

Measurement and Mutual Perception of Online Customer Satisfaction in Malaysia

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Abstract: In today's modern life, there are many people who prefer to go for online shopping. They have several reasons to choose this method of purchase. Variety of products, possibility to compare prices, avoidance of the crowds and saving precious time are the most important factors for customers to purchase via websites. Therefore, the existence of a useful, proper, clear and easy website is very much essential. Every e-business should have one powerful website to compete in the global market and it must attempt to persuade and satisfy customers to purchase according to their needs from the websites. Customer satisfaction has a great role in online shopping and without it no business can be successful. In this paper, customer satisfaction level is the main issue to be analyzed on the basis of three effective factors of website design, information quality and delivery. In addition, a correlation analysis has been done to specify the key factors that have more influence on customer satisfaction.

Key words: Customer satisfaction, E-business, Online shopping

INTRODUCTION

In recent years, there has been an increasing interest in Internet commerce and online shopping all around the world and Malaysia is not an exception. One of the most important and obvious reasons to choose online shopping is time [1]. At present, most of the people attempt to save their time and instead of walking into the shops, they order whatever they want through the websites. In online shopping, with a few mouse clicks, customers can find the products or services that they need. Based on the needs and expectations of the customers, information is provided and optimized by e-business owners on the websites. In online shopping, most of the companies have the same products or services and customer is the final decision maker based on his or her previous experience and level of satisfaction. Customer can easily compare prices, quality of the information provided, shipment tracking and delivery in a

short time. In a competitive market place, rivals try to offer free delivery and discounts to get spontaneous support from the customers and attract them to choose their companies [2].

This paper attempts to determine the factors that influence customers' satisfaction towards online purchasing in Malaysia and among all of these attributes, the researcher has tried to reveal the most related and responsible ones for perception of customer satisfaction in online purchasing.

MATERIALS AND METHODS

The target population was set as MBA students of Multimedia University; intake 2010 which encompasses 205 full time students and 46 part time students (N=251) based on the official letter declared by the MBA center on 28th of June 2011. A questionnaire has been prepared to carry out the process of data collection and this research

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was performed quantitatively. The questionnaire was prepared by the researcher and its validity has been measured and guaranteed by a board of experts and a pilot test. There were 237 returned questionnaires for continuing the data analysis process. Cronbach's formula was utilized to measure the reliability. After analysis of data collection from the pilot study, some questions were reviewed and edited. For the purpose of data collection for this research, a final draft was done. To measure the reliability, Cronbach's alpha internal consistency was utilized [3]. This questionnaire was validated by a panel of judges made up of the MBA experts from the Faculty of Management (FOM) in MMU. Then, the validated questionnaire was applied in a pilot test. The pilot test was conducted in Universiti Putra Malaysia (UPM) to ensure validity of instrument and calculated its reliability. 25 academic staff and also, MBA and DBA students of the Graduate School of Management (GSM) at UPM filled out the questionnaires and reliability of the pilot test was measured. Cronbach's alpha was applied for each item of the questionnaire. The results of reliability coefficients of the questionnaire were 0.75, 0.85, 0.76, 0.86, 0.82 for dependent and independent variable separately and Cronbach's alpha for all of it was 0.92. The questionnaire was filled out by GSM students at Universiti Putra Malaysia in distinctive sections of questionnaire on online shopping, information quality, website design, delivery and customer satisfaction. The responses showed that there is stability and consistency in different constructs and all coefficients were more than 0.70.

Pearson Correlation: Analysis of data collection by questionnaire was done within a correlational design which was illustrated to examine the nature of the connection among the independent and dependent variables; Pearson Correlation was used. In this research, the researcher designed the questionnaire, since there was no available standardized questionnaire to include all variables. Patton [4] and Collins [5] suggested that the definition of research design of correlation as a study. This study can monitor and observe the following conditions to investigate the possible relationship between two or more variables. The researcher observes the dependent variable or variables while the independent variable or variables have already specified [6, 7]. When there is no control to select or manipulate independent variable as an experiment, correlational design is applied. The researcher focuses on the degree and type of relationship between two or more variables rather than its nature of relationship [8].

