

MEASURING THE QUALITY OF E-SERVICES AND ITS IMPACT ON STUDENTS SATISFACTION AT JORDANIAN UNIVERSITIES

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ABSTRACT

This research aims at measuring the quality of E-Services and its impact on student satisfaction at Jordanian universities. Toward this aim, a research model was developed and tested within the context of Jordanian universities. A questionnaire consisting of 40 (Likert) type items were distributed to a convenience sample of 755 respondents. Primary data were collected from 703 students with a response rate of 90.7%. SPSS package was used to determine if the quality of E-services dimensions (Website design, reliability, efficiency, responsiveness, ease of use, availability and privacy) has an impact on students' satisfaction expect for the dimension of ease of use. In addition, the researchers present some recommendations for universities to apply e-services quality dimensions through websites, and some suggestions for future research.

Keywords: *Students Satisfaction, Electronic Services Quality, Jordanian Universities.*

1. INTRODUCTION

Since the internet was invented, websites have become an important channel for companies to provide services [1]. Due to great technological developments, it has become obvious in the last few years that there is an increase in the demand for electronic services in the different aspects and sectors of communities, one being higher education, which has become heavily dependent on electronic services to communicate with its students, as well as to supply and provide them with different electronic services.

In addition to the fact that university education has become a great concern for all countries of The world, it has also gone through continual development in order to keep pace with the needs of the individual, society, and the characteristics portent to a scientific and technical era [2]. Accordingly, it is looked to university education on the basis of the distinct role that it plays in the societies' progress and evolvment by preparing

staff, and human, technical, scientific, cultural, and professional sources, and also by preparing intellectual leaderships in the different fields of education: educational, scientific, and professional [3].

The extending growth in the Jordanian Education sector, especially the universities sector which has reached up to 30 universities, leads to increasing competition between the universities [4]. Accordingly, since websites have become the gate where universities can communicate with students, universities focus on the improvement of the quality of the offered services through their websites in order to obtain students' satisfaction about the provided services via these sites [5]. Universities, of course, should be concerned about students' satisfaction in general, because this satisfaction increases the percentage of students who use the websites of the respective universities [6].

Due to the fact that customers are always seeking to get the best services, organizations are trying to do their utmost to improve and develop methods and applications to provide these services in order to obtain their clients' satisfaction and retention. Moreover, for the sake of growth and development, the management of quality and the achievement of the customer's satisfaction have become the obsession for institutions' services, including the educational services, where the client's satisfaction has become their focused concern [7]. Efforts are also made to continue to search for and identify the needs and the expectations of the customer, and to provide a service which will result in his/her satisfaction; especially since the revolution of communication technology and informatics has enabled the client to easily differentiate between the services according to his/her desires and choices [8].

2. THEORETICAL BACKGROUND AND LITERATURE REVIEW

The Higher Education System in Jordan started in 1951 with a one-year post-secondary teacher training institute. The first public university, University of Jordan, was established in 1962 with 167 students. The first private university, Amman Private University, was established in 1990 with 1324 students.

The number of public universities, as a result, has reached 10, besides 17 universities that are private, and 51 community colleges, in addition to the World Islamic Sciences and Education University. This progress in the number of universities was accompanied by a significant increase in the number of students enrolled in these universities, where the number of enrolled students in both public and private universities is estimated at nearly 236 thousand; 28 thousand out of the total are from Arab or foreign nationalities. Thus, the pride created by this development as well as progress puts us face-to-face with various challenges, the thing which leads us to put in more effort to overcome the difficulties and obstacles that stand before us, and to realize a balance between the spread of higher education and its establishment on one hand, and its level and quality on the other (www.mohe.gov.jo).

2.1 Customer Satisfaction

Customer satisfaction is one the most pivot issues of all organizations and companies and governmental sectors [6]. Early conceptions of satisfaction research have typically defined

“satisfaction” as a post choice evaluative judgment concerning a specific purchase decision [9, 10]. More researchers agree that satisfaction is an attitude or evaluation that is formed by the customer comparing their pre-purchase expectations of what they would receive from the product to their subjective perceptions of the performance they actually did receive [10].

