Determinants of Customer Satisfaction towards Broadband Services in Malaysia

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Abstract

The aim of this research is to understand the customer satisfaction of broadband services in Malaysia with regards to price, speed and stability. Demographic factors in which consist of education, nationality, monthly income are moderator of the study. This research was conducted based on random sample of broadband users in Malaysia by using a questionnaire survey. Altogether 150 respondents in Klang Valley were surveyed for this study. The findings show that price, speed and stability have no significant relationship with customer satisfaction level on broadband in Malaysia. However, there are associations between education level and stability factors, monthly income level and price factors, nationality and price factors, gender and acceptable price level, monthly income and internet broadband usage period and gender and speed. This research provides a useful starting point to understand the customer satisfaction level of broadband services in Malaysia. The findings of the research may have implication for internet broadband service providers in enhancing their pricing strategy and improving their service particularly in speed and stability. Thus it will help Malaysian Government in encouraging and promoting the adoption and utilization of internet broadband to boost the economy.

1. INTRODUCTION

The world of telecommunications has changed rapidly as we enter the era of convergence between broadband Internet, wireless networks, and the content sector. The importance of information and communication technology (ICT) is undeniable as it has been applied in various fields for the purpose of service enhancement. It has been proven that resources can be managed efficiently and effectively through ICT. Broadband is considered as a key to enhance competitiveness of an economy and sustaining economic growth (OECD, 2001, 2002). Many governments around the world are increasingly committed to extending broadband networks to their citizens (BAG, 2003). They promote usage of this technology in the belief that broadband will contribute to economic and social development by enhancing productivity and introducing new services (Lee, 2005).

Broadband is a generic term to describe high-speed networking services, which is a set of digital communication technologies with the capacity to transmit significant amounts of data at a high rate, supporting the delivery of a range of digital services some or all of which can occur simultaneously. It is usually a symmetrical service, allowing fast in and outbound data capacity (Becta, 2003; OECD, 2003). Meanwhile, Dwivedi et al. (2007) confirmed that broadband, as an key enabling technology in the networked society, can help boost the economy of Pakistan at the national level as well as help to improve the lives of its citizens by facilitating delivery of education, health and telecommunications services at low cost and to a wider population. In spite of the overall rapid growth broadband diffusion, many countries in developing country are still in the early stage of broadband deployment and are assessing policy strategies to promote faster adoption. The current deployment of broadband is significantly more advanced in some countries than others.

According to the result of Broadband Quality Score: A global study of broadband quality survey conducted in September 2009, there were 93.9% of countries around the world improved in broadband quality score performance, however 6.1% of the countries yet improved (Said Business School, 2009). The study showed South Korea, Japan and Hong Kong were ranked as top three places in broadband leadership, Malaysia was ranked 48th place out of 66 countries for internet broadband quality. The study listed Malaysia among countries which had internet speeds which were "below today's application threshold". In the study, the research team had found that broadband quality was linked to social and economic benefits and those countries with high broadband quality have broadband on their agenda. Although Malaysia is lagging behind in broadband quality, Malaysia has moved one step ahead by implementing broadband technology.

The Malaysian government has established Malaysian Implementation of Communication and Multimedia Strategy (MyICMS886) with the purpose to stimulate Malaysia to deliver advance information, communication and multimedia services from 2006 until 2010 (Suradi et al. 2008).

Since the approval of the National Broadband Plan (NBP) by the Malaysia government in October 2004, there has been many efforts and strategic plans implemented in order to enhance and improve the national broadband services. The initial objectives of National Broadband Plan are as follows:

a. Generate adequate supply in terms of broadband infrastructure, via various available technologies deemed appropriate.
b. Stimulate demand to ensure efficient take-up of broadband service via suitable content and applications services
c. Explore various funding mechanisms to finance the project; and
d. Identify gaps in existing regulations and where necessary, introduce new ones to facilitate broadband rollout.

Many telecommunication companies in Malaysia had begun to launch broadband services, but the speed of broadband diffusion is still at the initial stage and gradually growing. Broadband services in Malaysia have been receiving many negative feedbacks in terms of speeds, connectivity, quality and price. There are still not enough internet penetration rates in the nation due to many reasons and factors. Therefore, in this research it is very important to identify the customers' satisfaction level or feedback on the usage and adoption of broadband services in Malaysia.

