The Relationship between Internet Access Frequency, Attitudes towards the Internet and Internet Self-Efficacy and Behaviour Intention in Using the Internet among Secondary School Students

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ABSTRACT

This study identifies several specific factors that influence students' behaviour intention using internet competently. A total of 262 secondary school students taking the Information and Communication Technology Literacy (ICTL) course were randomly chosen. The study revealed the respondents had positive attitudes towards the internet with an average mean score of 3.78 (SD = .47) on a Likert scale of 1-5. The results also indicated a high level of internet self-efficacy (M = 3.71, SD = 0.54) and behavioural intention in using the internet (M = 4.22, SD = .51) Correlation analyses showed internet self-efficacy, attitude towards internet and internet access frequency had positive relationships with students' behaviour intention in using the internet.   Nevertheless, a multiple regression analysis revealed only internet self-efficacy and internet access frequency had significant influence on students' attitudes towards using computers in the classroom.

Keywords: Internet, frequency, self-efficacy, attitudes, behavioural intention

INTRODUCTION

The impact of Information Communication and technologies (ICTs) on our way of life in general and in education in particular, is fundamentally revolutionary. ICT has brought new challenges to the structure of traditional education by providing better approaches to facilitate the process of teaching and learning. Today teachers worldwide are encouraged and expected to implement ICT in their instructions (Gibson & Oberg 2004). Education is then conducted aggressively by the use of technology facilities such as personal computers, educational softwares, multimedia and others. Meanwhile, the internet plays a significant role by providing a wide range of information from various Internet sources.

Educators have plenty of opportunities in gathering various types of information via Internet to improve the quality of teaching and learning in the classroom. Subsequently, the learning process and information delivery can be more productive and effective. Besides, the Internet can also increase the interests and participation of students in the classroom (Sam, Othman & Nordin, 2005; Irfan Naufal Umar & Nurullizam Jamiat, 2011). This shows how internet plays a major role in the lives of young people today where they are frequently engaged in online activities both inside and outside the classroom. For instance, in schools, students use the internet when searching for information or when completing tests. However, outside schools during   their spare time, they chat with friends via the internet, play online computer games and are involved in non-academic activities.

Past literatures have shown factors associated with behaviour intention (BI) using the internet. BI is a measure of strength of the individual's intention to perform a specific behaviour (Fishbein & Ajzen, 1975). In other

words, individuals with strong BI to use technology will reflect their acceptance and use of the techology (Yi, Jackson, Park, & Probst, 2006; DeLone & McLean, 1992; Fishbein & Ajzen, 1975). This is the key measure of the success of the technology system in the classroom. Among the BI, is internet access frequecy. Some previous studies, such as those carried out by Adekunmisi, Ajala and Iyoro (2013) and Mostofa (2011) showed the frequency of internet access had a significant relationship with the students using the internet. Adekunmisi, Ajala and Iyoro (2013) conducted studies involving 200 students in Nigeria. The findings showed the majority of students accessed the internet as a source of knowledge and information gathering, communication and media-related activities as well as academic research. Meanwhile, Mostofa's (2011) *study in Bangladesh involving* 137 students showed the rate of internet access among students was high. 56% were reported accessing the internet for the purpose of obtaining information in their learning.

Internet self-efficacy was defined by previous researchers as faith, hope and confidence in the ability of individuals to organize and accomplish a task, understand, manage and evaluate the online contents to produce a result (Bandura, 1997; Eastin & LaRose, 2000; Tsai & Tsai, 2009; Daugherty, Eastin & Gangadharbatla, 2005; Kinzie & Powers, 1994). Several studies by previous researchers used various compatible instruments to obtain information on the internet self-efficacy among students. Miliszewska and Sztendur (2010) conducted a study on 464 high school students in Australia. The findings showed students had high internet self-efficacy. ICT exposure at the early stages would build high internet self-efficay among secondary school students. Tsai and Tsai's (2010) study involving 414 primary school pupils in Taiwan showed they had high internet self-efficacy in the use of technology. Another study also by Tsai and Tsai (2009) involving 936 high school students in Taiwan also indicated students had high internet self-efficacy.

Morse, Gullekson, Morris and Popovich (2011) and Zhang (2007) defined attitudes towards the internet as behaviour, feelings, experiences and individual activities related to the internet as an information entity. According to Ajzen and Fishbein (1980), a person's attitude towards a behavior represents the evaluation of the behavior and its outcome. Studies related to attitudes towards the internet had been conducted by some researchers. For example, Dogar, Kaplan and Gurses (2014) conducted a study among 272 primary school students in Erzincan. The finding showed students' attitude towards the Internet was positive. This study indicated that access to the internet at home, schools, cyber cafes and through phones had cultivated positive attitudes among students towards the internet a study by Slovakia, Kubiatko and Halakova (2009) on 528 high school students also showed positive attitudes towards the internet.

