SUSTAINABILITY OF INTERNET USAGE: A STUDY AMONG MALAY YOUTH IN KOTA BHARU, KELANTAN

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Abstract
This article discusses the issue of sustainability of internet usage. It is based on the study on Internet usage among Malay youths in Kota Bharu, Kelantan. The objectives of the study are to determine the factors which have positive and negative effects on sustainable usage of the Internet with respect to Malay youths and to identify the predictor factors for sustainability of Internet usage among Malay youths. This study is based on a model derived from diffusion of innovation theory, i.e. the innovation decision process model, by Rogers (2001). To determine sustainability, four variables were used viz. indispensability, relevance, gratification and beneficial. Six factors were used to measure their effects, either positive or negative, on sustainability of Internet usage. Communication channels, perceived and realized benefits and interpersonal and social network were the factors used to gauge positive effects on sustainability of Internet usage, while security concern and interruptions, moral issues and cost of maintenance and computer upgrade were used to gauge negative effects. This study used the survey research for obtaining data. Some 225 respondents were sampled from the Malays in Kota Bharu, Kelantan. They were interviewed using a standard questionnaire. Inferential statistics comprising multiple regression were used to analyse the data. The results of the study showed that Interpersonal and social network and perceived and realized benefits have significant positive effects on sustainability of Internet usage. The results also showed that issues relating to security concerns and interruptions have significant negative effect on the sustainability of Internet usage. Therefore, the factors which affect sustainability of usage should be given priority in the implementation of Internet and ICT related projects.

KELESTARIAN PENGGUNAAN INTERNET: KAJIAN DALAM KALANGAN BELIA MELAYU DI KOTA BHARU, KELANTAN

Abstrak
Makalah ini membincangkan isu penggunaan Internet yang mapan. Perbincangan adalah berdasarkan penyelidikan tentang penggunaan Internet dalam kalangan remaja Melayu di Kota Bharu, Kelantan. Objektif kajian adalah 1) menentukan faktor yang mempunyai kesan positif dan negatif ke atas penggunaan Internet yang mapan dan mengenal pasti faktor peramal kepada penggunaan Internet yang mapan dalam kalangan remaja Melayu. Kajian ini bersandarkan kepada model proses membuat kata putus inovasi oleh Everett M. Rogers (2001). Empat pemboleh ubah iaitu indispensability, relevansi, kepuasan dan berfaedah digunakan untuk mengukur kemapanan penggunaan Internet. Enam faktor digunakan untuk mengukur kesan positif atau negative penggunaan Internet yang mapan dalam kalangan remaja

Melayu. Kajian ini menggunakan tinjauan untuk mengumpul data.ke atas 225 responden remaja Melayu di Kota Bharu. Responden ditemubual menggunakan soalselidik. Teknik analisis inferensi digunakan untuk menganalisis data. Penemuan kajian mendapati hubungan interpersonal dan jaringan social dan persepsi tentang faedah kebaikan Internet mempunyai pengaruh yang positif ke atas penggunaan Internet yang mapan. Hasil kajian juga mendapati soal keselamatan dan gangguan teknikal penggunaan Internet mempengaruhi responden untuk terus menggunakan Internet. Justeru, faktor-faktor ini perlu diambilkira jika ingin memastikan pengguna terus ingin menggunakan Internet.

Keywords: *Sustainability; internet usage; gratification; security; realized benefits.*

Introduction

The issue of sustainable usage of the Internet can be looked at from many aspects, one of which is indispensability of the Internet. In other words if the Internet is indispensable to the users then its usage will be sustained. For any innovations, the continuum is from dispensability to indispensability, as it shows the degree at which such innovation can withstand the test of time. The Internet is said to have reached the indispensability level (Hoffman et al 2004) and profoundly affected human life (Vivian, 2009). How relevant an innovation is to the user is also very important for it to be sustained. According to Merkel et al. (2005), the goal of sustaining technology use and learning in community computing contexts is a difficult problem because often community groups do not realize the extent to which technology has become tied to their mission. In other words the community does not see the relevance of the technology in their daily activities. In this regard the innovation must be of relevance to the individual users for it to be sustained.

