Identifying the Service Quality Factors for Web site: A Comparison of Web site Types

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ABSTRACT

The purpose of this study is to investigate the impacts of e-service quality factors on customer satisfaction and behavior intention by Web site types. Difference and moderating effect resulting from the type of web site users about an association with reaction of satisfaction and those component concepts are also one of the aims in the study. As a result, the study found that factors of web site service quality variables had positive impacts on customer satisfaction. And customer satisfaction also had a positive impact on relationship intention and word of mouth intention. Furthermore, through the comparative analysis, we found that the service quality differed on the effects of customer satisfaction by web site types. According to those results, marketing managers should develop different service strategies based on different web site types.

Keywords: *Web Site Types, E-Service Quality, Customer Satisfaction, WOM (Word of Mouth) Intention.*

1. INTRODUCTION

As the number of internet users is increasing rapidly and internet has the special characteristics and advantages, the e-buying behaviors are increasing rapidly as well. These years not only e-learning and communicating but also e-retailing, e-banking and e-travel industry have been performed through the Internet.

On the other side, researchers began to study the evaluation of online service quality. Foreign researchers Oliverira, Roth and Gilland [1], Ruyter, Wetzels and Kleijnen [2], Voss [3] etc derived the factors of measuring internet service quality through the measurement of offline service quality factors. Korean researchers G.S. Kim [4] and M.K. Lee [5] studied the impacts of web site service quality to consumer behavior.

Until now majority of the studies on web site service quality are carried out based on special webs, and are lacks of the generalization. And the multi-dimension access is needed in the current studies. To different types of web sites, the effects of factors which impact customer satisfaction may different, but until now no studies are carried out to compare the web site types. This study is to solve these existing problems and to develop the measurement of web site online service quality dimensions. The first objective is to summarize the dimensions and concepts of measuring online service quality. And then through establishing the hypotheses, to examine the relationship between overall service quality, satisfaction and WOM (Word Of Mouth) intention is the second objective. At last in order to improve the efficiency of the model, the different effects of service quality on customer satisfaction by web site types is analyzed as well.

2. LITERATURE REVIEW

2.1 Deriving the evaluation factors of web site service quality

The measurement scales of internet service quality are continuously being developed. The major studies on web site service quality measurement are summarized as follows. Through examining the existing studies on service quality, online service quality and internet shopping mall service quality, online service quality dimensions are derived into four dimensions which include contents, reliability, communication and entertainment

dimensions[6]-[10].

Table 1. Previous studies of web site service quality

Researchers	Studies of online service quality
Palmer & Griffith (1999)	negative effects of waiting time and the effective management of waiting experience
Kaynama et al. (2000)	accessibility, reference, design, contents, reactivity, interaction, reputation and safety, customization/personalization
Yoo & Donthu (2001)	connectivity, aesthetic design, speed, safety
van Riel et al. (2001)	core service, promotion service, supporting service, additional service, users' interface
Wolfinbarger & Gilly (2002)	reliability, customer service, utilization, contents, safety, protection of personal information, product assortment, environmental quality

2.2 Customer satisfaction

Customer satisfaction is a post evaluation of consumers' experience with the service and is captured as a positive feeling, indifference, or a negative feeling [11]. The concept of customer satisfaction has been studied for a long time in marketing fields. The studies of consumer behavior are important to post consumer purchasing behavior. That is because customer satisfaction could make a WOM effect on continuous purchasing behavior. Customer satisfaction is material to enterprise managers, which is because the higher the customer satisfaction is the more positive impact it, would be on enterprise revenue and WOM effect.

2.3 Online Word Of Mouth

Online WOM is generally defined as 'Internet WOM' or 'Word of Mouse' and Electronic WOM [12]-[14]. Nowadays WOM information such as product evaluation, professional association community, product/service community, consumer review professional site that could not be imaged offline but exist online, the digitalized information is more quickly and easy to change with each other [15]. Gelb and Sundram [16] found that potential consumers would change the information not only with friends or associates, but also through internet such as news group consumer forum, these basic information changes are called WOM.