Positive attitudes were much related to the approaches in using ICT technology in the classroom as a tool for learning throughout the school session. Students actively participated in the classroom because of the role of ICT in increasing the students' interests in learning. Studies related to attitudes towards the internet were also conducted by local researchers. Nafishah Hassan's (2007) study involved 70 high school students and the result showed the students' attitude towards the internet was positive. Exposure to the use of internet in the classroom had fostered positive attitudes among students as well as improving the mastery of learning in any subject taught in school. Findings by Hairulliza Mohamad Judi, Hazilah Mohd Amin, Nor Azan Mat Zin and Rodziah Latih (2011) from the study on 585 high school students in Johor indicated students' attitude towards the internet was also positive. A complete computer laboratories with appropriate features in schools certainly fostered positive attitudes among students towards the internet. In summary almost all previous studies showed school students had positive attitudes towards the internet.

Behavioural intention refers to the predictors of individual behaviour based on his/her intention and behavior where he/she has control over his/her will (Ajzen, 1991). Behaviour Intention towards the internet means the extent to which an individual seeks and shows his/her willingness to use the internet. In Park's (2009) study, he indicated self-efficacy, attitudes, perceptions on the usefulness and ease in the use of the internet significantly correlated with behavioural intention among students in using the e-learning services. Hence educators should help students improve their self-efficacy either online or offline. In addition, educators can also take the initiatives to offer a variety of e-learning courses and advertise the benefits of the knowledge and skills acquired through e-learning to attract students to use e-learning services. The findings from a study by Zainol Bidin, Faridahwati Mohd Shamsudin, Mohd Farid Asraf Md Hashim and Zakiyah Sharif (2011) showed attitudes, perceived behavioral control, and perceived usefulness of the internet were statistically significant in influencing the intention to use the internet for academic purposes. Mohammad Suleiman Awwad and Raid Moh'd Al-Adaileh **(**2006) emphasised the importance of perceived usefulness of the internet, self-efficacy of users and privacy as determinants of students' intentions to use the internet. Meanwhile, in a study by Lee, Cheung and Chen (2005), they emphasised the importance of the relationship between students' attitudes and intentions towards the intenet. Perceived usefulness, perceived ease of use, self- efficacy, and social factors seemed to have influenced behavioral intentions to use the WBI systems (Chen, Lin, Yeh & Lou, 2013).

In general, past literatures had shown most studies indicated students' positive attitudes towards the internet. Besides that, they also had high level of internet self-efficacy. In terms of relationship, the variables, such as attitudes towards the internet, internet self-efficacy and the frequent use of the internet had signifcant relationships with users' behaviour intention in using the internet. Therefore, it is essential to conduct this study to examine the variables studied among school students in Malaysia.

Objective of the Study

The study aimed to determine the relationship between internet access frequency, attitudes towards the internet and internet self-efficacy and behaviour intention in using the internet.

METHODOLOGY

This study employed a descriptive survey design. Data was collected from students who were studying in schools in several districts in the Malaysian state of Kelantan. The survey questionnaire covered the following study areas: the frequency of internet access, attitudes towards the internet and internet self-efficacy and behaviour intention in using the internet. The target population for this study comprised of students from 10 districts (Kota Bharu, Bachok, Pasir Mas, Pasir Puteh, Tumpat, Machang, Kuala Krai, Tanah Merah, Jeli and Gua Musang) in Kelantan A proportionate stratified random sampling technique was used to select 262 secondary school students who were taking the Information Communication and Technology Literacy subjects. The questionnaire was used as a method to collect data. The questionnaire was designed based on literature reviews of previous researches that aimed to determine the frequency of accessing the internet, internet self-efficacy and attitudes towards behavioural intention in using the internet. To identify the frequency of respondents' access to the internet and to determine the internet self efficacy of the respondents, the researchers in this study built their own questionnaire items. A total of nine items adapted from Tsai and Tsai (2009) were used to measure students' internet self-efficacy. Meanwhile, items to measure the attitudes towards the internet were adapted from Morse, Gullekson, Morris and Popovich (2011). The questionnaire consisted of 11 items. Except for internet access frequency, the participants responded by using a five-point Likert scale indicating whether they strongly disagree (1) to strongly agree (5). The questionnaire was validated by two experts form the field of education technology. To determine the level of internet self-efficacy and behaviour intention to use the internet, the following mean range was used to categorize the levels (Table 1). Meanwhile, to determine positive or negative attitudes towards the internet, the mean value above 2.5 indicated the respondents 'positive attitudes (source?)