The independent variables of the current study were based on the condition of online shopping process. Control or manipulation of these factors was not possible for the researcher; however the correlational relationships of dependent variables could be studied [6, 9, 10] i.e. customer satisfaction. Possible relations are recognized and give an insight into the nature of the online shopping in Malaysia.

Co-relational analysis permitted the researcher to monitor and explain the relationship between variables and advantages simultaneously and also it has been mentioned that correlational method is appropriate for explanatory research [11]. The correlational design has been selected in this research based on its advantages and the types of variables.

RESULTS

Gender, age, occupation, level of qualification, level of income, personal usage of computer, average internet use, number of hours searching in websites, online shopping experience and the consequence of descriptive analysis from MBA students of Multimedia University (MMU), intake 2010 are shown in Table 1. The representation of data is in the form of frequencies and percentages. The calculation of mean is represented in the table.

Table 1 indicates the gender of MBA students of Multimedia University (MMU), intake of 2010. Participants who replied to these questions amounted to 94.42%. The breakdown of the gender was 34.6% Male and 65.4% Female. The ages of respondents ranged from 21 years to 40 years. The responses were classified and divided as follows: 24.5% were in the range of 21 to 25 years old, 59.9% between 26 to 30 years, 12.3% in the range of 31 to 35 and 3.3% were in the range of 36-40 years old. The mean for the age factor is about 28 years. In Table 1, respondents' academic qualification is shown. 100% had a Bachelor's degree. The table also reflects the respondents' job designations. On the basis of the analysis, 80.6% of the participants were students, 4.6% were staff, 5.5% were engineers, 2.5% were translators and finally, 6.8% were managers. Income is another descriptive factor in this section. The range of target population income between RM 1001 to RM 1009 shows a percentage of 79.7% and RM 2000 to RM 2999 shows a percentage of 20.3%. The mean of income is about RM 2200.

In section B., 2.14% is the mean for duration of personal usage of PC while the percentage for using PC between 1-5 years is 85.2% and between 6-10 years shows

Table 1: Demographic Characteristics of MBA Students of Multimedia University

Variables	Frequency	Percent	Mean
Section A:			
Gender:			
Male	82	34.6	
Female	155	65.4	
Total	237	100.0	
Age:			
21-25 Years	58	24.5	28
26-30 Years	142	59.9	
31-35 Years	29	12.3	
36-40 Years	8	3.3	
Total	237	100.0	
Job Designation:			
Student	191	80.6	
Staff	11	4.6	
Engineer	13	5.5	
Translator	6	2.5	
Manager	16	6.8	
Total	237	100.0	
Education Level:			
Bachelor	237	100.0	
Income:			
RM 1001-1999	189	79.7	RM 2200
RM 2000-2999	48	20.3	
Section B:			
Duration of Personal Using PC:			2.14
1-5 Years	202	85.2	
6-10 Years	35	14.8	
Total	237	100.0	
Average of Using Internet:			3.88
6-10 Times a Week	28	11.8	
More than 10 Times a Week	209	88.2	
Total	237	100.0	
Hours of Spending Time in websites:			3.10
11-20 Hours	212	89.5	
21 Hours and above	25	10.5	
Total	237	100.0	
Experience of online shopping:			
Yes	237	100.0	

Table 2: Research Related Factors

DV & IVs	Mean	Std. Deviation
Online Shopping	3.28	.72
Related Factors:		
Information Quality	3.20	.72
Website Design	3.07	.80
Delivery	3.25	.81
Customer Satisfaction	3.08	.79

the result of 14.8%. The next result refers to the average of using internet with the mean of 3.88%. The percentage for participants that used internet 6-10 times a week is 11.8% and 88.2% relates to those who use the internet more than 10 times a week. 3.10% is the mean for hours of

spending time on websites and sub-categories for 11-20 hours is 89.5%; 21 hours and above shows 10.5%. From these obtained results, we see that 100% of the respondents have experience of online shopping. Online shopping factors such as Information Quality, Website Design and Delivery are considered independent Variables (IVs). Finally, in this research, we consider customer satisfaction as the Dependent Variable (DV). For the DV and IV variables, the calculated Mean and Standard Deviation are indicated in Table 2.

