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## Article

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## Conference Title

# Investigating the Impact of Website Quality on Consumers' Satisfaction in Jordanian Telecommunication Sector

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## ABSTRACT

As Jordanian telecommunication organizations have begun increasingly to communicate and interact with their consumers via the Web, providing such a service has demanded acute understanding of consumers' requirements and appropriate provision of solutions. In this paper, we examined the impact of Websites quality (which was measured by usability, information quality and service interaction) of four major Jordanian telecommunication organizations on the consumer's satisfaction. Survey results of 84 students, from the faculty of planning and management at Al-Balqa' Applied University, have been collected and then analyzed using descriptive statistics and hierarchical regression. The results of this study showed that the usability and services interaction were highly significant factors that directly affected the consumers' satisfaction according to the testing model.

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## 1. Introduction

The Internet is changing the way organizations conducting their business. Nowadays, commercial websites are the alternative communication channels where consumers expect to fulfil their needs at ease and comfort. As a result, offering high quality communication channels would enhance the consumer's satisfaction and increase the competitive advantage of these organizations (Karatepe, Yavas & Babakus, 2005). Organizations are increasingly having a growing concern in respect to the quality of their websites. This concern becomes of greater importance because of the absence of the human interaction offered (Grigoroudis, et al., 2008). Using technology cannot replace the significant human aspects that manifest through conventional communication and interaction such as

courtesy, friendliness, helpfulness, care, commitment, flexibility, and cleanliness (Cox & Dale, 1999). Therefore, the absence of these aspects has in a way to be replaced by offering better performance or including excellent specific web factors in order to increase the user's satisfaction (Zeithaml, 2002; Iwaarden, et al., 2004). The website quality is a very important part of companies' image that can influence shopping behaviour in a similar way to those aspects of traditional establishments (Flavián, 2006). This importance can also be varied according to the cultural differences on the web, with regards to the dimensions of web site quality (Nantel & Glaser, 2008; Robbins & Stylianou, 2003). Although the topic of website quality in the domain of B2C (business to consumer) e-commerce has been granted great attention by researchers, but not in

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Jordan. The problem of current study stemmed from the importance of communication between organizations and their consumers. Specifically, this communication becomes of greater importance to the telecommunication sector because of the increasing consumers' demands (e.g. complaints, inquiries). Although Jordanian telecommunication organizations (Zain, Orange, Umnia and Express) have realized the importance of offering different communication channels to consumers, it was noticed (by the researchers) that the communication via the web still limited, in Jordan, compared to other communication channels (e.g. face-to-face, using mobile phones). In this sense, the problem of this study was to investigate the effect of website quality dimensions (usability, information quality and service interaction) of four major Jordanian telecommunication organizations on the consumer's satisfaction based on their perspectives. This study aimed at achieving the following objectives:

- Determine the levels of satisfaction and website quality from the consumer's perspective in Jordan.
- Examine the effect of website quality dimensions on the consumer's satisfaction in Jordan.
- Provide suggestions and recommendations that improve websites quality of the telecommunication organizations in Jordan based on this research results.

In the following sections, a review of the relevant literature was provided. This was followed by the methods used and analysis of results. Finally, a discussion of the results, recommendations and suggestions for further research were concluded. The findings of this study will help the Jordanian marketing managers to formulate their marketing strategies to improve online organizational performance. It also will help web designers to focus on significant design features that would increase the consumer's satisfaction and ultimately the competitive advantage of organizations in Jordan. Moreover, the outcome of this study would be of interest to researchers who are interested in website quality studies in similar settings in Jordan.

## 2. Literature review

The research in the domain of web quality and consumers' satisfaction has attained a great attention in literature; however, little was given to such topics in Jordan.

