A STUDY ON RELATIONSHIP BETWEEN ATTITUDE OF HOUSEHOLDS AND THE BROADBAND ACCEPTANCE: A CASE OF HOUSELHOLD OF CAPITAL CITY OF ALOR SETAR, KEDAH IN MALAYSIA

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Abstract
In general, an information and communications technology (ICT) adoption is importance initiatives in transforming the current status of socio-economy of people as well as contributes to the economic well being of nations. The studies and literature point of view has evolved to examine the impact of ICT on social-economic growth, as well as internet impact on daily social life of societies, includes in Malaysia. Currently, the broadband internet is being viewed as the most significant evolutionary step and always considered to be an innovation that will offer end users with fast access to new services, applications and digital content with latest real lifestyle and productivity benefits. On the one hand, previous research undertaken on the adoption of broadband internet has emphasized a demand perspective as well. Therefore, the examining of deployment of broadband it was found that such perspective is limited. The objective of this study is to identify the attitudes, subjective norm and perceived behavioural control factors that can influence adoption or rejection of internet broadband in the household sector. This study was conducted in the household area of Capital city of Alor Setar, Kedah as a study setting and sample selection will be determined by the convenience sampling method. At the end, this study will recommend some idea on how to increases the usage of broadband internet with specific to the household sector in Malaysia.

Keywords: *Household; Internet Broadband; Capital City; Attitude; Subjective Norm; Perceived Behavioral Control*

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, 2002). Historically, the Internet Revolution started in 1995 when the Internet is being introduced to the world wide customer. Since that year, we have seen the explosive growth of the Internet and the use of its enabling technologies have push and bring a new revolution to the world of computing and telecommunications industry. The Internet has become the new driver for a rapidly expanding list of information and online based services including entertainment based services, business applications, small and medium based enterprise, online collaboration, electronic commerce, e-business systems, and other kind of online systems as mention by scholars Carriere, Rose, Sirois, Turcotte and

Christian (2000); Anderson, Gale, Jones, and McWilliam (2002); Anckar (2003); and Abdul Manaf Bohari (2008). One of the latest example is broadband technology with refers to the unrestricted connectivity using Internet technologies as mention by Zainal and Abdul Manaf (2011).

In general, ICT adoption is importance phases in transforming the socio-economy of people and the economic well being of nations as mention in Abdul Manaf Bohari (2005). The studies and literature point of view has evolved to examine the impact of information and communications technology on social-economic growth, as well as internet impact on social life development. Specifically, broadband internet is being viewed as the most significant evolutionary step and always considered to be a technology that will offer end users with fast access to new services, applications and content with real lifestyle and productivity benefits (Zainal & Abdul Manaf, 2011). On the one hand, previous research undertaken on the adoption of technology has emphasized a demand perspective as well. On the other hand, the examining of deployment of broadband it was found that such perspective is limiting. As implication, many governments around the world are increasingly committed to extending broadband networks to their citizens (BAG, 2003) especially in the capital city where majority peoples are located there. This is similar to Lee, Oh and Shim (2005) which mention the usage of broadband technology in the belief that broadband will contribute to economic and social development by enhancing productivity and introducing new services.

One of 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 (Ahmad Syakir & Mohd Rafi, 2011). This is similar to what has reported by Said Business School (2009) based on 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. Recently, broadband technology is becoming primary telecommunications technology drivers in any online based business systems as coined by Jorgenson and Stiroh (1999); Lehr and Lichtenberg (1999); Dwivedi and Choudrie (2003); and Abdul Manaf Bohari (2005). In fact, Ahmad Syakir and Mohd Rafi (2011) believed that broadband technology aimed to promote easy and secure access to businesses, managers, professionals, consumers and every user to the resources of the Internet, enterprise information systems, intranets, extranet, and any types of inter organizational information system.

Today, 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 in delivering advance information, communication and multimedia services from 2006 until 2010. This plan is stressing on the application of high speed bandwidth services in all its strategy including higher education sector (Suradi, Mustafa, Ismail, Shahabuddin &Ali, 2008). However, the application of broadband technology is important as important of it implementation in the higher education sector. As examples by Arronson, Tholen, Josephson, Li and Kong (2003)

the Broadband is a concept that comes from telephony world. Different service provider will have different definition of broadband but in general the speed of the broadband must exceed 2Mbps. Therefore, with regard to Arronson *et. al.,* (2003) broadband will provide some benefits to the society in term of daily social life. This supported by Firth and Mellor (2005) here explain the broadband technology has the potential to enhance the service quality in health to the society although this technology has provide both benefits and problems to the users. In addition, Dwivedi, Khoumbati, Williams and Lal (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.