Online shopping shown in Table 2 was the main independent variable in this research. For this variable, the mean calculation was 3.28 and the standard deviation was equivalent to 0.72. The mean for information quality was calculated to be 3.20 and the standard deviation was calculated to be 0.72. The third variable in this was website design whose mean was 3.07 and the standard deviation was 0.80. The next variable was delivery and, the mean for this variable was calculated to be 3.25 and the standard deviation was equivalent to 0.81. Finally, for the dependent variable, customer satisfaction, mean calculation was 3.08 and the standard deviation was equivalent to 0.79.

The normality of the dependent and independent variables was checked using the normal Probability Plot (PP) which is shown in Figure 1.

From this graph, it is seen that all the variables are normally distributed since all the data points for each variable follow the normal probability line. Based on this normality assumption, it is now valid to perform any classical statistical test and draw a valid conclusion. Here, our interest is to test the specific population mean $\mu_0=0$, i.e. we wish to test the hypothesis.

$$H_0: \mu = 0$$

$$H_1: \mu \neq 0$$

To test this null hypothesis H_0 , the test statistic is given by

$$t = \frac{\bar{x} - \mu_0}{s/\sqrt{n}} \tag{1}$$

with (n-1) d.f. For large samples, this statistic can be compared with the normal test statistic which is called z score. Using this test statistic t , it is easy to construct a confidence interval. The $\alpha\%$ confidence interval for μ is

$$\bar{x} \pm t_\alpha \frac{s}{\sqrt{n}} \tag{2}$$

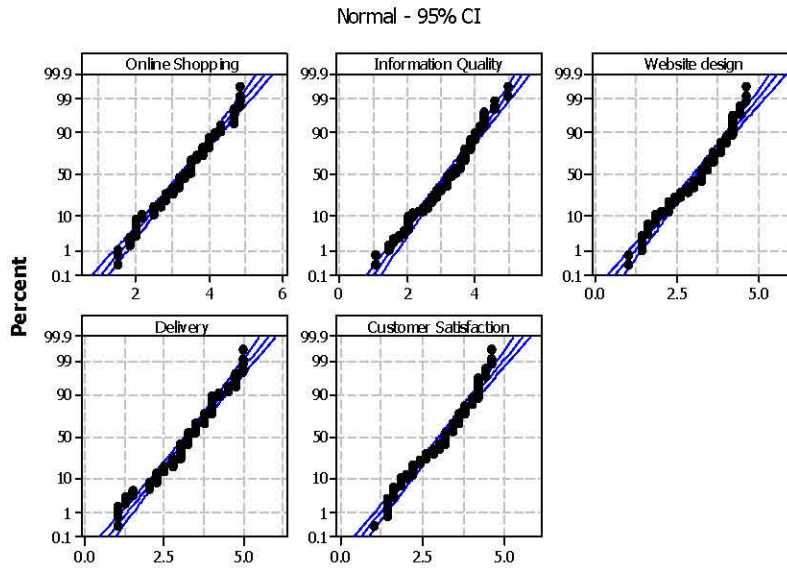


Fig. 1: Normal Probability Plot of DV and IV Variables

Table 3: One-Sample Test for DV and IV

	Test Value = 0					
	<i>t</i>	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval	
					Lower	Upper
Online Shopping	69.984	236	.000	3.28692	3.1944	3.3794
Information Quality	67.970	236	.000	3.20735	3.1144	3.3003
Web Design	58.788	236	.000	3.07764	2.9745	3.1808
Delivery	61.188	236	.000	3.25211	3.1474	3.3568
Customer Satisfaction	59.611	236	.000	3.08270	2.9808	3.1846

If this confidence interval does not contain the assumed value μ_0 , we can reject our null hypothesis H_0 , otherwise the null hypothesis may be accepted.

We test the mean of our dependent and independent variables at specific population mean $\mu_0=0$. The results are presented in the following Table 3.