### 2.1 Satisfaction

Consumer's satisfaction is not a new concept and many studies try to find its antecedents and consequences, because it is considered as an important measure of a firm's success and a leading indicator of a firm's financial performance and shareholder value (Ramasubbu, Mithas & Krishnan, 2008). In bricks and mortar environment, consumer satisfaction can be defined as the evaluations of a product or service with regard to their consumers' needs and expectations. It is viewed as the summary psychological state resulting when the emotions surrounding disconfirmed expectations are coupled with the prior feeling of consumers about their experience Billy, Rob & Ivan (2008). Helson's theory states that the degree of an individual's satisfaction depends on the relationship between the initial expectations created and the results obtained (Flavian, Guinaliu & Gurrea, 2006). There are two different conceptualizations of consumer's satisfaction: transaction-specific and cumulative (Chang & Chen, 2008). The transaction-specific perspective views consumer's satisfaction as a post-choice evaluative judgment of a specific purchase occasion. From a transactional viewpoint satisfaction would indeed depend on each

exchange. In comparison, cumulative consumer's satisfaction is an overall evaluation based on the overall experience with the goods and services of a particular firm over time. From cumulative viewpoint with each new interchange, the individual's perception is fed by new information (Casalo, Flavian & Guinaliu, 2008). E-satisfaction (electronic satisfaction) is another form of consumer's satisfaction that evolved within the e-commerce (electronic commerce) context. It is defined as "the contentment of the consumer with respect to his or her prior purchasing experience with a given electronic firm" (Chang & Chen, 2008). Satisfaction with e-stores, like satisfaction with traditional stores, is not derived solely from satisfaction with regards to the product purchased but also with regards to the convenience and the site design. These elements are identified to be the main determinant of e-store satisfaction, which in turn influences the decision to re-patronize a website (ibid). Zviran, Glezer & Avni (2006) study indicated that websites have different, hidden, and subjective factors that stemmed from the interaction between users and these web-based systems. These factors affect the overall satisfaction of users. Section 2.2 discussed important factors that affect the consumer's satisfaction on the web environment. Billy, Rob & Ivan (2008) developed and empirically tested a theoretical model of the impact of website quality on consumers' satisfaction and purchase intentions in the Chinese context. Results indicated that website quality has a direct and positive impact on the consumer's satisfaction and that satisfaction also has a direct and positive impact on purchase intentions. While the influence of website quality on purchase intentions exists, consumers' satisfaction does significantly mediate this effect. Additionally, the previous study found that the website's quality influenced consumers' purchase intentions through their satisfaction with website functionality and usability features. (Casalo, Flavian & Guinaliu, 2008) study results revealed the existence of a positive and significant influence of reputation and satisfaction on website loyalty. This study also confirmed the influence of usability on consumers' satisfaction and showed that usability played a special role in the loyalty formation process.

### 2.2 Website quality factors

Generally, quality is a characteristic of a product or service that reflects how well it meets the needs of its consumers; as such, it is associated with product or service satisfaction (Negash, Ryan & Igbaria, 2003). In contrast to goods quality, which can be measured objectively, assessing the service quality is considered elusive and complex task. Although there has been many research carried out in the domain of consumers' satisfaction and its impact on their intention to revisit or purchase from websites, there is no general quality evaluation method or consensus on what should be measured by such evaluation methods (Zviran, Glezer & Avni, 2006; Loiacono, Watson & Goodhue, 2007). Hwang and Kim (2007) found that the effects of the perceived web quality of service contents on e-trust (electronic trust) mediated by affective variables (enjoyment and anxiety). Grigoroudis et al. (2008) study presented the evaluation of website quality for three cellular phone service providers in Greece. The most important result of this study was that the criteria of 'Technical Efficiency' and 'Animation' appear to be the most important improvement actions for all the websites. This fact was justified by the relatively low average satisfaction indices estimated for these particular characteristics. Instruments and quality factors have been developed in an attempt to measure the traditional service quality. For instance, the SERVQUAL instrument suggested that the service quality should be measured by showing the difference between service expectations and

actual service performance. Therefore, the service quality would be sufficient when consumers' perceptions of service performance were equal to or greater than the expected level of service (Brady, Cronin & Brad, 2002). SERVQUAL considers the following dimensions of perceived service quality: tangibles, reliability, responsiveness, assurance, and empathy. However, Criticism to the measurement of perceived service quality continued, specifically on dimensionality (Paas & Sijtsma, 2008; Brady, Cronin & Brad, 2002). Although the SERVQUAL dimensions have been altered to measure the quality of the services and products available via the web, many studies measured the web service quality by using the dimensions of SERVQUAL Index (Negash, Ryan & Igbaria, 2003; Iwaarden, et al., 2004). Other quality factors have been developed in order to measure the quality of web services. For instance, Yang et al. (2005) carried out a study suggested measuring the service quality using five factors including: usability, usefulness of content, adequacy of information, accessibility and interaction. In another study, Parasuraman Zeithaml & Malhotra (2005) devised another quality index factors (named E-S-Qual) based on another set of quality factors: efficiency, fulfilment, system availability and privacy. However, in the literature, there have been three core quality factors that relate directly to consumers' satisfaction including (Barnes & Vidgen, 2003):