2.0 OBJECTIVES OF THE STUDY

The aim of this research is to understand the customer Satisfaction of broadband service in Malaysia. The objectives of this research are outlined below:

- To examine association between level of customer's satisfaction of broadband service with price factors.
- To determine the customer's satisfaction level on stability of broadband services.
- To study association between customers' satisfaction level of broadband services with speed factors.
- To study the relationship of demographic factors such as age, gender, education level, occupation and income level towards usage of broadband services in Malaysia.

3.0 LITERATURE REVIEW

Robert (2005) has defined broadband as any technology – currently, cable, telephone-based (DSL), wireless, or through electric power lines – that permits users to communicate at rates substantially faster than older generation "dial-up" services, and unlike dial-up services, is "always on." Meanwhile, Sangwon (2007) explained that communication technologies which provide high-speed, always-on connections to the Internet for large numbers of residential and small-business subscribers are commonly referred as ''broadband''. For many people, the term of "broadband" conjures up images of individuals plugged into their PCs, browsing the Internet, and frequently downloading songs or even movies at speeds once thought to be impossible (Robert, 2005). Whereas, this element is respond to the level of customer's satisfaction. Kotler (2003) said that there is wide consensus that "satisfaction is a person's feeling of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) in relation to his or her expectations".

Therefore, satisfaction is closely related to consumers' expectations. More specifically, the narrower the gap is between the consumers' expectations and the actual performance of the product or service, the higher is the consumer's satisfaction (Hutcheson and Moutinho, 1998). In addition, the analysis of the research data showed that service quality is a major predictor of both customer satisfaction and loyalty, with three out of the six quality dimensions of the chosen instrument (customer support, pricing structure and billing system) having significant positive effects on both concepts (Ilias and Panagiotis, 2010) Dwivedi et al.(2007) found that broadband, as an key enabling technology in the networked society, can help boost the economy of Pakistan at the national level as well as help to improve the lives of its citizens by facilitating delivery of education, health and telecommunications services at low cost and to a wider population. As far as customer satisfaction is concerned, Santos (2003) found a measure of how well the level of the delivered services matches customer's expectations usually understood as service quality. As an example, the definition by Gro¨nroos (1984) outlines perceived service quality, as "the outcome of an evaluation process, where the consumer compares his expectations with the service he perceives he has received".

Furthermore, Parasuraman et al. (1988) defined service quality as "the overall evaluation of a specific service firm that results from comparing that firm's performance with the customers' general expectations of how firms in that industry should perform". As mentioned earlier, customer's satisfaction can be measured as either a single-item scale or as a multi-item construct assessing the satisfaction for each component of the service. For the example, Cronin and Taylor (1992) measured customer satisfaction as a one-item scale that asks for the customers' overall feeling towards an organization, while Anderson and Srinivasan (2003) used a 6- item constructs to measure customer satisfaction in the context of electronic commerce. For example, comparing these two methods, LaBarbera and Mazursky (1983) made the remark that the use of a multi-item scale for measuring summary evaluation does not increase reliability over time but it can lead instead to poor response rate and artificial answers by respondents.

Industry factors like price and speed might influence broadband penetration. Fixed broadband price might be a key industry factor in promoting broadband demand (International Telecommunication Union, 2003a). In general, lower prices can contribute to higher broadband adoption. A competitive market structure leads to low prices (International Telecommunication Union, 2003a). Through statistical analysis of approximately 100 countries, Garcia-Murillo (2005) found fixed broadband price and competition have been influential factors of fixed broadband adoption. Through data analysis of a national sample of US households, Rappoport et al. (2001) found that price elasticity of demand for broadband service is much greater than narrowband service. In a futher study, Chaudhuri et al. (2005) found substantial variation observed in access price may largely have a spatial explanation of internet access. As a product differentiation strategy in the broadband access market, broadband speed might influence broadband demand. Higher speed may even be a key driver of broadband adoption (International Telecommunication Union, 2003b).