From Table 3, it is seen that all the dependent and independent variables are significant and specific population mean $\mu_0=0$ does not belong to any confidence region. So, the null hypothesis for each variable is rejected. It means that there is significant difference of the mean of Online Information, Quality Shopping, Web Design, Delivery and Customer Satisfaction with population specific mean=0. In general, we can say that these variables have a substantial role in this research.

Correlation Analysis: To examine and investigate the relationship between dependent variable (Customer Satisfaction) and independent variables (i.e. Online Shopping, Information Quality, Website Design and

Delivery), the Pearson Products Moment Correlation Coefficient (r) was utilized. The correlation was chosen to follow the objectives of this study, as it can assist to describe the existing relationship between variables in terms of strength. To test and examine the correlational significance of the hypotheses, this statistical value has been performed. There is a simple rule of thumb to specify the strength level of variables' relationships which is utilized in this analysis as Guilford and Fruchter suggested [12]. The criteria of this rule are shown in Table 4.

The data related to this study was collected from MBA students of Multimedia University (MMU), intake of 2010. The existing relationship between these sources will be discussed later. The consequence of the correlation analysis is illustrated and explained in this section. Table 4 shows the correlation of each dependent and independent variable. The result of the calculation of the relationship between independent variables is represented in the table. The interpretation and explanation of the table are indicated as follows.

Table 4: Criteria for Strength of the Relationship

<i>r</i>	<i>Strength of the Relationship</i>
< .20	Slight or Negligible relationship
.20 - .40	Low correlation, Definite but small relationships
.41 - .70	Moderate correlation; Substantial relationship
.71 - .90	High correlation; Marked relationship
> .90	Very high correlation; Dependable relationship

Source: (Guilford and Fruchter, 1973)

Table 5: Correlations Analysis for MBA Students of Multimedia University

		Customer Satisfaction	Delivery	Web Design	Information Quality	Online Shopping
Customer Satisfaction	Pearson Correlation	1				
	Sig. (2-tailed)					
Delivery	Pearson Correlation	.185**	1			
	Sig. (2-tailed)	.004				
Web Design	Pearson Correlation	.995**	.186**	1		
	Sig. (2-tailed)	.000	.004			
Information Quality	Pearson Correlation	.202**	.776**	.197**	1	
	Sig. (2-tailed)	.002	.000	.002		
Online Shopping	Pearson Correlation	.544**	.193**	.551**	.245**	1
	Sig. (2-tailed)	.000	.003	.000	.000	

** Correlation is significant at the 0.01 level (2-tailed).

$$\alpha_{adjusted} = \frac{\alpha}{m}$$

Where:

$\alpha = \text{Normal Alpha Value} = 0.05$

$m = \text{Number of Bivariate Paris} = 4$

Adjusted Alpha: $0.05/4 = 0.0125$

Benferroni adjusted alpha of 0.0125 was used to test the null hypothesis of the bivariate pairs. There were four (4) bivariate correlation coefficients that differ significantly from 0 or $r \neq 0$. The Pairs are as follows:

Customer satisfaction was positively correlated with website design ($r = 0.995, p = 0.000$) and online shopping ($r = 0.544, p = 0.000$). Also, there was a correlation with information quality and customer satisfaction ($r = 0.202, p = 0.002$). Moreover, delivery showed weak correlation with customer satisfaction ($r = 0.185, p = 0.004$).

Based on adjusted alpha level, ten out of ten correlation coefficients were differing significantly from zero. According to Guilford and Fruchter's [12], Rule of Thumb illustrated in Table 4 for interpreting Pearson Correlation Coefficient, the researcher can conclude that:

- Very high relationship was found between Customer Satisfaction and Website Design ($r = 0.995, p = 0.000$).
- High relationship was found between Delivery and Information Quality ($r = 0.776, p = 0.000$).