Usage of an innovation is likely to be sustained if the innovation provides gratification to the users. The uses and gratifications perspective posits that consumers of media actively attend to media for specific reasons and to satisfy specific needs (Ebersole 1997). Therefore, gratifications obtained from using the Internet are likely to provide the basis for sustainable usage of the Internet, thus an aspect of sustainability. In addition to being indispensable, relevant and gratifying, the Internet must also be beneficial to the user in order for it to be sustained. For example, Laudon and Laudon (2000) asserted that Internet provides so many benefits to the community such as global connectivity, ease of use, low cost, and multimedia capabilities. According to Stewart (2003), Internet is not just an addiction, but also beneficial.

It is highly likely that sustainability of usage of an innovation, especially the Internet would help in solving the problem of digital divide. When the usage of an innovation is sustainable then the issue of digital divide will not exist. Thus addressing sustainability of Internet usage will in the long run have positive implications on digital divide. In a nutshell, sustainable usage of an innovation should be seen as a driving force towards the benefits to be derived from the particular innovation to bring about development. After all the aim of any innovation is to contribute towards or help bring about development for the society in which it is adopted.

It should be noted that the use of Internet and its related technologies is an enabler in the development of a country and therefore must be sustainable (Kramer & Derick 2002; Fischer

2000). Rogers sees sustainable usage as very important and made a very important remark concerning it. According to him what good does a development program do if it is not going to be there tomorrow or ten years from now, or if the benefits will disappear in the next few years (Singhal & Domatob 2004). For the Internet to stay and its benefits to be derived, there must be sustainable usage.

This paper discusses the issue of sustainability of internet usage. The discussion is based on the study among the Malay youths in Kota Bharu, located in north-eastern part of Peninsular Malaysia. It is rural in a geographical sense, and less developed economically compared to major towns in western part of Peninsular Malaysia. As a typical rural town, not all houses are wired up through either telephone lines or wireless to receive internet services. But Internet services are available nonetheless, at Internet cafes, schools and university computer laboratories or offices where the respondents study or work. Consequently, people need not have Internet connection in their homes to use the Internet and the services available therein. For the purpose of this study only those who use the Internet were interviewed. This paper will report results of the study concerning sustainability and its variables (indispensability, relevance, gratification and beneficial) among Malay Internet users in Kota Bharu, Kelantan. The second aspect will focus on the factors that affect sustainability of Internet usage viz. communication channels, perceived benefits, interpersonal and social network, moral issues, security and interruptions and cost of upgrading and maintenance.

The Study

This study used the survey research method to obtain data from the Malay youth in Kota Bharu, to ascertain the factors which affect or influence sustainability of Internet usage. This study used purposive sampling focusing on the respondents who are already using the Internet. Three sampling components were used and comprised of the age, gender and occupation components.

The age component consists of those users between 20 to 39 years of age. To get equal representation of gender, the sample consisted of equal number of males and females. For the occupation component the respondents were categorised into four groups viz. government servants, government-linked companies, private businesses and students.

Some 225 respondents were sampled from the young Malay Internet users in Kota Bharu, Kelantan. They were interviewed using a standard questionnaire. The questionnaires were distributed among the Malays in Kota Bharu in the last week of January 2008.

Results of the Study

What are interesting about this study are the factors which are seen to have effects on sustainability of usage of the Internet among the Malay youth, especially those factors which have positive effects, where two of the three predictor factors viz. interpersonal and social network and perceived and realized benefits. From the regression analysis the two factors have impact and contributed to the variance in sustainability. This can be seen from their beta, t value and sig. *p*, as follows: interpersonal and social network (Beta=.371, t=6.611, *p*=.000); perceived and realized benefits (Beta=.385, t=7.192, p=.000). Together they contributed to 58.4 percent of the variations on sustainability.