Chaudhuri et al. (2005) found strong influences of traditional socio-demographic variables like income and education on broadband deployment. Recently, through a household-level analysis, Clements and Abramowitz (2006) suggested income, age, educational attainment, and the presence of children influence adoption of broadband service in the USA. Through a US nationwide survey, Savage and Waldman (2005) discovered that preference for high-speed access is apparent among higher income and college-educated households. Through data analysis of the US national surveys from 2002 to 2005, Horrigan (2005) claims the intensity of online use is the critical factor in understanding the home broadband adoption decision and suggests the intensity of internet use is a function of connection speed and years of online experience. Horrigan's more recent survey demonstrates younger age, higher education and income, and urban living share of population may lead to higher level of broadband adoption (Horrigan, 2007).

In addition, the United States Government Accountability Office (2006) found consumers with higher income and college degrees are significantly more likely to adopt fixed broadband internet. As in the case of education, Rogers (1995) described socio-economic status (income and occupation) as a correlate or antecedent of innovativeness. The diffusion of innovation theory suggests that new technologies are initially adopted by those with more resources (Rogers, 1995). The findings of a longitudinal study using the USA census data found a positive correlation between income and computer ownership Socio-economic determinants (Venkatesh et al., 2000). Further, this study suggested that a considerable gap persists between the lower and higher income groups (Venkatesh et al., 2000). A study by Choudrie and Dwivedi (2005) also confirmed that income and occupation drive the general pattern of ICT ownership and usage. Similarly, Carveth and Kretchmer (2002) suggested that in the USA, the higher the household income, the more likely the members of the household will own a computer and use the internet. A similar pattern was suggested for Western European countries and the UK. This study suggested that only 23 percent of lower income groups in comparison to 68 percent of the higher income groups in the UK used the internet (Carveth and Kretchmer, 2002).

As in the case of gender, Morgan (1986) argued that gender can be employed as a descriptive variable as well as an explanatory variable. As he put it: gender, as a key variable, is one of the most common 'face-sheet' variables" in social investigations. A number of studies have investigated the role of gender in the adoption and usage of ICTs (Harris et al., 1996; Gefen and Straub, 1997; Morris and Venkatesh, 2000; Venkatesh and Morris, 2000; Venkatesh et al., 2000; Leonard and Cronan, 2005, Venkatesh et al., 2003; Choudrie and Lee, 2004, Haines and Leonard, 2007). The findings of the previous studies revealed that gender has an important role when considering technology adoption and usage in both the organisational and household contexts.

A study by Venkatesh et al (2000) illustrated that male users used a computer more than females, and suggested the male gender to be one of the most important variables when examining PC adoption in the household.

4.0 HYPOTHESES

The eight testable non directional hypotheses of this study are as follows:

- H1 There is an association between stability factors and customer satisfaction level of broadband services in Malaysia.
- H2 There is an association between price factors and customer satisfaction level of broadband services in Malaysia.
- H3 There is an association between speed factors and customer satisfaction level of broadband services in Malaysia.
- H4 There is an association between education level and stability factors.
- H5 There is an association between income level and price factors.
- H6 There is an association between nationality and price factors.
- H7 There is a relationship between gender and acceptable price level
- H8 There is a relationship between monthly income levels and internet broadband service usage period

5.0 METHODOLOGY

5.1 Research Design

The research design used in this study is correlation research. A correlation research is determines relationships and patterns of relationships in a single group of subjects and thus would determine the extent of any relationship between these variables. This study intends to look at the correlation between speed, stability, price, coverage, demographic and customer's satisfaction of broadband service in Malaysia. This study also intends to investigate association between nationalities, income and the dependent variable since there are moderate relationships among variables. This interaction effects is important if the researcher is interested to know whether relationship between predictor and outcome variables are stronger for some people than for others. Ary, et al. (2006) cautioned on evaluating the practical utility of a correlation in this design. The importance of the numerical value of a particular correlation may be evaluated according to its absolute size and predictive utility, in relation to other correlation of the same or similar variables or in terms of its statistical significance. The coefficient of determination, (r^2) is useful for evaluating the meaning of size of a correlation. The Pearson r as a measure of relationship independent of sample size is from of effect size. Cohen (1988) proposes the following conventions for the effect sizes of correlations: r = 0.1 small, r = 0.30 medium, r = 0.50 large.