3. RESEARCH MODEL AND HYPOTHESES

3.1 Research model

The objectives of the study are to identify factors of online service quality and customer satisfaction towards online service quality, to examine the relationship between customer satisfaction and WOM intention, as well as to identify if there is a difference on the effects of service quality factors according to different web site types. Based on the literatures, the research model is established as figure 1.
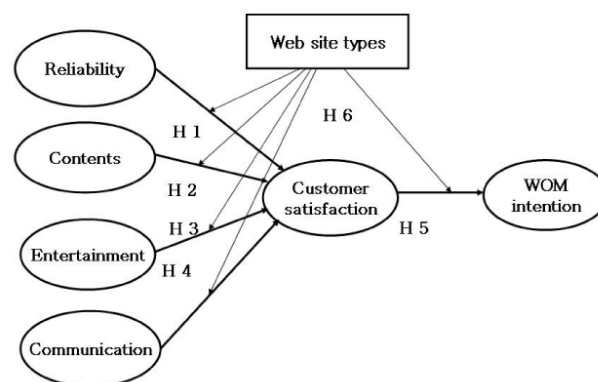

Fig. 1. Research Model

3.2 Hypotheses

3.2.1 The relationship between web site service quality factors and customer satisfaction: Through the existing studies, they found that providing customers psychological reliability and trustiness was important than providing customers benefits [17]. Web site managers could provide online customers satisfactory through multiple contents such as e-mail, searching board video system etc. Providing pleased products and service in internet to online customers could increase the internet using rate [18]. The communication through internet web site environment refers to mutual understanding between web site enterprise and web site users, communication between web site users [7]. According to these existing literatures, hypotheses are established as follows.

H1: Reliability will have an impact on web site customer satisfaction.

H2: Contents will have an impact on web site customer satisfaction.

H3: Entertainment will have an impact on web site customer satisfaction.

H4: Communication will have an impact on web site customer satisfaction.

3.2.2 The relationship between customer satisfaction and the intention of WOM: The positive impact of customer satisfaction on WOM intention has been proved by a series existing studies. Gelb and Sundram [16] identified that potential consumers would change the information not only with friends or associates, but also through internet such as news group consumer forum, these basic information changes are called WOM. Based on the existing findings, the hypothesis is established as follows.

H5: Customer satisfaction will have an impact on customer WOM intention.

3.2.3 The moderate effects of web site types between web site service quality and customer satisfaction: Besides verifying the research model, this study will also examine if a difference exists on the effects of web site service quality based on different web site types. According to the study of Zhang & Dran [19] and the potential objectives of web site users,

communicational web site and e-commerce web site are selected as the two web site types in the study. And the hypothesis is derived as follows.

H6: The interaction between the concepts of web site service quality, customer satisfaction, WOM intention will be different based on the different web site types**.**

4. METHODOLOGY

4.1 Data collection

In order to make sure the accuracy of the survey, the respondents who are the user of 2 web sites- Cyworld and G-market were surveyed in the study. The survey was sending to two sites' members through e-mail from January to March in 2008. As a result, 460 questionnaires, 230 each were distributed to the web site users. And 442 usable questionnaires were used to be analyzed in the study.

4.2 The definition of variables and data analysis

To clarify the variables used in the questionnaire, definitions of each factor were listed in Table 2 based on existing literatures [22], [4], [18], [23]-[25], [19].

Table 2. The definitions and measurements of variables

	Variables	Definitions	Measu-rement	Reference
Independent variables	Reliability	The capability of correctly providing promised web service to customers	4 items	Zemke & Connellan (2001)
	Contents	Information searching of product and service on web site	4 items	G.M. Kim (2001)
	Entertain-ment	Providing the opportunity of chatting, entertainment, game and music etc	4 items	Maigman & Lukas (1997)
	Communi-cation	Mutual understanding between site manager and internet user	4 items	Zeithaml (1981)
Mediating variables	Customer satisfaction	Overall satisfaction after using web site	3 items	Reichheld & Schefter (2000)
Dependent Variables	WOM intention	The communication process of sharing the individual experience with friends or colleague	3 items	Brown (2000)

Moderating variables	Web site types	Classification of web site according to the different potential purpose of web site users	Nominal data	Zhang & Dran (2002)

5. ANALYSIS

5.1 Demography

The demography of the respondents is composed by three parts which are gender, age and average internet using time per day. Nearly a half of the communicational site respondents were female, occupying 56.5%, while 52.1% of the e-commerce site respondents were female. Both of the two types of site tended to be young, with 66% of the communicational site respondents and 67% of the e-commerce site respondents were less than 30 years old. 75% of the communicational site respondents used the internet more than one hour per day, while over 80% of the e-commerce site respondents did. The details of demography are listed as follows.