Furthermore, on the factors likely to have negative effects on sustainability, only one factor had impact on sustainability of Internet usage, which is security and interruptions (Beta=-.174, t=-3.557, p=.000). It contributed to 21 percent of the variations in sustainability.

Therefore all the three predictors contributed 60.5 percent of the variations on sustainability with Adjusted R Square of .605.

As one of its objectives, this study also has revealed that there is a significant negative relationship between sustainability and age and sustainability and academic qualifications.

From the results, perceived and realized benefits and interpersonal and social network had the highest coefficient value. This means that the influence by and the information giving by perceived and realized benefits and interpersonal and social network such as colleagues and e-government had a positive effect on sustainability of Internet usage among the Malay youth in Kota Bharu. Therefore, perceived and realized benefits is a very powerful and significant predictor for sustainability of Internet usage. Also, looking at the Beta value, it was confirmed and evident that perceived and realized benefits was the best predictor that can positively influence sustainability of Internet usage. Likewise, security and interruptions was the best predictor that can negatively influence sustainability of Internet usage.

Additionally, by examining the **t** values the best significant predictor of *sustainability of Internet usage* was *perceived and realized benefits* as it has the highest **t** value. Furthermore, deeper analysis of the results revealed that effects of multicollinearity were not a threat to the analysis. Further test shows that interpersonal and social network, perceived and realized benefits were of practical importance to sustainability of Internet usage. This was because their computed thresholds were smaller than the upper and lower bounds in the confidence intervals.

On the profile of respondents out of the total 357 respondents, 225 are youth aged between 19 to 39 years. 120 of the youth are males representing 53.3 % and 105 (46.7%) are females. In terms of age, 133 (59%) of the respondents belong to the 19–29 age group and form the majority while those in the 30-39 age group, represent 92 of respondents and form made 41% of the 225 Malay youth.

Majority of the respondents in the youth category, 128 (56.9%), are employed. Of this number, 10 (4.4%) are self-employed. Students make up 97 (43.1%) of the respondents. The students comprise of matriculation, diploma, undergraduate and postgraduate students.

Academically, majority of the respondents, 40.4% have SPM, followed by those with a bachelor's degree, 33.8%. This represents fairly educated respondents. The results also show that there is wide use of Internet across different educational backgrounds among the Malay youths in Kota Bharu.

In terms of household income, the average household income is between RM2000 to 3000. This means the working respondents (128) can be categorized as belonging to the middle class in Malaysia (Tori 2003).

Newspaper and Internet emerged the main sources of information with 96.9% of the respondents using them as sources of information. This is followed by TV (88.4%). Radio followed TV with 67.1% and Magazine is the fourth main source with 63.1% while Book is the least source with 56.4%. This is an interesting discovery as Internet has over taken television and radio as main source of information and at par with newspaper. This may be due to the dynamic and interactive nature of the Internet.

However, when the respondents were asked to rank the sources of information, television overtook Internet as the second ranking for the respondents. Newspaper was ranked number one. It is interesting to note that Internet has overtaken radio in ranking as a source of information. It was also closed to the first and second ranking which are Newspaper and Television respectively as the scores revealed.

Computer ownership among the respondents is very high as 91.1% of the respondents have their own computer. Of the 8.9% of respondents who do not own a computer, a large number (6.2%) use computer at the cyber cafes. This is followed by 5.3% who use computer at the office. As criteria for inclusion in the research, a respondent must use a computer and therefore all the respondents use computer.

More than two thirds of the respondents, 181 (80.4%) acquired their Internet usage skills through informal learning that is self taught and learning from friends. About half, 116 (51.6%) of the respondents have Internet connection at home. Of the 109 (48.4%) respondents who had no Internet connection at home, 55 (24.4%) gave expensive monthly access fees as the reason for not having Internet connection at home. 50 (22.2%) said they had no telephone line. There were those who were afraid of their children being exposed to pornography and they made up 21 (9.3%) of the respondents who had no Internet connection at home. The lack of computer at home was also one of the reasons as 30 (13.3%) said they had no computer at home. This did not mean that they had no computer at all. Some of the respondents, especially the students use their computers or laptops at college or university. Interestingly there were still respondents, 8 (3.6%) who think it is not very important to have Internet connection at home.