5.2 Population and sampling

The entire research was conducted based on random sample of broadband users in Malaysia by using a questionnaire survey. 150 respondents were surveyed for this study and data collection was based on close-ended Questionnaire and Likert scale questions. The questionnaire helps to satisfy the simple approach of offering random candidates equal opportunity in answering the questionnaire. Basically the questionnaire was divided into 4 main portions, which consists of 3 independent variables and demographic questions. The demographic aspects of the questionnaire that takes into account such age, gender, education, income level and monthly spending on broadband service. The dependent variable of this study is the customer satisfaction level of internet broadband services in Malaysia while the independent variables are price, speed and stability. In this study, the questionnaires were distributed to the respondents either through email or handed all over in Klang Valley. Out of 158 questionnaires were distributed, 150 respondents responded, respond rate 95%. The researcher used random sampling method in data collection.

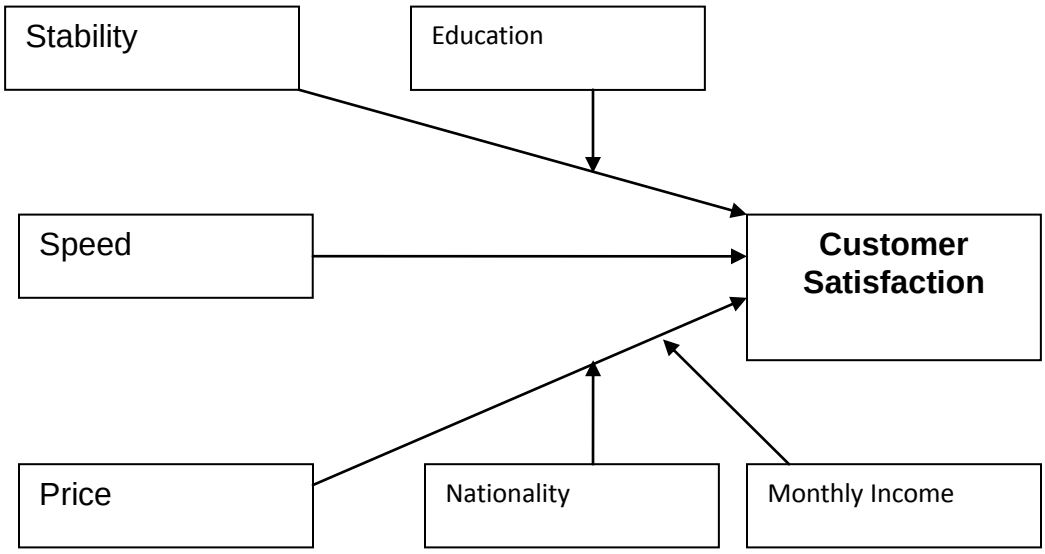
5.3 Reliability Test

According to the reliability analysis, it found that independent variable of stability factor has an acceptable reliable Cronbach's Alpha value of 0.639. However, independent variable of price and speed factor has a low Cronbach's Alpha value at 0.019 and 0.0391 respectively. These mean that only independent variable of stability factor with the alpha value close to 0.7 is reliable while the remaining 2 independent variables are not reliable and cannot be used in the following analysis. This scenario might be due to either the instruments used for this research were new and never been tested before in Malaysia or the sample size is insufficient and too small to get a good result. Furthermore, those items were constructed based on researchers' judgement and evaluation. However, since this study is an exploratory in nature it provides some insights into the instrument of the topic of interest.

5.4 Factor Analysis

Factor analysis results shown that there are three statements (Section B Q16, 17 & 18) were grouped to construct a dependent variable related to customer's satisfaction level of broadband service in Malaysia. There are 4 statements closely related to independent variable of stability factor, 7 statements were used to construct independent variable of speed factor and 4 statements were related to independent variable of price factor. Such clustering is essential in helping the researchers to examine the level of customer's satisfaction of broadband service in Malaysia from the perspectives of stability, speed and price. Then based on the clustered component, 2nd reliability test was conducted and the researchers found dependent variable of customer satisfaction level has the highest alpha value of 0.857, followed by independent variable of stability factor and price factor have a reliable alpha value at 0.774 and 0.602 respectively. Lastly, independent variable of speed factor has the lowest alpha value of -0.070 which shown that this independent variable is not reliable. This means that there are 2 reliable independent variables can be used in this research, which are stability and price factor while speed factor is still remain unreliable.