2.1.1 Definition of customer satisfaction

Several authors have defined satisfaction in different ways. The following table will present some definitions of customer satisfaction that will give a clear idea about the concept of satisfaction [6].

Table1: Definitions Of Customer Satisfaction

| Author | Definition |
|-------------|---|
| Kotler [11] | Satisfaction is a person's feeling of pleasure or disappointment resulting from comparing a products perceived performance (or outcome) in relation to his or her expectations. |
| Yi [12] | Customer satisfaction is a collective outcome of perception, evaluation and psychological reaction to the consumption experience with a product/service. |
| Hunt [13] | Satisfaction is a function of consumer s' belief that he or she was treated fairly |

*Source: Saha and Zhao [6].

2.1.2 Satisfaction formation

In marketing literature [9, 10] as well as in recent information system studies [14], the **disconfirmation theory** emerges as the primary foundation for satisfaction models. According to this theory, satisfaction is determined by the discrepancy between perceived performance and cognitive standards such as expectation and desires [15]. **Customer expectation** can be defined as customer's pretrial beliefs about a product [14]. Expectations are viewed as predictions made by consumers about what is likely to happen during impending transactions or exchanges [16]. Perceived performance is defined as customers' perception of how product performance fulfills their needs, wants and desires [17]. Perceived quality is the consumer's judgment about an entity's overall excellence or superiority[16].

Disconfirmation is defined as consumer subjective judgments resulting from comparing their expectations and their perceptions of received performance [14, 18]. Oliver [10] described the process by which satisfaction judgments are reached in the expectancy-disconfirmation framework. Figure-1 shows how satisfaction judgment is related to the expectancy-disconfirmation approach. Buyers form expectations of the specific product or service before purchase and perceived quality level which is influenced by expectations.

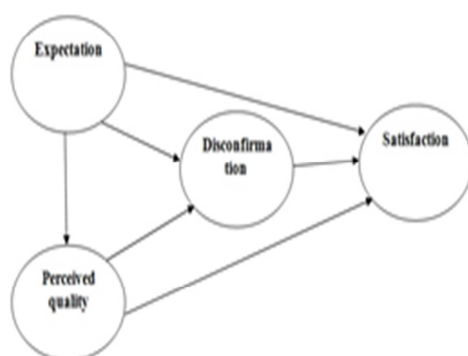


Figure 1: Satisfaction Formation

*Source: (Oliver referred to in Anderson and Sullivan [19])

2.1.3 Satisfaction and service quality:

As a process in time, service quality takes place before, and leads to overall customer satisfaction [6]. Service quality has been found to be an important input to customer satisfaction [20]. Cronin Jr and Taylor [21] originally hypothesized that satisfaction is an antecedent of service quality, their research with a multi industries sample showed, in a LISREL analysis, an opposite relationship. Service quality appears to be only one of the service factors contributing to customers' satisfaction judgments [18, 21]. A number of academics such as [22-25] and others have tried to identify key determinants by which a customer assesses service quality and consequently results in satisfaction or not. Jayawardhena and Foley [26] suggested that service quality features in internet banking websites are critical to enhance customer satisfaction.

2.2 E-Service Quality

The first formal definition of website service quality or e-service quality was provided by [7]. In their opinion, e-service quality can be defined as the extent to which a website facilitates efficient and effective shopping, purchasing, and delivering of products and services. As stated in the above definition, the meaning of service is comprehensive, which includes both pre- and post-website service aspects.

Academic research has identified a number of criteria that customers use in evaluating websites in general and service quality delivery through websites, in particular. These include information availability and content, ease of use, privacy/security, and graphic style and fulfillment [5].

