of constructs. The discriminant validity is shown in Table 5.

To ensure convergent validity, it is suggested that all the items factors loading should be higher than 0.60, this value is supported by Hair et al. (2006). Further, researchers suggest that AVE critical value should be 0.50 and composite reliabilities value should be 0.70 to confirm convergent validity of the measurement scale (Hair et al., 1998).

This study factor loading of all the constructs measurement items range begins from service quality (0.818-0.901), information quality (0.673-0.908), online retailers' reputation (0.666-0.875) and purchase intentions (0.844-0.874). While AVE value range begins from 0.65 to 0.74. That is higher than the critical value 0.50. Composite reliability values range begins from 0.88 to 0.94 that are also higher than the minimum recommended value 0.70. Convergent validity values are shown in Table 3. Thus, factor loadings, AVE and CR values are adequate enough to ensure convergent validity of the measurement scale.

Tab. 5-Correlation and discriminant validity

Factor	OSRQ	OIQ	eRR	OPI
OSRQ	0.86*			
OIQ	0.784	0.84		
eRR	0.187	0.154	0.80	
OPI	0.575	0.537	0.340	0.86

We applied the multiple regression to test the proposed hypotheses. Therefore, all the proposed hypotheses are strongly supported and their results are given in Table 6. In sum H1, H2, H3 and H4 are proved statistically significant.

Tab.6-Hypotheses results

Hypotheses	β	t-value	p-value	Conclusions
H1: OSRQ \longrightarrow eRR	0.363	5.312	0.000	Supported
H2: OIQ \longrightarrow eRR	0.187	2.702	0.007	Supported
H3: OSRQ*OIQ \longrightarrow eRR	0.150	3.508	0.001	Supported
H4: eRR \longrightarrow OPI	0.229	4.770	0.000	Supported

R2 0.361, Adjusted R2 0.356, and F-value 77.30

Discussion and Implications

The primary purpose of the current study was to investigate the direct and complementary influences of online service quality and information quality on online retailers' reputation and purchase intentions. The results of this article indicate a particular route through which both service and information quality has positive effects on online retailers' reputation and subsequent purchase intentions. Both online service and information quality are the complementary to developing electronic retailers' reputation and subsequently purchase intentions. This is the significant addition in the literature of online shopping. In past studies, it is pointed out that online service quality and information quality were the antecedent of customers' satisfaction and loyalty (Ziaullah et al., 2015;

Lin, 2007). This study implies that online retailing firms should enhance their online service quality and information quality consistently to establish reputation and also develop online customers purchase intentions. This paper provides the empirical facts that service quality and information quality can impact on reputation which in turn to purchase intentions. Thus, practitioners should pay attention to develop such dimensions of online retailing business. However, online retailers' reputation can be developed, if online retailing business dimensions of service quality and information quality is appropriately operationalised and managed. The online retailing firms should focused on these two essential dimensions simultaneously. It is also pointed out that online retailing dimension of information quality is easy to imitate while service quality is not possible to imitate for competitors. Therefore, it is suggested to manager of online retailing firms to put more concentration on service quality in order to gain competitive advantage in the market. Following are the academic and managerial contributions of present study.

Academic Contributions

This article presents the various potential academic contributions in the literature of online retailing. Academically, current study contributes to examine online service and information quality as two independent and complementary relational mechanisms of online shopping. The current study focuses on independent and interaction effects as most of the previous studies omitted in the literature. First, the distinctive contribution of this study relates to the development of theoretical framework. The framework incorporates online service and information quality which linked to retailers' reputation and purchase intentions. Second, this paper adds in literature by empirically investigating the conceptual framework. Third, this study fills the void by examining complementarities between online service quality and information quality and their effects on retailers' reputation. Finally, this study adds to the online business literature by illuminating the value of complementary relationship between service and information quality and effects on electronic retailers' reputation. To the best of our review, no prior research has conducted to consider this type of variable relationship in the field of online business.

Managerial Implications

The present study sheds light on the phenomenon that online service and information quality are the complementary determinants of retailers' reputation and purchase intentions. In this manner, these dimensions play

a main role in electronic business as well as both are the under control online retailers. First, it is suggested to online retailer in order to provide accurate and adequate information to customers by using strategies and tactics for instance, information agent, search engine, and information customization software to manage information overload. Therefore, information quality can be gained by online retailers by providing timely, accurate, complete and reliable information to their online customers. Second, this study guides managers that they need to adopt customer oriented marketing strategy and develop service oriented philosophy for online transaction execution and provide effective mechanism to resolve customers online shopping related issues. The service quality can be achieved through online retailers' website design that anticipates and responds to customer requests very promptly. Third, online retailing firms' managers would be able to encourage and stimulate customers' confidence and to provide certain follow up services with adequate competency. Fourth, this study shows that online retailing companies should put more concentration on the role and implications of these two dimensions in order to improve customers' experience and facilitate them through developing online shopping adequately informative, efficient and easier.

Conclusions and Future Avenues of Research

The primary objective of this study was to examine the direct and complementary effects of online service quality and information quality on online retailers' reputation and customers' purchase intentions. This article presents more comprehensive richness of e-business literature through investigating service quality and information quality role in online retailing business of Pakistan.

This study has some limitations, therefore it opens up an avenue for further research. First, the sample mainly consists of university students that may not be truly representative of the other population of online retailing business of Pakistan. Second, this article presents a generic view, it does not differentiate the effects of service and information quality on reputation by considering specific product categories. Finally, the sample consists of Pakistan university students, therefore generalization of results is a critical issue, and thus results are limited to the context of online retailing business of Pakistan. Therefore, the present study creates a new paradigm for further research which should be carried out to examine the effects of these dimensions on reputation in other countries which may have different characteristics of population as compared to the current paper sample.

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