5.5 Theoretical Framework



6.0 FINDINGS

Table 1: Respondents' Demographic

Demographic Variable	Frequency	Percentage (%)
Gender (n=150)		
Male	85	56.7%
Female	65	43.3%
Nationality		
Malaysian	125	83.2%
Foreigner	25	16.8%
Age		
≤25	56	37.3%
26 – 30	43	28.7%
31 – 35	24	16%
36 – 40	12	8%
≥41	15	10%
Ethnic group		
Malay	75	50%
Chinese	40	26.7%
Indian	10	6.7%
Others	25	16.7%
Monthly income (n=147)		
≤RM1500	49	32.7%
RM1501 – RM3000	40	27.2%
RM3001 – RM4500	31	20.4%
≥RM4501	30	19.7%
Education level		
Bachelor's Degree	61	40.7%
Master's Degree	39	26%
PhD	1	0.7%
Others	49	32.7%
Occupation		
Government sector	4	2.7%
Private sector	93	62%
Self-employed	13	8.7%
Others	40	26.7%

The majority of the respondents (85) are male which accounted 56.7% as compared to female 43.3%. In fact, most of the respondents (approximate 83.2%) are Malaysians as compared to 16.8% are foreigners and 1 respondent not identified himself. According to the analysis and Table 1, 37.3% of respondents were 25 years old and below, 28.7% were between 26 to 30 years old, 16% were between 31 to 35 years old, 8% were between 36 to 40 years old and 10% of respondents were more than 40 years old. This research involved both younger and older generation that provides different perspectives and multiple useful data to study the customers' satisfaction and behaviour on broadband service.

For the ethnic group, it found that 50% of respondents are Malay, 26.7% Chinese, 6.7% Indians and other ethnic groups consists of 16.7% which were quite representing to the ethnic composition of total population in Malaysia.

As far as monthly income was concerned, there were 3 respondents refused to disclose their income level per month. Out of 147 respondents, 32.7% of respondents have monthly income of less than RM1,500, 27.2% have monthly income between RM1,500 to RM3,000, 20.4% have a monthly income between RM3,001 to RM4,500 and about 19.7% of respondents have monthly income more than RM4,500 per month. The analysis shows that more than 50% of the respondents are having monthly income of less than RM 3,000.

In terms of education level, percentage of bachelors' degree, master degree, PHD and others respectively 40.7%, 26%, 0.7% and 32.7% as shown in Table 1 In terms of occupation which is shown in the same table, the majority of respondents were private sector employees with 62%, followed by others (students and others) at 26.7%, self-employed at 8.7% and about 4 people declared themselves as government servants.

6.2 Data Analysis

As discussed in the earlier part of the study, the main objectives of this research are to examine the relationship of customer satisfaction from different perspectives, which were divided into three categories, namely speed, stability and price of broadband service. The researchers have developed 18 questions with Likert Scale of 1 as strongly disagree and 5 as strongly agree on the statements given in the questionnaire.

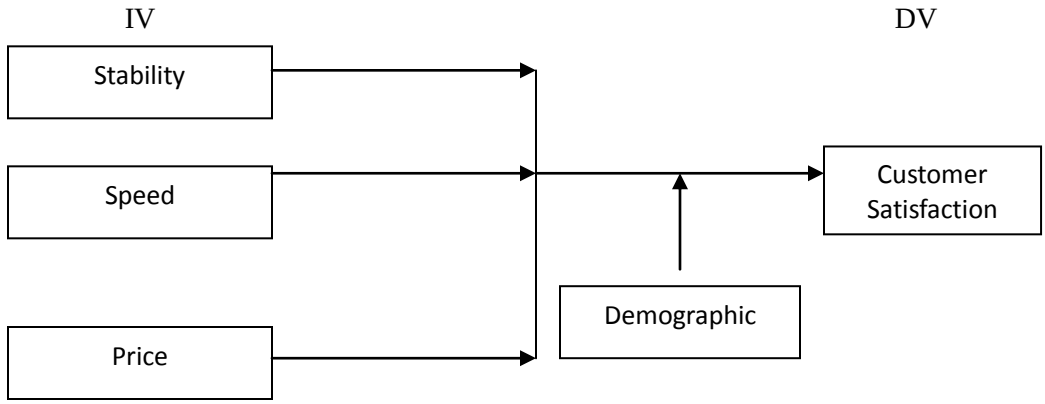
The indications of the Cronbach's alpha values are shown in Table 2 as below:

Table 2: Cronbach's Alpha Value

Cronbach's Alpha Value	Indication
> 0.7	Reliable
0.6 - 0.7	Acceptable
< 0.6	Unreliable

Factor Analysis was also conducted in this research in order to cluster the dimension of the research. In this analysis, an Eigen value studied where only components with eigenvalues more than 1 were considered for clustering. Then the clustering process will require the researchers to compare the factor loading and clustered accordingly. Generally, factor analysis was used to develop questionnaires and to look at the inter-correlation between questions asked in the research.

