

## A study on measuring the quality of university website

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### ABSTRACT

During the past few years, many organizations try to provide some of their services through their websites. This would help them provide fast and reliable services to various people around the world. In this paper, we present an empirical survey to measure the relative performance of a university website in Iran using Parasuraman's technological readiness index. The proposed study uses a standard questionnaire and distributes it among 387 active website users and the results are analyzed using structural equation modeling. The proposed study of this paper considers the effects of four factors including efficiency, accessibility, achievement and security on customer loyalty via two variables of trust and satisfaction. The results demonstrate that three components of trust, efficiency and achievement play essential role on customer loyalty.

## 1. Introduction

During the past two decades, most universities have built active websites to exchange necessary information with their clients. Students are not able to do many operations such as online registration, marking information, exam schedules through the university websites. Some people also participate in online classes through web applications and even do some of their exams through internet applications. Therefore, it is important to measure the quality of websites and do a continuous improvement through well-known methods (Parasuraman, 2000). Ellahi and Bokhari (2013), for instance, evaluated the quality factors of websites and their impact on users' perceptions about quality in the context of social networking websites. They found six important factors namely efficiency, entertainment, community drivenness, privacy, user friendliness, efficiency and navigability for the service quality of social networking websites. They reported that web appearance was identified as less important for social networking website users.

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Chou and Cheng (2012) built a hybrid approach, which combines the fuzzy analytic network process (FANP) and fuzzy VlseKriterijumska Optimizacija I Kompromisno Resenje (FVIKOR) for assessing website quality of the top-four CPA firms in Taiwan and provided worthwhile suggestions for enhancing website design and content. Their results indicated that CPA firms included in their study did not utilize the Internet to its full potential and have to improve their websites. According to their survey, Deloitte had the best overall performance, follow by PricewaterhouseCoopers, Ernst & Young, and KPMG. Besides, the top-five evaluation criteria in order of importance are richness, understandability, assurance, relevance, and reliability. They claimed, the findings of their study could help CPAs detect the strengths and weaknesses of the websites and in comparison with those of their competitors, and then make resource allocation decisions about how to make improvement on the status quo and achieve ideal websites. Cebi (2013) presented a quality evaluation model for the design quality of online shopping websites. They proposed a new method named the quality evaluation model (QuEM), which included fuzzy set theory, the decision-making trial and evaluation laboratory method (DEMATEL), and generalized Choquet integral techniques. The critical design characteristics of websites were determined based on interactions among them by using DEMATEL. Then, the degrees of importance were utilized in the generalized Choquet integral to assess the perceived design quality of website designs. Fuzzy set theory was implemented to cope with ambiguity in the linguistic evaluation of the various design characteristics and supported the analysis of the collected data. Finally, the proposed method was used for the evaluation of the quality of the most popular shopping websites in Turkey.

According to Bai et al. (2008), with the increasing popularity of online shopping and being the most populated country in the world, China has become online markets and it is likely to become the largest market in the future. In such circumstances, website quality has recognized as a critical step to drive business online. As such, numerous studies have been devoted to website quality and evaluations. Many studies, however, are required to understand the use of websites in terms of online customers' behavior, especially Chinese customers. Bai et al. (2008) developed and examined a conceptual model of the effect of website quality on customer satisfaction and purchase intentions. Their results showed that website quality had a direct and positive effect on customer satisfaction, and that customer satisfaction had a direct and positive effect on purchase intentions. While the effect of website quality on purchase intentions exists, customer satisfaction did significantly mediate this impact. Kim and Niehm (2009) investigated the impact of website quality on information quality, value, and loyalty intentions in apparel retailing. They reported that among the website quality dimensions, interactivity, online completeness, ease of use, and entertainment significantly impact perceived information quality. Perceived information quality influenced perceived value and loyalty intentions and perceived value influences loyalty intentions toward apparel retail websites. The post-hoc test disclosed that entertainment and trust influenced perceived value. Online completeness and entertainment were detected to impact loyalty intentions. Strategic suggestions were provided for e-retailer improvement of website information quality, such as utilizing entertaining and engaging devices and designing their websites for consumer comprehension.