Of the six places where the respondents usually use the Internet, 123 (54.7%) use the Internet at the office and computer laboratory at college or university. 107 (47.6%) of the respondents use the Internet at home, while 98 (43.6%) use at Cyber Café. More than half of the respondents, 171 (76%) have been using the Internet for two to eight years. On the nature of usage, 144 (64%) of the respondents said they have been using the Internet on and off, while 81 (36%) said their usage has been continuous. Majority of the respondents, 184 (81.8%) use the Internet one to four hours a day. Another interesting finding is on the future usage of Internet by the respondents. 89 (39.6%) of the respondents said they will increase their usage of the Internet, while 39 (17.3%) said they will maintain their usage. 88 (39.1%) of the respondents said they were not sure.

Email is the main purpose of using the Internet with 193 (85.8%) of the respondents using the Internet for this purpose. This is followed closely by reading newspaper and searching for information, 189 (84%) while education related usage is the third main purpose of usage with 137 (60.9%) using the Internet for this purpose. The least purpose of usage is shopping online, 35 (15.6%) respondents and credit card payment, 28 (12.4%).

Discussions

Internet usage in Malaysia began around 1992. The Internet, which started with a simple browsing and e-mail experience, has now turned into a mechanism to creatively disseminate information. It has complemented the already existing mass media and as this study revealed the Internet has overtaken radio as a source of information next to newspaper and neck to neck or at par with television. According to Hoffman et al. (2004) "the adoption rate of the Internet has exceeded that of earlier mass communication technologies by several magnitudes," making it an "irreversible" innovation. Trends about usage have been studied

by other researchers. However, what is lacking is the monitoring of sustainability of usage. This makes it appropriate to monitor sustainability of Internet usage among the users. This study, therefore, apart from determining the trend and purpose of usage of the Internet, was also able to determine sustainability of Internet usage among the Malays in Kota Bharu in general and the factors which have influence on the sustainability of Internet usage among Malay youth.

From the results of this study, there is sustainability of Internet usage among the Malay users. The statistical computed means of the sustainability variables viz. indispensability, relevance, gratification and beneficial are satisfactory. This is also true with their computed standard deviations. The computed standard deviations are not larger than the statistical means, meaning there are no outliers. The findings of the study have therefore proven that there is sustainability of Internet usage among the respondents as it is satisfactory. The result of this study, therefore, has lent support to the contention by Hoffman et al. (2004) that the Internet has reached the indispensability level. According to Hoffman et al. (2004) the idea of indispensability is that the Internet has become so embedded in the daily fabric of people's lives that they simply cannot live without it. A study by Rahmah Hashim and Becker (2001) is also congruent to the findings of this study. Their study shows most Malaysians find the World Wide Web (WWW) and e-mail facilities of the Internet most indispensable and that the availability of online services is welcomed and the Internet has arrived and will be here to stay.

It further lent support to Merkel et al. (2005) that an innovation must be of relevance to the individual users for it to be sustained. The statistical computed mean for relevance in this study is at the satisfactory level, which is acceptable. Shyla Sangaran (NST 2008), a tech writer for over 11 years, contends that there are huge areas in the lives and experiences of old and young people in which the Internet makes a unique contribution to them. In other words there Internet has become indispensable to the lives and experiences of both the young and old alike.

Moreover, as the result of this study revealed, other studies also revealed that the usage of an innovation is likely to be sustained if the innovation provides gratification to the users. In this study the Internet was found to provide gratification meaning the Malay users were satisfied using the Internet. According to Ebersole (1997), the uses and gratifications perspective posits that consumers of media actively attend to media for specific reasons and to satisfy specific needs. December (1996) identified satisfaction from communication, interaction, and information as the three broad categories for why people use the Internet. Similar to this study the communication, interaction and information capabilities of the Internet were gratifying to the Malay users.