2.2.1 Measurement of service electronic quality

Concerning delivery through websites, based on concepts from the service quality and retailing literature, Wolfinbarger and Gilly [27] used online and offline focus groups, a sorting task, and online survey of a customer panel to develop a scale named .comQ with four factors: website design, reliability, privacy/security and customer service. The contents of each dimension were (1) Website design: involving the expected attributes associated with design, as well as items dealing with personalization; (2) Reliability: involving accurate representation of the product, on time delivery and accurate orders; (3) Privacy/security: feeling safe and trusting the site; (4) Customer service: combining interest in solving problems and the willingness of personnel to help and prompt answers to enquiries. Using concepts and attributes from both the service quality and retailing literatures, the scale contains 14 attributes in these four factors.

2.2.2 Electronic service quality

In the last few years several models, developed to assess the quality offered by a website, have appeared. They constitute the main tool available for conducting this evaluation. The next step is to present the most important models. After which, their efficiency in evaluating the level of satisfaction offered through a website will be analyzed, in accordance with the previous framework.

2.2.3 E-Servqual model

SERVQUAL (Service Quality) was developed to cover the lack of an instrument to measure

quality of service [25]. The model is based on a standardized questionnaire, composed of 22 pairs of questions with two differentiated parts; the first one measures quality expectations on the part of users through 22 statements; the second one is dedicated to the evaluation of user perception of quality, using a further 22 statements. Every pair of statements is grouped in accordance with 5 attributes, each of which, according to its creators, constitutes the basis of quality of service: tangible elements, reliability, efficiency, security and empathy.

Due to the success of the SERVQUAL model in service quality evaluation, an adaptation of this tool has been developed for its use in the e-commerce context. As a result, the e-SERVQUAL model was born. The e-SERVQUAL model [5] is a conceptual model of service quality for e-tailing environments. The model is composed of 7 service quality characteristics: efficiency, fulfillment, reliability, privacy, responsiveness, compensation and contact. In comparison with the rest of the models, e-SERVQUAL has as an advantage that it is based on the SERVQUAL approach, which has been extensively tested in measuring service quality in a variety of contexts. In spite of the received critiques, the model SERVQUAL constitutes the tool most used in collecting appraisals assigned by the users to the services they receive, because of his application to different sectors to evaluate the quality of services provided.

2.2.4 Webqual model

Loiacono [28] established a scale called WEBQUAL with twelve dimensions: informational fit to task, interaction, trust, response time, design, intuitivtiess, visual appeal, innovativeness, flow, integrated communication, business and substitutability. The WebQual model [29] is based on the application of communication theory to understand customer – e-commerce interaction. Its main instrument is an online questionnaire which is applied to assess customer s' perceptions of the quality of websites. The questionnaire contains a set of qualitative items, evaluated using a seven-point scale, from 1 (strongly disagree) to 7 (strongly agree). Website users are also asked to rate each item for importance, again using a seven-point scale, from 1 (least important) to 7 (most important). WebQual has been under development since 1998 and has undergone numerous iterations. In the current version (WebQual 4.0), the questions 23 cover 4 characteristics of customer's perceived quality: usability, design, information quality and

service interactions.

2.2.5 Website quality model

The Website Quality model [30] is composed of a set of quality factors of website design, divided into categories and features, where each feature guides the incorporation of customers' quality expectations into the design of a website. The categories include information content, cognitive outcomes, enjoyment, privacy, user empowerment, visual appearance, and technical support, and navigation, organization of information content, credibility and impartiality. Using a questionnaire, each user evaluates the level (basic performance or exciting) for each evaluated category. Although the model is oriented towards the design and usability of the website, it also considers other factors, like the customer – website interaction. The model has been applied in multiple domains (e-education, e-tailing, e-finance...).