2. Selected Literature Review

Theoretically, the Internet Broadband is supposed to have significant impact to organizations because they think that the Internet will create special value to their business. The business value of the Internet Broadband comes from the ability to derive strategic business value from the Internet while at the same time, the firm have an obligation to disseminate information globally, communicate with various parties, and doing trade interactively with customized information and services for individual customers. The firm also have a chance to foster collaboration of users and integration of business processes within the enterprise and with any business clicks. These common values allow them to generate cost savings from using Internet Broadband technologies, and at the same time revenue increases from electronic commerce transaction. Some researchers had mention about broadband and factors on organization performances, as such as Firth and Kelly (2001); Haring, Rohlfs and Shooshan (2002); Sawyer, Allen and Heejin (2003); Shim, Lee and Yun (2003); and Abdul Manaf Bohari (2005). However, in the case of Malaysia, Dwivedi, Selamat and Lal (2011) cited that although broadband diffusion is considered to be an important policy issue in many countries around the globe, there are few studies that have been conducted in order to understand this critical technology management issue within the context of developing countries. The reason for this lack of broadband adoption studies from the developing country perspective could be attributed to the late rollout of broadband services, slow infrastructure development, low tele-density and slow rate of adoption.

Practically, by adopted the broadband sophistication, the business can provide better customer service and relationships through better supply chain activities and customer relationship programme via the Internet services. Meanwhile, business value of the Internet Broadband guide the firms to lower the transaction and agency costs and enable digital markets to be more efficient and profitable than traditional markets. Overall, Zainal and Abdul Manaf (2011) mention the business value of the Internet Broadband is based on:

- Ubiquity which refers to the web technology that is available everywhere, anytime, and everyplace.
- Richness, which refers to the possibilities to transmit video, audio and text, messages over the net.

- Global reach which refers to the technology that reaches across national boundaries and available to every people around the earth.
- Interactivity which refers to the technology operation that works through interaction with the user, customer and any firms around the globe.
- A universal standard which refers to a set of technology standards, namely Internet standards and used by every persons and parties as far as they deal with the Internet services.
- Personalization also refers to customization of the technology that enables personalized messages to be delivered to individuals as well as groups.

The Internet Broadband has some valuable to end users especially to home users, as coined by Taylor and Todd (1995); Lee and Choudrie (2002); Gardner (2003); Malone (2004); Abdul Manaf Bohari (2005); and Horrigan and Murray (2006). As supply by traditional Internet, Internet Broadband has offers major services to every customer via the Broadband infrastructures. These services according to Zainal and Abdul Manaf (2011) are include e-mail system, Usenet newsgroups, LISTSERV, chatting tools and instant messaging, Telnet, FTP, and the World Wide Web.

- E-mail: a function that supports person-to-person messaging and document sharing.
- Usenet groups: Play important roles as forums where people share information and ideas, commonly through large electronic bulletin boards. Here, anyone can post messages on the topic for others to see and to which others can respond.
- LISTSERV: This kind of Internet tools will conduct online discussions by using such kind of technology like e-mail based broadcast from mailing list servers.
- Chatting and Instant messaging: Refers to real live and interactive conversations, conducted over a public network and this is the most popular platform for today customers and from time to time they are so many people involved in online chatting via either the Internet based tools or non-Internet based tools.
- Telnet: Refers to a network tool that allows someone to log on to one computer system while doing work on another. The user can move away form their computer but still continues their work.
- FTP: It is the Internet tool for retrieving, transferring, transmitting and handling files from a remote computer.
- The World Wide Web: It is a system of universally accepted standards for tracking, retrieving, designing, formatting, and displaying information via the Internet platform.

However, Dwivedi, Selamat and Lal (2011) mention the deployment and adoption of broadband is still in its infancy in Malaysia. A recently published Malaysian broadband market report highlighted the problem of slow broadband adoption amongst the general Malaysian population and the possible barriers inhibiting its widespread diffusion. As implication on what has discuss by these researchers, the society will face some problems regarding these issues.