At the initial stage the research framework as below:-



Research framework

In this research, the researchers were using SPSS factor analysis to cluster 18 Likert Scale statements into 4 different variables, which consists of 1 dependent variable and 3 independent variables.

For hypotheses testing, Person correlation was used to measure the magnitude or the strength of relationship through the numerical value of -1 to +1. The conversion of measurement is shown in Table 3 below:

Table 3: Pearson Correlation Value

Pearson Correlation Value, r	Magnitude Relationship
1.0	Perfect
0.7-0.9	High
0.5-0.69	Substantial
0.3-0.49	Moderate
0.1-0.29	Low
0.01-0.09	Negligible

Next, Chi-Square Test was also conducted for independent nominal factors. This test is aimed to identify the significant relationship between variables. In this test, alfa value was studied and hypothesis is accepted if the alfa value is less than 0.05.

7.0 RESULTS AND DISCUSSIONS

7.1 Frequency Analysis

Table 4: Demographic Factors of Broadband user in Malaysia.

Demographic Factors Variable	Frequency	Percentage (%)
Usage period		
≤ 1 year	47	31.33
Between 1 to 2 years	38	25.33
Between 2 to 3 years	34	22.67
≥3 years	31	20.67
Market share of BB service provider		
Celcom	29	19.46
Digi	7	4.7
Maxis	32	21.46
Packet One	14	9.40
Streamyx	55	36.91
Others	13	8.05
Broadband Download Speed		
≤500kbps	23	15.33
Between 501 kbps to 1.0 Mbps	43	28.67
Between 1.1 Mbps 1.2 Mbps	31	20.67
≤1.5Mbps	30	20
Don't know	23	15.33
Broadband service charge (monthly)		
≤RM35	2	1.34
Between RM35.01 to RM50	32	20.81
Between RM50.01 to RM75	52	34.90
≥RM75.01	64	42.95
Acceptable charge for BB service (monthly)		
≤RM30	32	21.33
Between RM30.01 to RM60	73	48.67
Between RM60.01 to RM90	40	26.67
≥RM90	5	3.33

Based on the study, it found that broadband services in Malaysia can be considered at introductory stage as most of the respondents (31.33%) had been using internet broadband service for less than 1 year as shown in Table 4. In fact more than 50% of respondents had broadband usage experience of less than 2 years. The research revealed that the top three broadband service providers were TM Streamyx, Maxis and Celcom with 36.91%, 21.46 and 19.46% respectively. However, the research found that Digi was ranked last in the market with the market share of 4.7% which is about two times lesser than others (8.05%). However, Packet One (P1), as a new comer with less than 2 years existence in the Broadband industry was relatively aggressive promoting their services and was ranked fourth in the industry.

Moreover, the survey found that most of the respondents' current download speed for their currently subscribe package was between 501kbps to 1.0Mbps with 28.67% and their current monthly price was more than RM75. In fact the study also found that about 75% of respondents agreed that their monthly broadband service price was more than RM 50. When it comes to monthly charge (price) most of the respondents agreed that the current charging price was higher than their expectations as most of them were only willing to pay between RM30 to RM60 for monthly subscription fees. This indicates that internet broadband customers will change to other service provider if the price is cheaper than their current subscription fees and the reasonable range is fall between RM30 to RM60. The study has shown that most of the respondents are only willing to pay monthly subscription fees of less than RM60, which has further supported that the adoption level of internet broadband is slow in Malaysia as we discussed earlier.

7.1.2 Price Factor

With regards to price factors, majority of respondents were neutral with the tested statement that price for broadband service in Malaysia is inexpensive and their willingness to pay more for better internet broadband service. However, most of the respondents agreed that they would consider changing to other broadband service provider because of the price factor. Hence broadband customers were price sensitive and higher pricing from each broadband provider would lead to low demand.