### 2.2.1 Information quality:

is known as the ability of a system to provide its users with the needed information. User information satisfaction is one evaluation mechanism used in measure the information quality. This evaluation technique is concerned with the extent to which users believe the information system that is available to them can meet their information requirements (Billy, Rob & Ivan, 2008). Jeong, Oh & Gregoire (2003) study conceptualized website quality and proposed information satisfaction and purchase-related behavioural intentions as potential consequences of website quality in the lodging industry. Web quality was measured with six variables information accuracy, clarity, completeness, ease of use, navigational quality, and color combinations. The results of the study indicated that information satisfaction was a powerful determinant of the consumer's behavioural intentions on the web.

### 2.2.2 Interaction and service quality:

is a significant dimension that has been researched in several areas such as marketing, e-commerce and IS (information systems) quality research (Barnes & Vidgen, 2003). Interaction and service quality is dimension that significantly influences the consumer satisfaction. Therefore, organizations are rivalry trying to lock-in consumers by providing a high interaction and service quality. Interaction and service quality relatively confusing because it may be measured using different quality dimensions such as fulfilment/reliability ease of use and security/privacy (Yang, et al., 2005). However, the most commonly used instrument for measuring the service quality is SERVQUAL (Yang, et al., 2005; Landrum, et al., 2009). Usability: is a main stream of research that is found within the domain of human computer interaction. This concept is recently known as web usability (Barnes & Vidgen, 2003). Usability relates to "the extent to which the user and the system can communicate clearly and without misunderstandings through the interface" (Benbunan-Fich, 2001). Usability was found to have a positive influence on users' satisfaction. The analytical results of Chang & Chen study (2008) supported the view that the interface quality was an important antecedent of the consumer's

satisfaction and e-loyalty (electronic loyalty). Additionally the study showed that satisfaction can play a crucial intervening role in the relationship between interface qualities and e-loyalty through customization, interaction, convenience and character contributes to generating e-loyalty. Within the quality context, usability can be measured through five quality components including: learn ability, efficiency, memorability, errors and satisfaction. Another set of attributes is focusing on consistency, user control, appropriate presentation and error handling (Zviran, Glezer & Avni, 2006).

At the beginning of the year 2000, a quality index called E-Qual was developed that adopted the formerly mentioned core quality factors. E-Qual was based on literature derived from information systems, marketing and human-computer interaction (Barnes & Vidgen, 2002). The E-Qual index has been used to evaluate the quality of many web services such as universities websites (Barnes & Vidgen, 2000), online auctions (Barnes & Vidgen, 2001), online bookstores (Barnes & Vidgen, 2002) and governmental websites providing electronic services (Barnes & Vidgen, 2003). On this basis, the E-Qual dimensions were considered a good candidate to be used to serve the purpose of this research study. Section 9.3 provides details on how E-Qual instrument was used in this study.

The findings of this study help the Jordanian marketing managers to formulate their marketing strategies to improve online organizational performance. It also helps web designers to focus on significant design features that would increase the consumer's satisfaction and ultimately the competitive advantage of organizations in Jordan. Moreover, the outcome of this study would be of interest to researchers who are interested in website quality studies in similar settings to Jordan.

### 2.3 Research model

The research model investigated in this study (see Figure 1) was adapted from relevant studies including Chang & Chen (2008), Billy, Rob & Ivan (2008) and LIN (2007). The research model included three antecedent variables (usability, information content and services interaction) that were expected to influence the consumer's satisfaction within the e-commerce context. The variables used in the research model and hypotheses are detailed below.