2.2.6 Dimensions of e-service quality

The SERVQUAL scale [31] can evidently not be applied as such to e-services, but dimensions that closely resemble them can be constructed. Nonetheless, additional dimensions may be needed to fully capture the construct of e-services quality [5]. Zeithaml, Parasuraman [5] identified dozens of Web site features at the perceptual attribute level and categorized them into 11 e-SQ dimensions:

- **Reliability:** Correct technical functioning of the site and the accuracy of service promises (having items in stock, delivering what is ordered, and delivering when promised), billing, and product information.
- **Responsiveness:** Quick response and the ability to get help if there is a problem or question.
- **Access:** Ability to get on the site quickly and to reach the company when needed.
- **Flexibility:** Choice of ways to pay, ship, buy, search for, and return items.
- **Ease of navigation:** Site contains functions that help customers find what they need without difficulty, has good search functionality, and allows the customer to maneuver easily and quickly back and forth through the pages.
- **Efficiency:** Site is simple to use, structured properly, and requires a minimum of information to be input by the customer.

- **Assurance/trust:** The confidence the customer feels in dealing with the site due to the reputation of the site and the products or services it sells, as well as clear and truthful information presented.
- **Security/privacy:** The degree to which the customer believes the site is safe from intrusion and personal information is protected.
- **Price knowledge:** The extent to which the customer can determine shipping price, total price, and comparative prices during the shopping process.
- **Site aesthetics:** The appearance of the site.
- **Customization/personalization:** How much and how easily the site can be tailored to individual customers' preferences, histories, and ways of shopping.

Zeithaml, Parasuraman [5, 7] developed the e-SERVQUAL measure of e-service quality to study how customers judge e-service quality. This new model was drawn up through a three-stage process involving exploratory focus groups and two phases of empirical data collection and analysis. It contains seven dimensions: efficiency, reliability, fulfillment, privacy, responsiveness, compensation and contact. The first four dimensions are classified as the core service scale, and the latter three dimensions are regarded as a recovery scale, since they are only salient when online customers have questions or problems. Contents of each dimension are shown below:

- Core service scale in e-SERVQUAL
 - Efficiency: the ability of customers to get to the website, find their desired product and information associated with it, and check out with minimal effort.
 - Fulfillment: accuracy of service promises, having products in stock, and delivering the products in the promised time.
 - Reliability: the technical function of the site, particularly the extent to which it is available and properly functioning.
 - Privacy: the assurance that shopping behavior data are not open and that credit card information is secured.
- Recovery service scale in e-SERVQUAL
 - Responsiveness: measures the ability of e-retailers to provide appropriate information to customers when a problem occurs, has mechanisms for handling returns, and provides online guarantees.

- Compensation: involves receiving money back and returning shipping and handling costs.
- Contact: The need of customers to be able to speak to a living customer service agent online or on the phone.

Kaynama and Black [32] suggest the SERVQUAL dimensions to e-services and they subjectively evaluate the online services of 23 travel agencies and seven dimensions derived from SERVQUAL: responsiveness, content and purpose (derived from reliability), accessibility, navigation, design and presentation (all derived from tangibles), background (assurance), and personalization and customization (derived from empathy).

Based on the literature review Madu and Madu [33] proposed 15 dimensions of online service quality dimensions: performance, features, aesthetics, reliability, storage service ability, security and system integrity, trust, responsiveness, product / service differentiation and customization, web store policies, reputation, assurance and empathy. Wolfenbarger and Gilly [27] indicated that there are four online retailing service quality dimensions through focus group interviews and online survey. These are website design, reliability, and privacy/security and customer service. They found that reliability and fulfillment is the strongest predictor of customer satisfaction.

A relationship between satisfaction and online service quality dimensions is identified by [34]. These service quality dimensions are reliability, responsiveness, ease of use, and competence. Furthermore, Yang and Jun [35] have uncovered six prominent factors to evaluate e-tailers service quality – reliability, access, ease of use, personalization, security and creditability.

Griffith and Krampf [36] found that the access and responsiveness of the website are the key indicators of service quality delivered through the web. In their study access was operationalized as the provision of a hot-link e-mail address and telephone numbers of customer service agents. Responsiveness was measured by the promptness of the e-tailer responds to e-mails.