Table 3. Demographic profile of respondents

		Communicational site		E-commerce site	
		Frequency	%	Frequency	%
Gender	Male	97	43.5	105	47.9
	Female	126	56.5	114	52.1
	Total	223	100	219	100
Age	<20	26	11.7	31	14.2
	21-30	121	54.3	118	53.9
	31-40	42	18.8	38	17.4
	> 40	34	15.2	32	14.6
	Total	223	100	219	100
Average Internet using time a day	<1 hour	57	25.6	42	19.2
	1 - 2 hours	70	31.4	71	32.4
	2 - 3 hours	45	20.2	51	23.3
	> 3 hours	51	22.9	55	25.1
	Total	223	100	219	100

5.2 The analysis of reliability and validity

The confirmatory factor analysis was completed with maximum likelihood estimation. The measurement model offered an acceptable fit to the data (χ^2=286.065, df=120, χ^2/d= 2.384, p=0.000, GFI=0.933, CFI=0.974, RMR=0.067, RMSEA=0.056). Item factor loadings and squared multiple correlations from the confirmatory factor analysis are shown in Table 4. An inspection of the Cronbach's α coefficients revealed that, among the six α coefficients, all constructs were greater than 0.80 in Table 4, which indicates acceptable reliability [20]. The results provided

support for the uni-dimensionality of the scales.

Having satisfied the measurement requirements, we subsequently tested the structural relationship using structural equation procedures.

Table 4. The result of confirmatory factor analysis

	Items	factor loading	S.E.	t-value	Cronbach's α
Reliability	1	0.778	-	-	0.8897
	2	0.889	0.061	20.119	
	3	0.899	0.061	20.229	
Contents	1	0.837	-	-	0.8806
	2	0.846	0.041	18.632	
	3	0.848	0.042	18.611	
Entertainment	1	0.752	-	-	0.8496
	2	0.881	0.056	20.901	
	3	0.880	0.054	20.567	
Communication	1	0.869	-	-	0.8709
	2	0.878	0.035	27.570	
	3	0.918	0.026	37.573	
satisfaction	1	0.764	-	-	0.8293
	2	0.773	0.063	16.311	
	3	0.818	0.067	17.322	
WOM intention	1	0.882	-	-	0.8979
	2	0.929	0.049	21.092	
	3	0.793	0.048	22.210	
Notes	$\chi^2 = 286.065$ (df = 120, p=0.000), GFI = 0.933, AGFI = 0.905, PGFI = 0.655, RMR = 0.067, NFI = 0.956, IFI = 0.974, TLI = 0.967, CFI = 0.974, RMSEA = 0.056				

5.3 The examination of research hypotheses

The followings are the overall model fit and the tests of each research hypothesis. As shown, the results of the full model (structural and measurement models) indicated fit indices: χ^2=216.290, df=124, p=0.000, GFI=0.931, CFI=0.973, AGFI=0.905, RMR=0.071, PGFI=0.675, NFI=0.954, IFI=0.973, TLI=0.966. The adequacy of the structural equation models was evaluated on the criteria of overall fit with the data. Next, we evaluated the individual paths of the model. These results are summarized in the Table 5.

Table 5. The results of research hypotheses based on the total group sample

Hypothesis	Standardized coefficient	Standardized deviation	t-value	Supported
H1	0.242***	0.042	5.018	Supported
H2	0.301***	0.043	5.704	Supported
H3	0.482***	0.033	9.813	Supported
H4	0.135***	0.020	4.008	Supported
H5	0.769***	0.078	14.474	Supported
Chi-Square=298.248; df=124, Chi- square/df=2.405,GFI=0.931; CFI=0.973;AGFI=0.905;RMR=0.071;PGFI=0.675; NFI=0.954; IFI=0.973; TLI=0.966				

***p<0.001

As shown in Table 5, the path coefficient is 0.242 between the reliability of web site service quality and customer satisfaction, C.R value (t-value) is 5.018(t>1.96, p<0.001), showing statistically significant at 1% level. So the hypothesis 1 that reliability has an impact on customer satisfaction has been supported. And the path coefficient between the contents of web site service quality and customer satisfaction is 0.301 and C.R value (t-value) is 5.704(t>1.96, p<0.001), showing statistically significant at 1% level. So the hypothesis 2 that contents have an impact on customer satisfaction has been supported. The path coefficient is 0.482 between the entertainment of web site service quality and customer satisfaction, C.R value (t-value) is 9.813(t>1.96, p<0.001), showing statistically significant at 1% level. So the hypothesis 3 that entertainment has an impact on customer satisfaction has been supported as well. At last, the path coefficient between the communication of web site service quality and customer satisfaction is 0.135 and C.R value (t-value) is 4.008(t>1.96, p<0.001), showing statistically significant at 1% level. So the hypothesis 4 that communication has an impact on customer satisfaction has been supported, too.