However, when mean value is studied, it found that the average respondents tended to disagree that the price for broadband service is cheap (mean of 2.69) and they tended to be neutral when willingness to pay more for better service is asked. Therefore, the respondents on average revealed that they would consider changing to other broadband service providers because of the price factor with a mean of 3.84.

7.1.3 Speed Factor

Based on the result, it revealed that most of the respondents strongly agreed that quick access to internet is an important factor and thus they would consider changing to other internet broadband service provider due to speed factor. However, the result seems not consistent as most of the respondents revealed that they were satisfied with their current speed although they agreed that their current upload and download speed is slow, the actual performing speed is slower than expected and the speed of the broadband internet is inconsistent.

Next for mean analysis, the result found that respondents tended to agree that quick access to internet is important (mean value of 4.21) so they would tend to change to other service provider if the speed of the internet broadband is under expectation as mean shows 4.0. This result is parallel to previous study where previous study revealed that with a mean of 6.38 respondents agreed that the speed of internet access is important. (Suradi *et. al* 2008) From the research, it found that the average respondents were dissatisfied with their current broadband speed as the average respondents tends to agree that the upload and download speed of internet broadband is slow, the actual performing speed is slower than expectation and there are inconsistencies of the speed of current broadband. All figures are shown in appendix.

7.1.4 Stability Factor

Stability factor is considered as one of the most crucial in determining customer's satisfaction level of current broadband service. Based on the research, it found that most of the respondents agreed that it was easy for them to get connected at anytime and any place, the stability of internet service was important to them and they would consider changing to other broadband service provider due to stability factor. However, most of the respondents had no comments on their current internet broadband service's stability and they dissatisfied with their current internet broadband service due to network coverage. This result is consistent with past research that revealed wide network coverage is important to the customer. (Suradi *et al*, 2008) For the mean analysis, it found that the average of the respondents agreed (mean value of 4.16) that the stability of internet broadband service is essential and it is important for the users to be able to get connected from any location at any time with mean value of 3.95 and 3.44 respectively. Another important finding is that mean value of 3.98 shown that the average respondents will tend to consider changing to other internet broadband service provider due to stability factors as we discussed above.

7.2 Hypotheses Testing

According to the Hypotheses Testing, it revealed that speed factor was not reliable, so speed factor was excluded when hypothesis testing was conducted. Therefore, H3 cannot be accepted and only price and stability factors versus customers' satisfaction level were studied. In fact, other relationships that involved demographic factors and independent variable and nominal data are studied in this research too.

Table 5: Pearson Correlation of some variables

	Variable	Pearson Correlation	Significant Level
1	Stability Factor vs. Customer Satisfaction Level	.001	.500
2	Price Factor vs. Customer Satisfaction Level	.001	.500
3	Education Factor vs. Stability Factor	.058	.246
4	Monthly Income Level vs. Price Factor	.116	.088
5	Nationality vs. Price Factor	-.181*	.016

*. Correlation is significant at the 0.05 level (1-tailed)

**. Correlation is significant at the 1 level (2-tailed)

Based on the result in Table 5, it shows that Pearson correlation of Stability Factor vs. Customers Satisfaction Level value at 0.001. This means hypothesis H1 cannot be accepted. Hence, it can be concluded that stability factors have no significant relationship with customer satisfaction level of broadband services in Malaysia. The same result goes to Price Factor vs. Customer Satisfaction Level thus it can be concluded that price factor has no significant relationship with customer satisfaction level of broadband services in Malaysia.

However for the Education level vs. Stability Factor the Pearson Correlation value of 0.058 is slightly larger than 0, so hypothesis H4 is accepted and education level has a weak positive association with stability factors. The same result goes to the Monthly Income Level vs. Price Factor whereas the Pearson Correlation value of 0.116 is slightly larger than 0, so hypothesis H5 can be accepted and education level has a positive association with price factors. However the Pearson Correlation value of Nationality vs. Price Factor, -0.181 is smaller than 0, so hypothesis H6 is accepted and nationality has a negative association with price factor. Apart from that, Speed factor has been identified as a non-reliable factor in this study. Pearson correlation value for speed factor was not shown when the researchers conducted reliability test. This means hypothesis H3 could not be tested.

Table 6: Pearson Chi-Square of some variables

	Variable	Value	df	Significant Level
1	Gender vs. Acceptable Price Level	11.276[a]	3	.010
2	Monthly Income Level vs. Internet Broadband Usage	19.543[a]	9	.021

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.12.
a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 2.17.