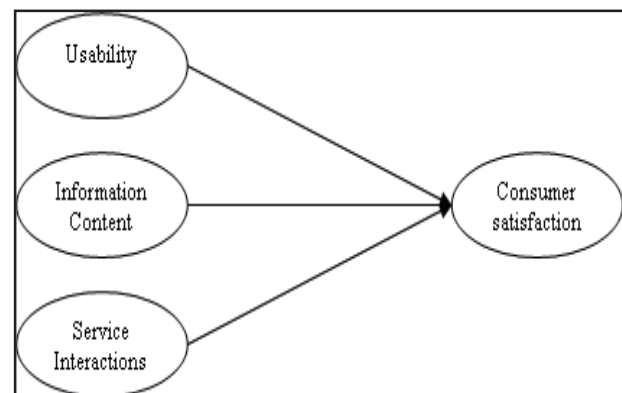


Figure 1: the research model

### 2.3 Hypothesis

Three hypotheses were developed in this research study as follows:

H01: there is no impact of the perceived usability on the consumer's satisfaction.

H02: there is no impact of the perceived information content on the consumer's satisfaction.

H03: there is no impact of the perceived service interaction on the consumer's satisfaction.

### 3. Methodology Research

#### 3.1 Participants

Participants in this study were 84 undergraduate students enrolled in e-commerce courses at Al-Balqa' Applied University. This sample was selected based on the convenience sampling approach. The sample was 66.7% female and the mean GPA of respondents was 2.81 (standard deviation = 0.43). Participants indicated that they spent an average of 2.49 (standard deviation = 1.97) hours on the Internet per day. 54.8% of the participants were students from the MIS (management information systems) department and 14.3% were students from the business department.

#### 3.2 Procedure

The researchers had determined that data collection should take place in a small research laboratory. Each data collection session consisted of 21 participants and lasted approximately 30 minutes. Before conducting the experiment, one of the researchers who teaches e-commerce course explained the nature of the services provided by the websites of Jordanian telecommunication organizations. When participants arrived to the laboratory, they were given an overview of the experimental task. Specifically, they were asked to work as actual consumers who needed to be served by these websites. While viewing the websites, participants were asked to perform tasks and to evaluate these websites according to the quality dimensions and to determine the degree of their satisfaction.

#### 3.3 Measures

The questionnaire used in this study collected information on characteristics of participants (gender, GPA, hours spent on Internet per day and specialization), website quality and consumer satisfaction. The E-Qual instrument was used to measure the perceived websites quality. All constructs were measured with multiple-item 7-point Likert scales (1 = strongly disagree; 7 = strongly agree) to assess the participants' reaction to the quality of websites involved in this study. The E-Qual questionnaire included 22 items to measure the quality dimensions. The perceived usability was measured using eight items ( $\alpha = 0.83$ ; e.g. "I find the site easy to learn to operate"). Seven items that measured the perceived information quality ( $\alpha = 0.91$ ; e.g. "provides accurate information"), and seven items that measured the perceived service interaction ( $\alpha = 0.87$ ; e.g. "has a good reputation"). The dependent variable (consumer satisfaction) was measured using 9 items (7-point Likert scales (1 = strongly disagree; 7 = strongly agree) ( $\alpha = 0.93$ ; e.g. "I am satisfied with my decision to purchase from this website"). This measure was adapted based on literature from (Billy, Rob & Ivan, 2008; Flavian, Guinaliu & Gurrea, 2006; Chang & Cheng, 2008).

#### 3.4 Statistical tools

The main statistical tools used for analyzing data were:

1- Descriptive statistics as frequency, percent, mean and standard deviation to describe the sample characteristics and to study the variables and dimensions.

2- Hierarchical regression was used to test the study hypotheses. The main reason to use hierarchical regression was to control the characteristics of participants

### 4. Results

Table 1 presents the means, standard deviations, and intercorrelations of the variables. The means showed the perception of website quality were ranged (5.13-5.64). This indicated that the means were rated above the scale mean (4). Also, the relationships between dimensions of website quality and the consumer's satisfaction were significant ( $p < .01$ ) and were in the expected directions. Usability, information content, and service interactions were positively related to consumer satisfaction according to the range ( $r = .346$  to  $r = .600$ ). Furthermore, there was a positive relation between the dimensions of website quality and the highest relation found between usability and service interaction ( $r = .648$ ,  $p < .01$ ).