Six dimensions of consumer perception of service quality are identified and measured by [37]:

1. Ease of use means user friendliness, loading/transaction speed, search capability, and ease of navigation.
2. Content contained on the website, particularly information that matches the needs of the consumer.
3. Accuracy of content
4. Timeliness of response
5. Aesthetics, involving attractiveness of the site and catalog pictures
6. Privacy

Measurement of website success in the context of electronic commerce is identified by [38]: quick responsiveness, assurance, reliability, empathy, and follow up service. First, the quality of information consists of relevant, accurate, timely, customized and complete information presentation. The second important factor is the services, including quick response, assurance, empathy, and follow up. Third, system use includes security, correct transaction, customer control on transaction orders, tracking facilities and privacy.

3. RESEARCH MODEL AND HYPOTHESIS

Based on the theoretical framework and literature review, the researcher has constructed the proposed model shown in Figure (2) below. The model illustrates the independent variables (Website design, Reliability, Responsiveness, Privacy, Ease of use, Efficiency, Availability), the dependent variable (Satisfaction).

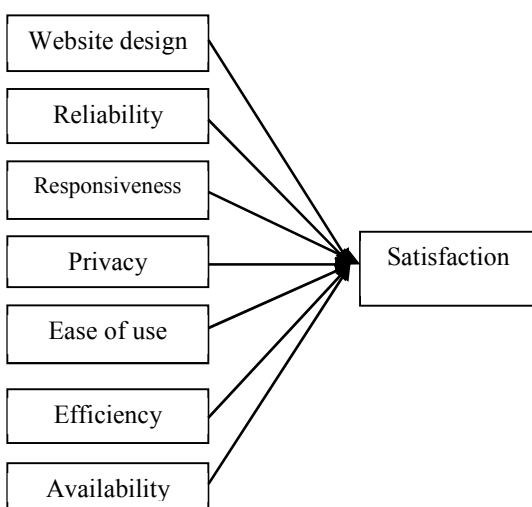


Figure 2: Research Model

Accordingly, the relationships between the independent variables and the dependent variable are hypothesized as following:

Table 2: Summary of Study Hypotheses

| Number of hypothesis | The hypothesis |
|----------------------|--|
| H1 | Website design does not have a significant impact on student's satisfaction. |
| H2 | Reliability does not have a significant impact on student's satisfaction. |
| H3 | Responsiveness does not have a significant impact on student's satisfaction. |
| H4 | Privacy does not have a significant impact on student's satisfaction. |
| H5 | Ease of use does not have a significant impact on student's satisfaction. |
| H6 | Efficiency does not have a significant impact on student's satisfaction. |
| H7 | Availability does not have a significant impact on student's satisfaction. |

4. RESEARCH METHODOLOGY AND DATA ANALYSIS

A survey approach is employed in this study, as it allows the researcher to collect a large amount of information used to test the hypotheses [39, 40]. In addition, this approach is less expensive than many others [41]. Polit and Beck [42] defined the survey as “designating any research activity in which data is obtained from a specific population for the purpose of examining characteristics, opinions or intentions of that population”. Advantages of using the survey method include that it is flexible, useful for the discovery of new insights as well as for pointing out typical responses, can be applied to many people and provides data about the present, what people are thinking doing and anticipating [43].

4.1 Research Sample And Sampling Design

A sample consists of all units of the population that are drawn for investigation [44]. The researcher's understanding of a sample is that it should be representative of the population of the study. Also, the characteristics of a sample should be the same as those of the population from which the sample is selected [45]. According to Mnisi [45], the researcher must determine the size of the sample that will provide sufficient data to answer the research question. A general rule for determining sample size is to use the largest sample possible [46].

In this study, 703 questionnaires were gathered and analyzed, and this is considered a "large" sample size based on [46]. Due to time and cost constraints, a convenience sample of Jordanian universities students was selected.

According to the research problem the researcher chose four universities to gather information based on services provided through their websites, these four universities was (Mutah University, university of Jordan, Petra University and Arab Open University). University of Jordan and Mutah University were the first universities applying electronic registration, providing students marks through websites and many other pioneer services on their website, on the other hand Petra University website got the first rank of special universities websites in Jordan according to((webometrics)) classification. Finally Arab Open University website characterized by various unique services such as databases, e-learning, student support system and E-library.