Furthermore, an innovation must also be beneficial to the user in other for it to be sustained. Laudon and Laudon (2000) asserted that Internet provides so many benefits to the community such as global connectivity, ease of use, low cost, and multimedia capabilities. This study has provided support to Laudon and Laudon that the Internet is beneficial as the Malay Internet users attest to this fact. According to Stewart (2003), Internet is not just an addiction, but also beneficial. There are people who think that the Internet is just only an addiction.

Also, the reliability indexes of the sustainability variables also show that there is agreement to the fact that the Internet is sustainable among the Malay users. This is because the reliability indexes of all the factors are very satisfactory. It can therefore be deduced that all

the four variables are suitable for testing sustainability. This has strengthened the dependent variable, sustainability of Internet usage. This has also set the mark or standard for testing sustainability of Internet usage.

From the discussions, therefore, the Internet is indispensable, relevant, gratifying and beneficial to the Malay users. The usage of Internet is therefore sustainable as far as the Malays in Kota Bharu are concerned.

The results of the study have shown that there are factors which influence sustainability of Internet usage. Three of the factors viz. *interpersonal and social network* (beta = .371), *perceived and realized benefits* (beta = .385) and *security concerns and interruptions* (beta = -.174) have influence on sustainability of Internet usage among the Malay youth. Two of the factors viz. *interpersonal and social network, perceived and realized benefits* are of practical importance to sustainability of Internet usage.

From the results, therefore, the importance of colleagues, friends and place of work which form part of the interpersonal and social network cannot be denied as far as sustainability of Internet usage is concern due to their influence. The people in Kelantan are known to believe information they get from their friends and colleagues and as the study shows they made use of these interpersonal channels to spread information about the Internet, which in turn influence sustainability of Internet usage. Looking at the literature of past research, this study supports the study by Coleman, Katz and Menzel (1957) about the adoption by physicians of the new drug tetracycline. Their research finding revealed that social network can help bring about adoption as similar to this study where social network helps in sustainability of usage of the Internet. Their study categorically stated that the more embedded into the physician social network the physicians were, the more likely they were to adopt the drug and do it early.

Thus as this study revealed, apart from its effect on adoption, interpersonal and social networks also have influence on sustainability of Internet usage. What this means is that all the available social networks are important in influencing sustainability as far as Internet usage is concern. As in Malaysia, in dealing with government agencies the citizens are encouraged to use the Internet to download forms and do other activities online. Utilities and services companies as part of the social network are also making their presence felt online. One can now enjoy online Internet banking which provides services ranging from paying of bills to buying prepaid reloads. With all these services in place, it is therefore obvious that interpersonal and social network influence sustainability of Internet usage and as this study shows it is of practical importance to sustainability of Internet usage among the Malay users.

This study also revealed that the perceived and realized benefits, which when present, will influence sustainability of Internet usage. This includes such benefits like the communication capability of the Internet, the speed in sending email coupled with information gathering capability of the Internet, among others. Similar to this study where the perceived and realized benefits influenced sustainability of Internet usage, the perceived and realized benefits were also seen to have effects on adoption of the Internet as a study by Rogers (2000) revealed. On the rapid adoption of the Internet, Rogers (2000) observes that the perceived attributes of the Internet have played a crucial role in this. This is because the Internet is perceived as having considerable relative advantages; Internet is faster, better, cheaper, compared to the telephone, postal letters, telegrams, or fax letters.

Moreover, as this study revealed, security issues must not be taken lightly as they have influence on sustainability of usage. Computer virus attack is one such threat. Despite the availability of antivirus software, virus attack still remains a big threat as new viruses are discovered. According to the National ICT Security & Emergency Response Centre (NST 2006), hacking still poses a threat in Malaysia, though the number of reported cases has gone down from 301 in 2002 to 86 in 2005. The number of hacking threat for 2003 and 2004 was 276 and 145 respectively. According to the report by fortinet (NST 2006), ICT survey organization, Malaysia is ranked tenth among the top ten countries reporting computer virus infection in February 2006. This could be the reason why only few of the respondents use the Internet for e-shopping as it involves the use of credit card and this might not be secured. In fact Laudon and Laudon (2000) writing on the issue of security and privacy, argue that Internet-based systems are even more vulnerable than those in private networks because the Internet was designed to be open to everyone. Many people have the skill and technology to intercept and spy on streams of electronic information as they flow through the Internet and all other open networks.