According to Table 6, it found that the Pearson Chi-Square of Gender vs. Acceptable Price Level, 0.010 is lesser than alpha at 0.05, so hypothesis H7 is accepted. Therefore, it can be concluded that gender groups have significant association with acceptable price level. While, Pearson Chi-Square of Monthly Income Level vs. Usage Period for Internet Broadband Services, 0.021 is lesser than alpha of 0.05, so hypothesis H8 is accepted. Therefore, it can be concluded that monthly income level has significant association with usage period for internet broadband services.

8.0 DISCUSSION AND CONCLUSION

The present study examines the issues of customers' satisfaction level of broadband services in Malaysia. In conducting this research, the researchers have perceived the challenges of evaluating the customers' satisfaction level of broadband services in Malaysia because there are not many studies have been conducted done in Malaysia. Apart of that, broadband services are considered as a pretty new technology that existed in Malaysia for the past few years. Broadband services are only getting more public awareness recently with the encouragement by government as well as aggressive promotional activities by internet service providers. Based on our literature review, there are three constructs of price, speed and stability which were expected to influence the customers' satisfaction level when adopting broadband services in Malaysia. However, this research found that these three constructs had no significant effect or correlation in examining the customers' satisfaction level on broadband in Malaysia. This might be due to some limitations that to be discussed later. Anyhow according to the finding of this research, there are associations between education level and stability factors, monthly income level and price factors, nationality and price factors, gender and acceptable price level, monthly income and internet broadband usage period and gender and speed.

As broadband technologies enabled a range of communication and internet services, this research provides a useful starting point to understand the customers' satisfaction level of broadband services in Malaysia. The findings of the research may have implication for internet broadband service providers especially Digi who ranked in the last place in the local market. Malaysian government has aggressively encouraged and promoted the adoption and utilization of internet broadband. Since speed factors are not Malaysian' concern, the internet broadband providers perhaps could offer affordable package at lower subscription fees with lower speed for that would help to expand market share and benefit different market segments. Doing so would also help to promote higher diffusion rate of internet broadband services in Malaysia.

For instance, the Malaysian government via Telekom Malaysia (TM) to upgrade existing infrastructure to fiber optic cable and promoting UNIFI broadband services are amongst the efforts to increase broadband diffusion in Malaysia. This project is under the 10th Malaysian Plan and many areas in Klang Valley are now able to enjoy high speed broadband services with more stable and constant service at a lower subscription fees that would benefit different levels of people in the society. The government also has poured in efforts in promoting and increase public awareness within Malaysian population on the benefits of internet broadband services. As discussed above, Said Business School (2009) has confirmed that broadband quality was linked to social and economic benefits and those countries with high broadband quality have broadband on their agenda.

We should recognize that the cost of using the traditional telephone network is very high, so internet broadband service can be considers as an effective alternative for offering communication services such as instant messaging or internet protocol telephony.

This study has its limitation such as the generalization of these findings to the whole population of Malaysia as only 150 respondents were selected and responded in the research. Although the selected sample shown similar ethnic percentage in Malaysia, yet the sample was too small, this only concentrated part of the Malaysia and not included data from Sabah and Sarawak. Hence, the findings were insufficient to make a conclusion for the entire population of Malaysia. Time and resources constraint are another limitation that we faced in this study. This study was conducted in a short time frame so insufficient sample size has limited the ability of researchers to analyze more findings from different perspectives. Therefore, future research of a similar nature may entail a longer data collection period, which subsequently eliminates any variables that may have produced anomalies in the result. Next, the questionnaire was newly constructed by the researchers and it never been tested before in the survey, the results may generate lower reliability level. Hence, the researchers would suggest that improvement and further enhancement of the instruments in future research.

In conclusion since the tested variables are based on past studies that carried out in developed countries, future research could be conducted in order to identify the influence factors of customers' satisfaction on broadband in Malaysia, knowing that we have different culture and IT environment. Although this study had studied on three constructs which consists of price, speed and stability, there are also many others possible constructs that may have effect on customers' satisfaction level of internet broadband services in Malaysia. Hence future research should enlarge the scope of study by examining the different factors that could bring effects to customers' satisfaction level of broadband services.

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