The number of survey questionnaires distributed to universities students was 775 questionnaires. Of the distributed questionnaires, 734 were successfully returned. After the data cleaning process, 29 cases were deleted because the students had not completed the questionnaire properly. Finally, 703 effective questionnaires were analyzed in this study, at a 90.7% response rate.

4.2 Data collection

This study was used questionnaire as a main to obtain the data needed. Survey research involved the collection of quantitative data from a sample of elements drawn from a well-defined population through the use of a questionnaire [47]. Selected respondents were asked questions and their answers

were collected in a structured, precise manner, thus enabling the researcher to test the research hypothesis [40].

4.3 Data Analysis

From the results showed in figure () Website design has a significant direct effect on student satisfaction (sig = 0.000). Reliability has a significant direct effect on student satisfaction (sig = 0.009). Responsiveness has a significant direct effect on student satisfaction (sig = 0.000). Privacy has a significant direct effect on the student satisfaction (sig = 0.001). Furthermore, the results found that ease of use has an insignificant direct effect on student satisfaction (sig = 0.159). The results suggest that Efficiency has a significant direct effect on student satisfaction (sig = 0.000). In addition, the results indicate that availability has a significant direct effect on student satisfaction.

After testing the model, the researcher accepted all hypotheses excluding Ease of use as following:

Table 3: Summary Of Results

| Results | The hypothesis |
|----------|--|
| Rejected | H1: Website design does not have a significant impact on student's satisfaction. |
| Rejected | H2: Reliability does not have a significant impact on student's satisfaction. |
| Rejected | H3: Responsiveness does not have a significant impact on student's satisfaction. |
| Rejected | H4: Privacy does not have a significant impact on student's satisfaction. |
| Accepted | H5: Ease of use does not have a significant impact on student's satisfaction. |
| Rejected | H6: Efficiency does not have a significant impact on student's satisfaction. |
| Rejected | H7: Availability does not have a significant impact on student's satisfaction. |

5. DISCUSSION OF THE FINDINGS:

H1: It was found that there is a significant statistical impact of website design on student satisfaction. In terms of significance, this finding is similar with previous research which has found that poor graphic design elements and presentation styles can confuse and negatively affect consumers' willingness to browse or buy through an online channel [48, 49]. Bressolles and Durrieu [50] suggest that the website design has a positive impact on customer satisfaction. Also a recent empirical study finds that the factors of the website design are the strong predictors of customer quality judgments, satisfactions, and loyalties for internet retailers [51]. Due to an increase of internet users, especially youths and university students, a huge number of websites with various designs are visited, and so students begin to compare between the different websites, thus indicating that the website design has a significant impact on satisfaction.

H2: Hypothesis 2 concerning reliability was rejected. Lee and Lin [52] argued that the dimension of the reliability has a direct positive effect on perceived e-service quality and customer satisfaction. If customers cannot trust an organization to do what they ask, then those customers will be dissatisfied [53].

Wolfenbarger and Gilly [27] found that reliability is the strongest predictor of customer satisfaction. Yang and Fang [34] further examined the differentiation of dimensions to online service satisfaction and dissatisfaction, and suggest that reliability is a factor leading to either satisfaction or dissatisfaction.

Accordingly, these results are similar to the results of this study, and indicate that reliability affects customer satisfaction. Students' consideration of reliability can be seen as an indicator to satisfaction because when students visit the university website they want to get exactly what they want, and need an accurate service with a high degree of reliability.

H3: Yunus, Ishak [54] found that responsiveness is positively and significantly related to customer satisfaction. This finding is consistent with studies by Parasuraman, Zeithaml [25], and Eggert and Ulaga [55]. Moreover, Lee and Lin [52] identified responsiveness as one of the most important dimensions of e-service quality in

online shopping. When students visit the university website they expect to finish their transactions quickly, and when they need help they expect prompt reaction. Students also anticipate that the communication channels between students and university are through the website, and so students indicate that responsiveness leads to satisfaction.