- Moderate relationship was found between Website Design and Online Shopping ($r = 0.551, p = 0.000$).
- Moderate relationship was found between Customer Satisfaction and Online Shopping ($r = 0.544, p = 0.000$).
- Low relationship was found between Information Quality and Online Shopping ($r = 0.245, p = 0.000$).
- Low relationship was found between Customer Satisfaction and Information Quality ($r = 0.202, p = 0.002$).
- Slight or negligible relationship was found between Website Design and Information Quality ($r = 0.197, p = 0.002$).
- Slight or negligible relationship was found between Delivery and Online Shopping ($r = 0.193, p = 0.003$).
- Slight or negligible relationship was found between Delivery and Website Design ($r = 0.186, p = 0.004$).
- Slight or negligible relationship was found between Customer Satisfaction and Delivery ($r = 0.185, p = 0.004$).

Scatter plot helps to check the slope of bivariate pair and it indicates whether it is linear or not. The Scatter Plots for Customer Satisfaction data, which are helpful to show the relationship between two variables, are displayed in Figure 2. This is the primary and critical stage to perform correlation and regression. The dependent variable is plotted against each of the independent variable and is shown by scatter plots and, the linear regression line can be calculated in the form.

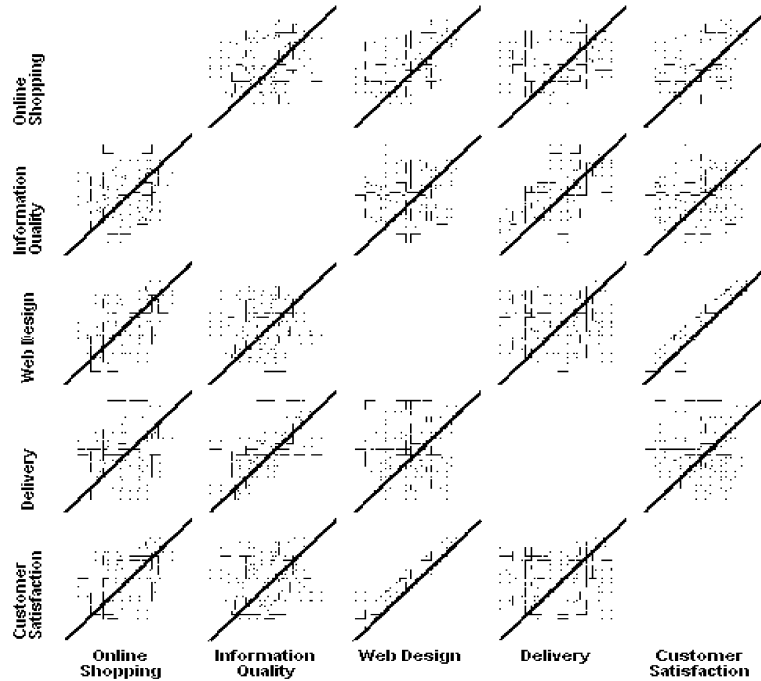


Fig. 2: Customer Satisfaction Scatter Plot

$$y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \beta_4 x_{4i} + \varepsilon_i \quad (3)$$

DISCUSSION

Where

- y_i = Customer satisfaction
- x_{1i} = Delivery
- x_{2i} = Web Design
- x_{3i} = Information quality
- x_{4i} = Online Shopping
- ε_i = Random error component

As represented in Figure 2, the importance and magnitude of every single correlation has been shown by inspection and examination of data points and Figure 2 assists in understanding whether the relationship is linear or not. Also, based on the shape of distribution, it is investigated whether the data meets the assumption of homoscedasticity. So, the linearity assumption was met while most of the observed data fell / clustered around the regression line between the paired variables. While looking at the distributions matrix for each correlation, it was observed that data points were reasonably arranged in the center, the upward straight line which was drawn through the main cluster of points could better represent the distribution. Those show a positive linear relationship between paired variables.

The relationship between customer satisfaction and website design has been shown in Table 6 and it is very highly correlated. Moderate correlation refers to the result of website design and online shopping in this analysis. The effectiveness of website design in online shopping to gain customers has been studied in many researches. Kim, Coyle & Gould [13], believed in the direct effect of website design on customer satisfaction to purchase through the website again and again. Website is the only way to have relationship with customer so the content, appearance and quality of it are very important both for reputation of the company and every single customer. Interaction, presentation and structure of the website are significant for customers to decide about continuously purchasing or not. Color, animation, ease of accessing information and speed of downloading the pages are critical factors in today's competitive marketing and it has a direct influence on customer satisfaction [14].