Table 1. means, standard deviations, intercorrelations

Variables	mean	Std. deviation	1	2	3	4	5	6	7
Gender*	1.67	.474							
GPA	2.81	.433	.348**						
Internet/day	2.49	1.695	.001	-.066					
Special**	1.83	.656	.013	.183	.016				
Usability	5.64	.673	.252*	.079	-.013	.199			
Information content	5.31	.759	0.198	.028	-.008	-.15	.451**		
Service interactions	5.13	.926	0.257*	.038	-.006	.170	.648**	.539**	
Customer satisfaction	4.80	.810	0.240*	.082	-.169	.111	.561**	.346**	.600**

\*(1-male, 2-female)

\*\* (1-business administration, 2- MIS, 3-(other)

#### 4.1 Hypothesis testing

H01: there is no impact of the perceived usability on the consumer's satisfaction.

Hierarchical regression analysis was conducted to test the effect of website usability on consumers' satisfaction. After entering the demographical variables (Gender, GPA, Internet usage/day, Specialization) as controlling variables in step 1, the website usability was entered in step 2. The change in  $R^2$  at step 2 is reported in Table 2. Usability of website accounted for 29.9% of the variance in the consumer's satisfaction. As ( $\Delta F = 31.929$ ,  $P < 0.01$ ), the null hypothesis was rejected and the alternative was accepted "there is an impact of the perceived usability on the consumer's satisfaction".

As observed from table (2) usability indicators (Beta=0.563,  $t=5.651$ ,  $p<0.01$ ) was found to have a significant and positive relationship with consumer's satisfaction (model 2), then by providing full support for hypothesis one.

Table 2. Hierarchical regression analyses predicting the consumer's satisfaction

Variables	Model 1		Model 2	
	Beta	t-value	Beta	t-value
Gender	0.276	2.181*	0.138	1.292
GPA	-0.060	- 0.470	-0.042	-0.400
Internet	-0.185	-1.548	-0.178	-1.811
Specialization	0.017	0.142	0.003	0.026
Usability			0.563	5.651**
$R^2$	0.100		0.399	
$\Delta R^2$	0.100		0.299	
F for $\Delta R^2$	1.802		31.929**	

\*sig<0.05, \*\*sig<0.01

Ho2: there is no impact of the perceived information content on the consumer's satisfaction.

Hierarchical regression analysis was conducted to test the effect of website information content on consumer satisfaction. After entering the demographical variables (Gender, GPA, Internet usage/day, Specialization) as controlling variables in step 1, the website usability was entered in step 2. The change in  $R^2$  at step 2 is reported in Table 3.

Table 3. Hierarchical regression analyses predicting consumer's satisfaction

Variables	Model 1		Model 2	
	Beta	t-value	Beta	t-value
Gender	0.276	2.181*	0.176	1.354
GPA	-0.060	- 0.470	-0.037	-0.300
Internet	-0.185	-1.548	-0.179	-1.550
Specialization	0.017	0.142	0.005	0.040
Information content			0.284	2.350*
$R^2$	0.100		0.171	
$\Delta R^2$	0.100		0.072	

F for  $\Delta R^2$  1.802 5.522

\*sig<0.05, \*\*sig<0.01

Information content of website accounted for 7.2% of the variance in consumers' satisfaction. Because ( $\Delta F = 5.522$ ,  $P<0.05$ ), the null hypothesis was rejected and the alternative was accepted "there is an impact of the perceived information content on the consumer's satisfaction". As observed from table (3) information content indicators (Beta=0.284,  $t=2.350$ ,  $p<0.05$ ) was found to have a significant and positive relationship with consumer's satisfaction (model 2), then by providing full support for hypothesis two.

Ho3: there is no impact of perceived service interaction on the consumer's satisfaction. Hierarchical regression analysis also was conducted at this stage to test the effect of website service interaction on consumers' satisfaction. After entering the demographical variables (Gender, GPA, Internet usage/day, Specialization) as controlling variables in step 1, the website service interaction was entered in step 2. The change in the value of  $R^2$  at step 2 is reported in Table 4. Information content dimension accounted for 28.2% of the variance in the consumer's satisfaction. Since ( $\Delta F = 29.182$ ,  $P<0.01$ ), the null hypothesis was rejected and the alternative was accepted "there is an impact of the perceived service interaction on the consumer's satisfaction". As observed from table (4) service interaction indicators (Beta=0.558,  $t=5.402$ ,  $p<0.01$ ) was found to have a significant and positive relationship with consumer's satisfaction (model 2), then by providing full support for hypothesis three.