Since deployment and adoption of broadband is still in second stage in Malaysia, it was thought that this will provide an appropriate context for understanding drivers and barriers of households' adoption of broadband in less develop state as in North State of Malaysia especially Kedah. Recently, Mohd Isa (2009) coined the availability of broadband internet and easy communication connections is an enabler

and contributor to national aspirations and driver of national competitiveness as it speeds adoption, whereas slow connections cause user frustration and slow adoption. In fact, Zainal and Abdul Manaf (2011) described theoretically, the Internet Broadband connections have the potential to change how people use the Internet from home where offers faster services for downloads and uploads compared to traditional dial-up modems. Practically, a residential based-broadband connection of 3 megabits/ second has ability to transmit data over 50 times faster than a dialup modem connection. This sophistication of services has adding new experience of high-quality images and sound to users. These situation is related on the issues of broadband adoption that discussed by Parker (2000); Lee and Choudrie (2002); Malone (2004); LaRose, Strover, Straubhaar and Gregg (2006) and Abdul Manaf Bohari (2008).

The Internet broadband connections allow households to stay connected to the Internet where differs compared to before. Internet broadband allow used to making the Internet more appealing for convenience and always keep-up with current news on the Internet. Internet Broadband, therefore, has the potential to affect usage of a wide range of online activities. Some researcher work had mention about ICT/broadband benefits, as such Davis (1989); Abdul Manaf Bohari (2005); Morris, Venkatesh and Ackermann (2005); Horrigan and Murray (2006) and Abdul Manaf Bohari (2008). Speed, service reliability and ‘‘always-on’’ have been identified as important attributes for consumers considering broadband Internet access as mention by Savage and Waldman (2005). This is support by Oh, Ahn and Kim (2003) here describes the relative importance of these attributes depends on social grouping-higher income respondents value these attributes more highly than lower income users and those with a college degree value speed more, always-on less and reliability about the same as those without a college degree. In addition, research into the factors shaping an individual’s attitude towards broadband showed that compatibility (how broadband fitted in with an individual’s experiences and expected future needs), visibility (the degree to which broadband was visible) and result-demonstrability (how observable the results of using broadband were and how communicable to others) were all significant in shaping a positive attitude

Furthermore, according to Venkatesh and Brown (2001) the different magnitudes of attitudinal belief towards the adoption of computer in the household can be measured using three main constructs, namely, utilitarian outcomes, hedonic outcomes, and social outcomes. When examining broadband adoption in the household, this research adopted hedonic outcomes, utilitarian outcomes (Venkatesh and Brown, 2001) and relative advantage (Rogers, 1995) as factors to consider. Since broadband is not a directly observable product, the social outcome construct of the model of adoption of technology in the household was considered irrelevant to this study.

3. Methodology

The study will use the quantitative method as applied by Tan and Teo (2000), Venkatesh and Brown (2001) and Anckar (2003) where the sample will be determined by the probability sampling method. By the way, this method giving chance to every household in Alor Setar of Kedah in Malaysia for selected as respondents as well as they will have the same chance to be chosen. Convenient

sampling has been used a method of sample selection where 120 respondents will be selected as sample of study.

3.1 Quantitative Approach

a. Questionnaires

By using self-administered questionnaire, the study will send the questionnaire to the person appointed in Alor Setar to collect the distribution the questionnaire. Fowler (2002) mention a self-administered questionnaire was considered to be the primary survey instrument for data collection in this investigation. This is because it addresses the issue of reliability of information by reducing and eliminating differences in the way that the questions are asked, and how they are presented.

b. Item and Instrument

In general, the questionnaire used in this research were divided into two broad categories: (1) multiple choice questions addressing the social attributes (demographic variables) including age, gender, education, and income; and (2) Likert scale questions that were designed to address the issues related to the factors of broadband adoption. Five point Likert scale has been used in this research from strongly agree to strongly disagree. In addition, Likert scale questions are divided into two categories of independent and dependent variables specifically named as attitude of respondents and broadband adoption.

To evaluate the appropriateness of the questionnaire during the initial stages, the questionnaire was sent to a small number of experts within industry and academia. The content validity has applied that for ensures that the measure includes an adequate and representative set of items that tap the concept. The more the scale items represent the domain or universe of the concept being measured, the greater the content validity as mention by Sekaran (2003).