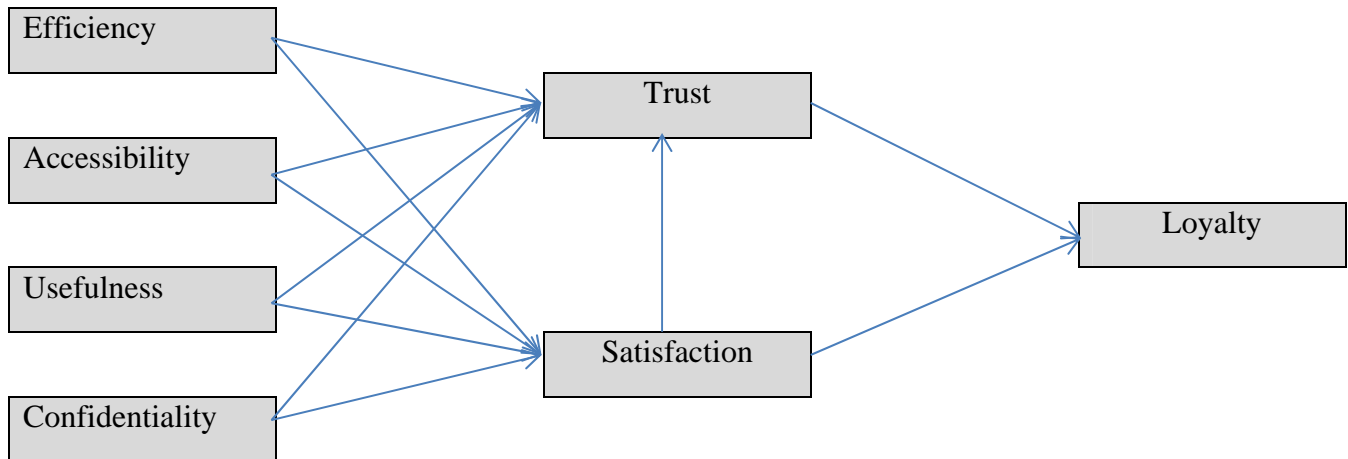
## 2. The proposed study

The proposed study of this paper considers the effects of four factors including efficiency, accessibility, achievement and security on customer loyalty via two variables of trust and satisfaction. Fig. 1 demonstrates the structure of the proposed study. The population of this survey includes all potential users of the website of Payame Noor University located in province of Semnan, Iran. The sample size is calculated as follows,

$$N = Z_{\alpha/2}^2 \frac{p \times q}{e^2}, \quad (1)$$

where  $N$  is the sample size,  $p = 1 - q$  represents the probability,  $z_{\alpha/2}$  is CDF of normal distribution and finally  $\varepsilon$  is the error term. For our study we assume  $p = 0.5$ ,  $z_{\alpha/2} = 1.96$  and  $e = 0.99$ , the number of

sample size is calculated as  $N=387$ . In our survey, 180 participants were male and the remaining people were female. In terms of their age, 33 people were less than 20 years of age, 248 people were between 21 to 30 years of age, 81 people were 31-40 years old and the remaining 25 people were older than 40 years of age. In terms of educational background, 327 people hold bachelor degree, 49 people hold masters degree and 11 people hold PhD degree. In our survey, 81 people were visiting the website on daily basis, 146 people were visiting on weekly basis, 96 people were monthly visitors and 64 of them were visiting only once per term. Finally, 46 of them were university professors, 272 of them were students and the remaining 69 participants were regular employees.