As a result valuable data that might be intercepted include credit card numbers and names, private personnel data, marketing plans, sales contracts, product development and pricing data, negotiations between companies, and other data that might be of value to competition. They therefore argue that concern over the security of electronic payments is one reason that electronic commerce has not grown more rapidly on the Net. The issue of security has been dragging for long as evident from the findings by Feher and Towell (1997) that the Internet is not yet secure enough for corporate communications and the most common Internet applications used were E-mail, research, and the downloading of software.

This study also paid attention to the items under the factors, especially those factors which have influence on *sustainability* of Internet usage viz. *perceived* and *realised benefits*, *interpersonal* and *social network* and *security concerns* and *interruptions*.
For perceived and realized benefits of the Internet, speed in sending email, information gathering capability and lower cost of sending email were the highest in terms of influencing sustainability of Internet usage. These aspects of the Internet have made it stands out among the other media. In today's world speed in communicating is very crucial couple with the need to get information without delay. This is possible and at a lower cost using the Internet. It is therefore obvious why the three items influence sustainability of Internet usage among the users. Furthermore, place of work / university / college, access to utility services (TM, TNB, TELCOS, and Postal), access to government homepage, friends and colleagues were shown to influence sustainability of Internet usage. In other words adoption and usage of the Internet by all of the above especially place of work, university or college which is part of the interpersonal and social network contributes to a great deal to sustainability of Internet usage among the users.

It is also obvious that virus attacks, homepage becoming inaccessible and frequent server down pose a threat to sustainability of Internet usage. One may say there are antivirus software, but the problem is new viruses keep on appearing and it is not easy, especially for individual and non-corporate users to keep updated with the new software hence, the reason for concern about the issues of security among the users.
The finding also revealed that cost of hardware and maintenance does not influence sustainability of Internet usage in any way. This shows that the respondents do not see this cost as a threat to sustainability of usage. This might also be due to the fact that over the years the cost of hardware and computer maintenance has drastically gone down. Also moral issues

were not a threat to sustainability of Internet usage as they have no influence on the variance of sustainability. What this means is that users have come to terms with the immoral content on the Internet and thus do not see those contents as worrying, after all there are more to Internet than say pornography. Therefore as distinct from the observation by Galander (2001) and Begg (2006) that Muslims are worried over new innovations due to moral and religious concern, the respondents in this study who are Muslims as well, did not see any problem with moral issues as it did not affect sustainability of Internet usage.

Conclusion

In general, this study has discussed sustainability among Malay youth as far as the issue of sustainability of Internet usage is concern. Moreover, discussion is also focused on the sustainability variables and the factors that influence sustainability of Internet usage. Therefore, it is hopes that the results and the suggestions of this study become useful to all relevant authorities, especially those responsible for Internet and ICT initiatives, in an effort to improve sustainability of usage.

One aspect which needs attention is that the implementation of every ICT (Internet) initiative needs to be focused not only on providing the facility, but on how to sustain its usage. This is where the role of *perceived and realized benefits* and *interpersonal and social network* become very crucial and also the role of *communication channels* which act as information agents in spreading the needed information to help sustain the usage of the internet.

In addition to taking the security and interruptions issues seriously, especially among the Malay youth internet users, spreading greater awareness about the Internet and its potential among the masses is also vital. There is therefore the need to formulate comprehensive and practical policy framework to support the aforementioned. As mentioned earlier, without sustainability of usage, the benefits of the Internet cannot be achieved and thus all efforts towards implementation of the Internet will go to waste.

Therefore, this article concludes that the factors having effects on sustainability of Internet usage should not be overlooked in the implementation process of Internet and related projects in order to bring about sustainability of usage.

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