H4: Many previous studies examine the relationship between privacy and customer satisfaction. The protection of privacy is an important service quality aspect for shopping websites [28, 38]. Whether the customer's privacy is protected and the details are transferred securely are important factors when consumers assess a website's service quality [1, 5]. Other studies, such as Sun, Wang [56], also indicate that privacy affects customer satisfaction. All these previous stud results agreed with this research's results.

Any customer involved in online shopping hopes to have a high degree of security that will protect his information, meaning that their information can't be hacked by any one. Therefore this variable is considered as an indicator to satisfaction.

H5: literature indicated that ease of use is the most critical and important facet in customers' perception of e-service quality [5, 57-59]. According to Yoo and Donthu [60], the ease of usage dimension is one of the most significant dimensions that have influenced customers' satisfactions and behaviors. The technology acceptance model (TAM) suggests that perceived usefulness and perceived ease of use are beliefs about new technology that influence an individual's attitude toward and use of that technology [44]. Devaraj, Fan [61] measured consumer satisfaction through the Technology Acceptance Model, and concluded that ease of use has an indirect effect on e-satisfaction.

The result of testing this hypothesis does not support the previous studies. The researcher believes that the characteristics of study population interpret this result because 80.7% of respondents have a PC, 41.3% of respondents were using the internet for more than 5 years, and 71,1 % of respondents had spent less than 10 minutes per university website visit. All these numbers show that the study population has experience in using computers and internet. With that in mind, along with the fact that the average university website visit is less than 10 minutes, it could be concluded

that the dimension of ease of use is not an indicator for satisfaction.

H6: Several research attempts have studied the relationship between efficiency and satisfaction. Yen and Lu [62] suggest that efficiency has a direct influence on customer satisfaction. Sun, Wang [56] showed that efficiency affects customer satisfaction. Also, many studies [1, 31, 51, 63] indicated that efficiency is positively associated with overall satisfaction. All these findings are consistent with the results of this study about Efficiency. Students as university customers expect to get speed services and spend minimum effort to finish their transactions when they visit the university website, and therefore, students mentioned the reliability factor as a satisfaction indicator.

H7: A few studies explain the relationship between availability and satisfaction. Sun, Wang [56] indicated that availability affects satisfaction. Also, Sahadev and Purani [64] describe availability as an effective factor of satisfaction. Empirical research by Parasuraman, Zeithaml [31] even showed that system availability had a major influence on customers' perception of website's value, overall quality and even their loyalty. The findings above support the results of this study about availability and its effect on customer satisfaction. Students expect the website is available all the time, and if students visit the website in different times and find the website not in service, they will not be satisfied. Accordingly, students feel that a website service being round-the-clock operative is an important factor when they assess website quality.

6. CONCLUSION

This study aimed to measuring the quality of e-services and its impact in student's satisfaction at Jordanian universities. The results show that all of the E-services dimensions (Website design, reliability, efficiency, responsiveness, availability and privacy) have an impact on student's satisfaction expect for the dimension of ease of use.

Depending on the results of this study, the decision makers in the Jordanian universities should concern in enhancing services providing through universities websites cause that will lead to improve the communication experience between universities and students.

Also Through the online services provided by university websites, the university can gain competitive advantages by offering electronic services quality which, in turn, adds value to the website, like registration through the website, lecture downloads, personalization of the services, and the creation a communication channels between lecturers and students.

The study was based only on universities, which may limit the generalization of the results to all educational service sectors. On the other hand further studies on services quality measurement can focus on issues concerning how demographic variables affect satisfaction.

Future studies should employ other data collection techniques, such as interviews or focus group discussions. Also should consider the focus groups, expert discussions and literature reviews for determining and selecting the scale items. In addition further studies on services quality measurement can focus on issues concerning how demographic variables affect satisfaction

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