The feedback responses from the experts led us to make minor changes to the questionnaire; for instance, the categories for demographic variables. In addition, the pilot test was used to validate the content of the questionnaire; however, minor changes to the final design of the questionnaire were undertaken based upon the received feedback. The final questionnaire as mention before was distributes to a total of 150 household heads in Alor Setar, Kedah in Malaysia.

c. Hypothesis Setting

H1: There is a positive relationship between attitude of households and the broadband acceptance.

Regression analysis is used to test the hypothesized relationships among the variables by setting $\alpha = 0.05$.

4. Results and Discussions

Questionnaires were distributed to 150 households head in Alor Setar, Kedah. However, researcher has received only 120 questionnaires complete from the

respondents. There, analysis will base on 120 respondents. Start with the Gender, from the 120 Questionnaires this study found the majority of the respondents are Males, 113 (94.2%) male and just 7 (5.8%) female respondents. Secondly, about Age of the respondents that results the highest frequency of age is related to the age group 20 to 30 where they are (48.3%) of the respondents and the lowest frequency of age is related to the age groups, 30-35 (16%). which means all the respondents in period Age from 25 years old to 40 years old. Based on level of educational background, most of the respondents have Diploma (24.2%), Bachelor Degree (75%) and Post Degree (13.3%). Based on the analysis it has been shown that in the result for income of the households; most of the households has the income in between RM 2000 to RM 3000 which is 53.3%. The result of the income of households' frequencies and percentage are shown above in Table 1.

Table 1. Income of the Households

Item	Item	N	Percent (%)
Monthly Income	Less RM999	9	7.5 %
	RM1000– RM1999	36	30%
	RM2000– RM2999	64	53.3%
	RM3000– RM3999	11	9.2%
	More than 4000	0	0
	Total	120	100%

The first regression analysis was carried out to determine the relationship between attitude and broadband adoption in households in Libya. The regression output is presented in Table 2. The output shows the Durbin Watson value 1.074 which indicates that there was no auto-correlation problem of error terms. From the coefficient matrix of this model, attitude and BB adoption is related at t = 2.214 and P= .000 < 0.05 which support H1. From this model we can conclude that attitude of house hold is positive towards broadband adoption in Alor Setar, Kedah.

As in discussion above it has found that there is positive relationship among attitude with the broadband adoption among households in the area of study. This result indicates that the acceptance level of broadband adoption among households in Alor Setar City of Kedah is high. From this research it was discovered that the adoption of broadband in households can be predicted from the attitudinal factors. Using previous research as a means of analyzing the empirical evidence, it can be found that Tan and Teo (2000) reported similar findings where the intention to adopt Internet banking services can be predicted from the attitudinal factors. In addition, the attitudinal factors include relative advantage (faster access, faster download, un-metered access and always on access), utility outcome (broadband needed to perform job related tasks, to attain educational material, perform business activities from home and function household related activities) and the hedonic outcomes (broadband used for entertainment purposes). In addition, theoretically Abdul Manaf Bohari (2008) had mention about attitudes factor that can contribute to the successful adoption of broadband technology among society including household sector.

The roles of the attitudinal factors were considered essential for broadband technology and were imperative for the adoption of technology in the findings of both Tan and Teo (2000), and Anchor (2003). The research by Tan and Teo (2000)

found that adoption and non-adoption were strongly predicted by the attitudinal factors.

Table 2. Result of Attitude and Broadband Adoption.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.200[a]	.142	.132	.38190	.142	4.901	1	118	.000	1.074

a. Predictors: (Constant), attitude
b. Dependent Variable: BB

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.484	.114		13.001	.000	1.258	1.710
	Attitude	.115	.052	.200	2.214	.029	.012	.218

a. Dependent Variable: attitude

5. Conclusion

As broadband technologies enable a range of communication and Internet services, studying individuals from Alor Setar of Kedah provides a useful starting point for understanding the adoption of broadband in Asian and developing countries. This research presents one of the initial efforts towards understanding the adoption behavior of Internet consumer in developing country perspective for this instance Malaysia. The findings are specifically useful for ISPs and policy makers of Malaysia. Additionally the cost of using the traditional telephone network is very high so broadband Internet can be used as a replacement for offering communication services such as instant messaging or IP telephony.

The generalization of this study required collecting data from across the whole of the Kedah. However, this was not possible due to the unavailability of a suitable sample frame for the population of the whole Kedah. In the future this research intends to examine whether the findings obtained in this sampled vicinity, are specific to the whole of the Kedah specifically in rural and hidden area of Kedah.

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