TABLE 1
Mean Values Indicating Levels of Agreement.

Mean value	Level
1.00 - 2.33	Low
2.34 - 3.67	Moderate
3.68 - 5.00	High

A pilot study was conducted on 62 selected secondary school students with the same background as the actual students for the study. They were from two districts in Kelantan. The result of the pilot study showed all the dependent and independent variables were reliable. The Cronbach Alpha reliability coefficients for each subscale ranged from 0.6 to 0.94 (Table 2).

TABLE 2
Reliabilty Coefficients for each Subscale.

	Pilot study	Actual Study
Internet Self-efficacy	0.873	0.762
Attitude towards Internet	0.628	0.652
Behaviour Intention towards the use of Internet	0.943	0.854

FINDINGS, DISCUSSION AND ANALYSIS

This findings begin with the demographic background of the respondents. As mentioned earlier, a total of 262 respondents participated in this study consisting of 116 (44.3%) males and 146 (55.7%) females (Table 3). The average frequency of internet access was 3.01 hours/day (SD = 2.06). Mostly, the participants accessed the internet up to 5 hours/day.

Demographic Factors	Total	Percent (%)
Gender		
Male	116	44.3
Female	146	55.7
Total	262	
Frequency Of Internet Access		
0-5 (hour/day)	235	90
6-10 (hour/day)	26	10
11-15 (hour/day)	1	0.4
Time of Internet Access (Total Mean) = 3.01 (SD = 2.06)		

Table 4 shows the means and standard deviations of the variables. The highest mean refers to the respondents' behavioural intention in using the internet (M = 4.22, SD = .51) followed by attitudes towards the internet (M= 3.78, SD = .47) and internet self-efficacy (M = 3.71, SD = .54).

TABLE 4
Mean and Standard deviation

Variables	Mean	Standard Deviation
Internet Self-efficacy	3.71	.54
Attitudes toward Internet	3.78	.47
Behavioural Intention using	4.22	.51

Internet Self-efficacy

Internet self-efficacy in this study refers to the secondary school students' ability and confidence in using the internet while accessing it. The overall mean for internet self-efficacy was 3.71 (SD = .54) which could be considered as students' high level of internet self-efficacy. Data also showed the respondents were confident reading information online in the website. They also indicated their confidence in using the internet where they highly agreed to activities such as communication, surfing, downloading, chatting, reading or sharing via the online services or web applications.

Attitudes towards the Internet

Attitude towards the internet refers to the positive of negative feelings of the secondary school students towards the use of the internet. The overall mean calculated was 3.78 (SD = .47) indicating the respondents had positive attitudes towards the internet. The respondents seemed to agree the internet service was fun to use, easy to communicate or interact with people throughout the world. Respondents also agreed the internet gave them the opportunity to find information and improve their academic performance. They agreed the Internet service offered information such as businesses, services, or products on the Internet. It also provided great experiences while browsing the internet. As a conclusion, the respondents agreed the internet was one great option on how to spend leisure time.

Behavioural Intention in Using the Internet

Behaviour Intention in using the Internet refers to the action and desire of the secondary school students to use the internet in their academic activities. The findings showed the respondents had high level of Behaviour Intention in using the Internet. The findings also indicated they wanted to use it in the future. The respondents also agreed they needed to use the internet in the future because it was worthwhile. They also thought there was a need to use the internet more often because they felt it could help them in their learing process

Relationship between the Variables Studied

This study was to investigate the relationship between internet access frequency, attitudes towards the internet and internet self-efficacy with behaviour intention in using the internet. Based on table 5, there was a significant positive correlation between internet self-efficacy (r = .273**, p = .001), attitude towards the internet (r = .136*, p = .005) and internet access frequency (r = .217**, p = .001) and behaviour intention in using the internet.

TABLE 5
Correlation Coeefficients

	Behaviour Intention using Internet	Internet Self-efficacy	Attitudes toward Internet	frequency access to internet
Behaviour Intention using Internet	1	.273**	.136*	.217**
Internet Self-efficacy	.273**	1	-0.011	.216**
Attitudes toward Internet	.136*	-0.011	1	0.008
Frequency internet access	.217**	.216**	.008	1
** Correlation is significant at the 0.01 level (2-tailed).				
* Correlation is significant at the 0.05 level (2-tailed).				