**Fig. 1.** The proposed model

Based on the proposed study of this paper, we have considered the following eleven hypotheses,

1. Efficiency influences customer satisfaction, positively.
2. Efficiency influences customer trust, positively.
3. Accessibility influences customer satisfaction, positively.
4. Accessibility influences customer trust, positively.
5. Usefulness influences customer satisfaction, positively.
6. Usefulness influences customer trust, positively.
7. Confidentiality influences customer satisfaction, positively.
8. Confidentiality influences customer trust, positively.
9. Customer satisfaction influences customer trust, positively.
10. Customer satisfaction influences customer loyalty, positively.
11. Customer trust influences customer loyalty, positively.

The questionnaire of this survey has been designed in Likert scale and Cronbach alpha has been used to verify the overall questionnaire, which are summarized in Table 1 as follows,

**Table 1**

The summary of Cronbach alpha

Component	# of questions	Cronbach alpha
Efficiency	8	0.861
Accessibility	4	0.749
Usefulness	5	0.768
Confidentiality	3	0.823
Trust	4	0.719
Satisfaction	3	0.787
Loyalty	5	0.847
Total	32	0.945

As we can observe from the results of Table 1, all components maintain well above the minimum acceptable limit of 0.70, which means we can rely on the results of the survey.

### 3. The results

In this section, we present details of our investigation using structural equation modeling. Table 2 demonstrates the results of our survey.

**Table 2**

The summary of the standard value and t-student

Structure	Question	Std. dev	t-value
Efficiency CR=0.85			
EFFIC 1	The access to required information has become easier through this website.	0.61	-
EFFIC 2	It is easy to access to different parts of the website.	0.62	13.87
EFFIC 3	I can reach to all required educational information through this website.	0.72	11.25
EFFIC 4	This information of this website has been well organized .	0.68	10.79
EFFIC 5	The pages are loaded fairly quickly.	0.57	9.50
EFFIC 6	It is easy to use this website.	0.64	10.30
EFFIC 7	This website helps me reach all required parts very quickly.	0.67	10.73
EFFIC 8	Overall, I believe this website has been well organized.	0.72	11.26
Accessibility CR=0.60			
AVAIL 1	This site is always available for educational purposes.	0.72	-
AVAIL 2	This website works very quickly.	0.53	99.9
AVAIL 3	This website never becomes down.	0.38	7.18
AVAIL 4	When I enter the website all pages work, properly.	0.37	6.90
Usefulness CT=0.73			
FULFILL 1	The site provides all I need.	0.60	-
FULFILL 2	The website provides everything very quickly.	0.65	12.50
FULFILL 3	This website provides necessary information.	0.66	10.18
FULFILL 4	All services are reliable.	0.33	5.78
FULFILL 5	The website does what it promises.	0.69	10.57
Security CR=0.85			
PRIVAC 1	The website provides secure information.	0.77	-
PRIVAC 2	The website does not disclose my private information to the third party.	0.80	14.76
PRIVAC 3	The site does not give my profile to others.	0.77	0.4114
$X^2 = 475.91$ , $df = 160$ , $RMSEA = 0.072$ , $GFI = 0.91$ , $CFI = 0.97$ , $TLI = 0.96$			
Trust CR = 0.72			
TRUST 1	I trust to this website.	0.74	-
TRUST 2	I guess I know what I expect from this website.	0.41	7.55
TRUST 3	I am sure the web designer will not abuse my information.	0.67	12.28
TRUST 4	I am sure there will be no problem on using the website.	0.65	11.93
Satisfaction CR = 0.79			
SATISF 1	I am satisfied from the services.	0.78	-
SATISF 2	I am satisfied from this website in the past.	0.68	13.72
SATISF 3	I believe this website cares about its customers.	0.77	15.69
Loyalty CR=0.85			
LOYAL 1	When I talk to others I will talk about positive perspectives of this website.	0.68	-
LOYAL 2	I encourage my friends to use this website.	0.81	13.67
LOYAL 3	In future using this website will be my choice.	0.65	11.32
LOYAL 4	I will use more from this website in future.	0.73	12.55
LOYAL 5	I will help others use this website.	0.77	13.14
$X^2 = 128.61$ , $df = 51$ , $RMSEA = 0.063$ , $GFI = 0.95$ , $CFI = 0.98$ , $TLI = 0.98$			

In addition, Fig. 2 and Fig. 3 summarize the results of our survey.