Moderation correlation is the final result for relationship of customer satisfaction and online shopping. For each e-business, assessment of customer satisfaction through online shopping is vital for success or failure. Hernandez, Jimenez & Martin [15], stated that different customers with different expectations have various

Table 6: Strength of the Relationship

Correlation Between Variables	Slight	Low Correlation	Moderate Correlation	High Correlation	Very High
Customer Satisfaction and Website Design					✓
Delivery and Information Quality				✓	
Website Design and Online Shopping			✓		
Customer Satisfaction and Online Shopping			✓		
Information Quality and Online Shopping		✓			
Customer Satisfaction and Information Quality		✓			
Website Design and Information Quality	✓				
Delivery and Online Shopping	✓				
Delivery and Website Design	✓				
Customer Satisfaction and Delivery	✓				

satisfaction levels in a particular website. Satisfied customers have more tendencies to spend more time to search for a specific product in order to find the right one. It is possible to compare the price and somehow the quality simultaneously. The online shopping is not just the appearance of a website; in fact it is matching the new technology in virtual environment to persuade the customer to trust in online shopping and make a final decision to do so. The responsibility of a company is defined as keeping promises, making good quality products and satisfying customer's expectations [16].

Besides that, the correlation of online shopping and information quality is low and this result is the same for information quality and customer satisfaction. The effectiveness of information quality and delivery is high while website design and information quality relationship is only slight. It should be reminded that information quality through website is the quality content which is mentioned in the website. Customers can have comparison of different products to choose the best one. Park & Lee [17] demonstrated that there is always close and direct relationship between online shopping, customer intention and information which is provided in the website. The quality of information is important and if it is poor or insufficient, tendency of customer to select them will decrease. Appropriate presentation of information assists customers to make the right decision given the absence of physical interaction and intangibility of products [18]. Based on the result of the analysis the correlation of customer satisfaction and information quality is low.

The next result is the correlation between online shopping and delivery, website design and delivery, customer satisfaction and delivery which are only slight. One of the effective factors via online shopping on customer satisfaction which Lin and Lin [19] and Lee, Shin and Rhee [20], described in detail is delivery. Speed and convenience are two significant features for customers

making decision about online shopping based on previous researches but the results of this paper show another dimension. Correspondents believe that correlation between customer satisfaction and delivery is slight.

CONCLUSION

In this modern world, it is necessary to recognize customers' nature and all the important values which lead to their satisfaction. Reputation and success of each website depend on the offering of more quality instead of just looking good. During online purchasing, different factors can affect the customer at the same time; this paper has presented more realistic factors which influence customers' online decision making and satisfaction. The main aim was customer satisfaction level from the point of view of Multimedia University, MBA students' intake 2010 who are predictors of online purchasing. The final result of correlation analysis shows that there is very high correlation between customer satisfaction and website design via online shopping. This correlation result assists e-business owners to focus on website design dimension to improve the reputation of their companies, attract more customers and make more profit. Website design has a strong and effective influence on customer satisfaction. Finally, the consequences attempt to show useful guidelines to enhance customer satisfaction level through online shopping for e-business owners.

There are several suggestions in order to improve the level of online customer satisfaction. To keep customers satisfied, some strategic methods should be considered in e-businesses. New individual service in networks can be useful. Providing virtual network for customers to encourage them to discuss and share their past experiences with other customers through online purchasing can enhance their tendency towards the website.

By developing and establishing operational competence electronically, trust of the customers, the services to support the customers as well as more communication mechanism can be increased. When the first problem occurs, service provider will be informed and can resolve it and therefore, day to day, the performance of the company and website will deliver high level of quality. These interactions with online shoppers assist them to become sure about the quality of products, services and thus, the best product features in comparison with competitors are offered.

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