A stepwise multiple regression was performed to predict factors (internet access frequency, attitudes towards the internet and internet self-efficacy) in influencing students' behaviour intention in using the intenet. Prior to this, the assumptions for normality, linearity, homoscedasticity, independence of residuals and sample size were already met. The model summary is given in Table 6. The coefficient determination was 16.3% which explained the variation in the dependent variable was due to the independent variables.

TABLE 6
ANOVA

R	R Square	Adjusted R squared	Std Error of the estimates
.404	.163	.153	.46902

Independent variables: internet access frequency, attitudes towards the internet and internet self-efficacy)
Dependent variable: behaviour intention in using the Intenet

A regression analysis was also conducted to test the study objective and to identify the different factors influencing the students' behaviour intention in using the intenet as the dependent variable. Table 7 indicates the influencing factors were statistically significant at 0.05 level of significance (F $(3,261)$ = 16.762, p = .000). This showed any factor listed could be a significant predictor for the behaviour intention in using the internet

TABLE 7
Model Summary

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	11.062	3	3.687	16.762	.000[d]
Residual	56.754	258	.220		
Total	67.816	261			

As Table 8 illustrates, the results of the multiple regression analysis, indicated internet self-efficacy, and internet access frequency influenced students' behaviour intention in using the internet. The relative order of preference of the predictive factors of students' behaviour intention in using the internet was based on beta values (β) which is summarized as follows: Internet Self-efficacy (β = .265), and internet access frequency (β = .051). In other words, internet self-efficacy contributed 26.5% of the variance in students' behaviour intention in using the internet while internet access frequency explained 5.1% of the variance in students' behaviour intention in using the internet.

TABLE 8
Multiple Regression Analysis

Model	Unstandardized Coeficients		Standardized Coeficients	t	Sig
	β	Std. Error	Beta		
Constant				8.145	.000
Internet Self-efficacy	.265	.055	.279	4.785	.000
Access frequency to internet	.051	.014	.205	3.517	.001
Attitudes toward Internet	.147	.061	.137	2.403	.017

FINDINGS AND DISCUSSION

The present study investigated the predictors of behavior intention in using the internet among secondary school students. The proposed model of the study consisted of three internal variables (internet access frequency, attitudes towards the internet and internet self-efficacy) and one external variable (behaviour intention in using the intenet). Descriptive analysis showed attitudes towards the internet were positif based on the overall mean scores. Therefore the results of this study supported the findings by Dogar et. al (2014), Kubiatko & Halakova (2009) Nafishah Hassan (2007) and Hairulliza Mohamad Judi et. al (2011).

Hence, it is important for secondary students to have positive attitudes towards the internet so they can use it for academic purposes. In this study, the secondary school students in Kelantan agreed internet access frequency was essential because the internet not only provided them with information for academic purposes but also for businesses, services, or products in the internet. The study also revealed a high level of internet self-efficacy among the students. Liang and Tsai (2008) stated self-efficacy was an important element among internet users, especially school children. Students who had high internet self-efficacy were able to use the internet effectively. Researches by Miliszewska and Sztendur (2010), Tsai and Tsai (2010), Tsai and Tsai (2009) supported this conclusion. This study had also indicated there was a high level of Behaviour Intention in using the internet among secondary school students. This is important because there will be a need to use the internet when going for furher studies.

In terms of the relationship between the independent variables (internet access frequency, attitudes towards the internet and internet self-efficacy) and behaviour intention in using the internet, the correlational analysis revealed a significant positive correlations existed between internet access frequency and internet self efficacy. This finding was in line with studies by Zainol Bidin et. al (2011); Mohammad Suleiman Awwad and Raid Moh'd Al-Adaileh (2006) and Chen et. al (2013). Hence, among the factors studied, only internet self-efficacy and internet access frequency were found to be predictors of students' behaviour intention in using the internet.

In summary, it can be said the use of technology is increasingly important in meeting the educational needs of the society and in particular when applying it in the teaching and learning in schools or institutions of higher education. The internet has greatly enhanced student learning for it is a simple and accessible tool, and is ranked as an increasingly important source of information. Students should be encouraged by their teachers to develop internet self-efficacy and positive attitudes towards the use of the internet. The internet should be referred to when looking for information relating to homework or classroom activities. Students need continuous support in their efforts to develop and sustain effective technology integration in the learning process especially via Internet.

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