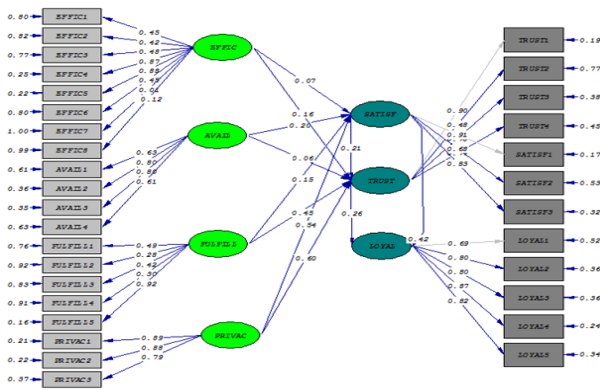


Fig. 2. The results of standard coefficients

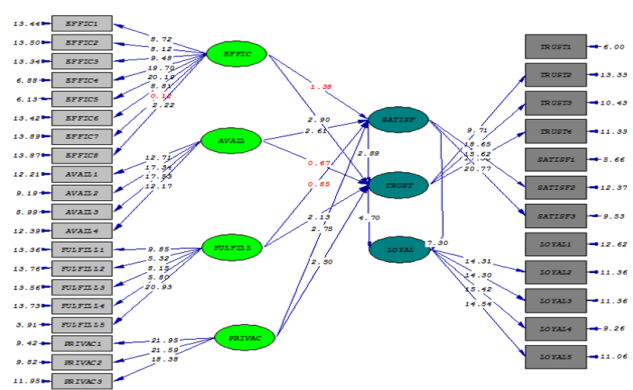


Fig. 3. The results of t-student values

Table 3 demonstrates the results of our survey on testing eleven hypotheses of the survey.

Table 3

The summary of testing hypotheses of the survey

Hypothesis	Result
1. Efficiency influences customer satisfaction, positively.	Rejected
2. Efficiency influences customer trust, positively.	Confirmed
3. Accessibility influences customer satisfaction, positively.	Confirmed
4. Accessibility influences customer trust, positively.	Rejected
5. Usefulness influences customer satisfaction, positively.	Rejected
6. Usefulness influences customer trust, positively.	Confirmed
7. Confidentiality influences customer satisfaction, positively.	Confirmed
8. Confidentiality influences customer trust, positively.	Confirmed
9. Customer satisfaction influences customer trust, positively.	Confirmed
10. Customer satisfaction influences customer loyalty, positively.	Confirmed
11. Customer trust influences customer loyalty, positively.	Confirmed
1. Efficiency influences customer satisfaction, positively.	Confirmed

As we can observe from the results of Table 3, nine out of eleven hypotheses of this survey have been confirmed. Therefore, we can conclude that efficiency and accessibility influence customer trust and customer satisfaction, positively. In addition, usefulness, influences customer trust, confidentiality influence customer satisfaction as well as customer trust, customer satisfaction impacts customer trust and customer loyalty. In addition, customer trust influences customer loyalty and efficiency influences customer satisfaction, positively.

4. Conclusion

In this paper, we have presented an empirical investigation to examine the effects of four variables of efficiency, accessibility, usefulness and confidentiality on customer loyalty through two components of customer trust and satisfaction. The proposed study of this paper was implemented on one of Iranian university website and the results of the implementation of structural equation modeling have confirmed that efficiency and accessibility influenced customer trust and customer satisfaction, positively. In addition, usefulness, influenced customer trust, confidentiality influenced customer satisfaction as well as customer trust, customer satisfaction impacted customer trust and customer loyalty. In addition, customer trust influenced customer loyalty and efficiency influences customer satisfaction, positively.

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