Table 4. Hierarchical regression analyses predicting consumer's satisfaction

Variables	Model 1		Model 2	
	Beta	t-value	Beta	t-value
Gender	0.276	2.181*	0.100	0.901
GPA	-0.060	- 0.470	0.013	0.126
Internet	-0.185	-1.548	-0.179	-1.788
Specialization	0.017	0.142	-0.055	-0.536
Service interaction			0.558	5.402**
$R^2$	0.100		0.382	
$\Delta R^2$	0.100		0.282	
F for $\Delta R^2$	1.802		29.182*	

\*sig<0.05, \*\*sig<0.01

## 5. Discussion and conclusion

This study investigated the effect of websites quality on the consumer's satisfaction. Exactly how website quality dimensions, including usability, information quality, and service interaction, affect consumers' satisfaction was examined. The descriptive results showed that participants' perceptions concerning the website quality dimensions were above the

instrument's scale average and was ordered as usability, service interactions and information content respectively. The results also indicated that participants' satisfaction was moderate with regards to the fulfilment of their needs while using the sample websites used in this study. The analytical results of this research showed that usability had a strong impact on participants' satisfaction. This implies that usability is a significant determinant that directly affects the consumer's satisfaction. Websites with greater usability elements would be placed in a greater use due to the high-level of ease that usability could offer to users (e.g. ease in navigation and use and user-friendly interface). This finding was consistent with (Lin, 2007; Falvin, Guinaliu & Gurra, 2006) study results which showed that websites with greater usability was found to have a positive influence on the consumer's satisfaction. The analytical results of this research also showed that service interaction had a strong impact on participants' satisfaction. This demonstrates the importance of including interactivity elements in the telecommunication websites. For instance, providing online consumers with appropriate interactivity elements (e.g. personalization and secure online transactions) would positively influence their satisfaction and ultimately would increase their interest in such websites. Lin (2007) found that providing consumers with appropriate interactivity elements attracted and retained their interest at such online retailers. However, the information quality was found less significant determinant that affected the consumer's satisfaction in comparison with usability and service interaction. Although there were many studies that focused on the importance of providing up-to-date and accurate information on websites (Lin, 2007; Billy, Rob & Ivan, 2008); Barnes & Vidgen, 2003), this factor was found to have less impact on consumers' satisfaction from the participant's perspective. This finding does not necessarily appose the latter studies pertaining to the importance of information quality. This perhaps is due to the nature of the Jordanian culture where individuals prefer the face-to-face communication in seeking for the information. Pons (2004) and Straub et al. (2001) stated that the Arab's culture has a preference for face-to-face communication which in turn restricts the use of certain information technologies such as E-mail and groupware. Furthermore, individuals in the Jordanian community might solicit information via traditional channels such as newspapers, magazines and local agents. This would probably undervalue the importance of seeking information via the web. This implies that the Jordanian telecommunication organization should invest more time in thinking how they can draw the consumer's attention to seek information using their websites. In addition, these organizations should think how they can facilitate the favorable face-to-face communication on their websites. Based on the results of this study, recommendations and suggestions were provided as in the following:

Telecommunication organizations in Jordan should increase consumers' awareness about the various e-services provided on their websites.

Telecommunication organizations in Jordan should also provide a face-to-face resemblance to consumers on their websites. This may be implemented using online customer services where consumers would be able to acquire immediate up-to-date, accurate and useful information over the web.

The Jordanian Telecommunication organizations should adopt a user-centred-design approach where users' feedback is taken into consideration during the design time of their websites. This in turn would enhance the perceived consumers' quality and ultimately would enhance their satisfaction.

There is several future research directions that would be accomplished based on this study. For instance, to investigate how different cultural

factors affect the consumer's satisfaction within the domain of e-commerce. Such investigation would enhance the understanding of these cultural factors and would make possible for cross-cultural websites quality studies. Furthermore, it would be interesting to investigate the effect of website quality on the consumer's purchase intention in Jordan.

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