The effect of customer satisfaction on WOM intention is 0.769 and C.R value (t-value) is 14.474(t>1.96, p<0.001), showing statistically significant at 1% level. Therefore, H5 was supported by the analysis. The results thus demonstrated that customer satisfaction was a predictor factor on WOM intention.

This study used the analytical strategy of Singh [21] to examine the existence of the moderating effects on the structural model. The χ^2 statistics for the "unconstrained" and the "partially constrained" models are compared herein. The results to detect moderating effects of web site types along with path coefficients are listed in the Table 6. The χ^2 difference ($\Delta\chi^2$) which identified that the different effects existed on reliability and contents factors between e-commerce site and communicational site were all more than 9.49 (df=4) which was significantly at 5% level.

The results showed that regardless the web site types, reliability, contents and entertainment had positive impacts on customer satisfaction. On the other side, communication did not have an impact on customer satisfaction in e-commerce web site while the same factor of communication played a positive impact on customer satisfaction in communicational web site. So it defined that based on different types of web site, web service quality had a different impact on customer satisfaction. And though in both two web sites satisfaction had a positive impact to WOM intention, in communicational site, satisfaction showed different impacts on WOM intention compared to E-commerce site, so hypothesis 6 was supported.

Table 6. The results of effect analysis across web site types

Proposed Model Paths	χ^2	$\chi^2(4)$ difference	E-commerce site		Communicational site	
			Estimate	t-value	Estimate	t-value
Reliability → satisfaction	549.84	11.658*	0.327***	3.998	0.166**	2.819
Contents → satisfaction	550.59	12.409*	0.331***	3.869	0.297***	4.668
Entertainment → satisfaction	546.93	8.740	0.422***	5.790	0.518***	8.073
Communication → satisfaction	545.90	7.716	0.044	0.341	0.170***	3.726
Satisfaction → WOM intention	550.03	11.848*	0.734***	8.511	0.790***	11.116

*p<0.05; **p<0.01; ***p<0.001

6. CONCLUSION AND IMPLICATIONS

6.1 The summary of results and implications

The study is to analyze the impacts of service quality on customer satisfaction and behavior intention by web site types. In order to improve the efficiency of the model, the different effects of service quality on customer satisfaction by web site types was analyzed as well. A survey towards consumers who use various web sites was carried out to examine the model and to test the hypotheses. The results of analysis and implications are summarized as follows.

Firstly, the study found that service quality was composed of four dimensions which were reliability, contents, entertainment and communication. That is to say, the higher the reliability, the more the information, the more interesting the web site itself, the more the communication between manager and customer it is, the more the customers are satisfied with the web sites.

Secondly, it is demonstrated that the more the customers satisfy with the web site, the more recommendation intention it is. Through Word of Mouth, it could attract new customers. This is important for web site managers to attract potential customers. Managing internet customer-oriented marketing strategies still is the basic strategy to internet managers. Based on the customer-oriented strategy, web site managers should realize that attracting new customers and keeping existing customers are utmost important. So how to develop long-time loyalty through membership system to keep the stable revenue should be considered by web site managers.

Thirdly, it is found that by different types of web site, service quality would have different effects on customer satisfaction. According to the differences, when deciding the management and investment of web site, the web site managers should clearly define the advantages and disadvantages based on different web site types to maximize the positive impacts and achieve the effects. Through the analysis, it also found that regardless the web site types, reliability, entertainment and information had an important impact on customer satisfaction. So in order to increase the customer satisfaction level, it is utmost important to strengthen these factors first.

Fourthly, through the results it found that satisfaction had more impacts to WOM intention in communicational site compared to e-commerce site. That is because of the characteristics of communicational web site. Users of communicational site actively communicate with each other through the site by sharing information, doing recommendation etc than e-commerce site. So the more they satisfy, the more they will recommend. For communicational web site managers, they should consider how to improve the positive WOM intention between web site users.

6.2 Limitations and future research directions

There are two limitations in the study. Firstly, this study compared different factor effects on web site service quality based on two web sites which were e-commerce site and communicational site. As for other types of web site, the factor effects would be different so it is lack of the generalization to other web site types.

Around half of respondents in the study were 20 to 30 years old who were familiar with each of the web site. It was lack of the representation. In the future studies, the research sample should be designed more widely to represent the whole population.

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