

Cyberethics and Internet Behaviour of Malaysian Primary Education Students

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Abstract

This paper investigates the cyberethics and internet behavior of Malaysian primary education students. Based on Theory of Planned Behavior and PAPA framework, we develop an integrated research framework to explore the cyberethics issues that lead students to internet behavior. The framework posits that four cyberethics variables, that is intellectual property, accuracy, privacy and accessibility affect attitude; attitude, in turn affects behavioral intention, and behavioral intention, in turn affects actual behavior. In order to test the framework, twenty nine measurement items were developed and empirically analyzed by correlation and regression analyses with data from 236 primary school students. The results showed that two cyberethics variables, namely intellectual property and accuracy affected attitude towards using internet, and also influenced the behavioral intention and actual behavior in using internet. It was therefore recommended that teachers are to be trained on how to educate cyber responsibilities in order to provide cyberethics foundation to students.

Keywords: cyberethics, internet behavior, theory of planned behavior, PAPA framework, Malaysia.

INTRODUCTION

Cyberethics issues such as internet safety or cyber security, cyber bullying, internet addictive, hacking and cybercrime are becoming an advanced state of serious concern. These issues had been occurred in developed and developing countries. Willard (2007) stated in her book that a few of youngsters attend to rely on the internet world as their personal playground and they do not need attention or guidance from their parents. Cyber criminals are always preying on immature and undefended students through activities including online solicitation, cyber-bullying, obscenity and pedophilia as well being exposed to other peer pressure and improper activities (Byron, 2009). Student's characteristics or behaviors such as curiosity for new things, innocence and adventures with little fear of punishment display challenges in terms of safety (Willard, 2007).

The unethical use of internet was found increasingly pervasive the lives of students. Parents and teachers are extremely worried on this issue because it can lead to more serious problem as stated before. So, it is important that every student practiced good cyberethics in his or her daily lives.

Hope (2002) asserted that positive behavior is developed at primary level so that it will be able to support the students' development to secondary level. Also, Yunos and Syed Noor Mohammad (2005) stated that it is necessary to obtain the individuals the behaviors to use the internet in accordance with the codes of conducts since they are at primary school.

This paper examines the cyberethics and behavior of using internet in Malaysian school at primary level. Specifically, we seek to understand how cyberethics affects student's attitude and behavior towards using internet. This research employs the Theory of Planned Behavior (TPB) and Mason's (1986) outline of ethical issues which is the Property, Accuracy, Privacy, and Accessibility or PAPA framework to explore cyberethics issues in Malaysian primary schools. The structure of this paper is as follows. In the next section we present the literature review and the research framework. We then describe the research methodology and the results of the analysis. Finally, we give a conclusion.

LITERATURE REVIEW

Definition of Cyberethics

There are many definitions given to cyberethics or computer ethics. Tavani (2001) defined computer ethics as a separate subject of applied ethics which has been continued to be challenged. Tavani added either there is rare or unique things about the moral difficulties measured by the computer ethic experts. Whittier (2006) proposed a definition of computer ethics as the study of what people ought to do surrounding computers about the ethical issues escalated therein, grounded in ordinary moral principles, and perhaps an extension of these principles to situations created by computers. Meanwhile, according to Schwartau (2001) cyberethics is ethics on computers and the internet. He pointed that within the views of computers, technology and the internet, cyberethics is just a separate method of looking at ethics. Further Tavani

(2004) defined cyberethics as the field of implemented ethics that inspect moral, legal, and social issues in the improvement and apply of cyber technology. Among other different terms were used to describe cyberethics are computer ethics, information ethics and internet ethics.

Whittier (2006) explained that in the context of application on the internet, ethics or cyberethics are the ethical rule for the users of computer world. In earlier research cyberethics referred as computer ethics, and Johnson (2001) had generally explained the theory of ethics which has been related with the analysis of person intentional action or the persons' character. Further, KERIS (2000) defined computer ethics as the basic moral standards-right and wrong, good and evil, and moral and immoral-to gain the most desirable behavior while living in an information-oriented society as well as handling computer and communication devices. Masrom et al. (2010) described computer ethics as the study of ethics which is associated to computer use and the ethical perception which describes a moral information technology (IT) domain or area. In this research, cyberethics is defined as the behavior of human in internet world with provided rules or guidelines.

Behavior of Using Internet at Schools

Internet is one of the information and communication technologies (ICTs) that had become an essential element in our everyday life because it enables easy communication and offers many services. However, on the other side of the positive aspect of the internet lies the negative aspect of it such as unethical behavior which is related to confidentiality and access to information. The experimental studies have begun to examine the conditions under which young children will employ either an imitative or an emulative approach Horner and Whiten (2005). Furr (2009) explained behavior as statement or expressions of verbal or actions that are possibly available to careful observers using common sensory processes.

According to KERIS (2000) among the features of the elementary school students' online or internet behaviors are as follows:

- The most common place for using the internet is home, and students in different school scales have different usage sites of internet.
- Playing online games and collecting information are the main purposes for students to use the internet.
- The boys and girls as well as students from different residential areas have different purposes for using the internet.
- Students' online hours between 1 and 3 hours.
- Among all types of online activities and behaviors, parents who permit children playing

online games constitute the largest population, followed by those who permitted collecting data.

- Students' "internet addiction" phenomenon has become more and more serious.

When kids exposes to unrated materials from the internet, they will be tempted to emulate the actions from materials which they saw or learnt. It will create negative impact and severe psychology problems for the students. Based on a survey study in Connecticut (Liu et al., 2011), one in every 25 teens reported to have inevitable desire to be on the internet and they were tension when they were not online, or said they had tried to quit or cut down on internet time. According to the survey, students who has problematic internet issues have a tendency to be depressed and would usually involved in serious fights whereas the boys had higher tendency of smoking and drug use. Fundamental proof also proposes that problematic internet use shares common features such as drug and alcohol abuse disorders, obsessive-compulsive disorders and impulse-control disorders (Liu et al., 2011).

According to Kavuk et al. (2011) unethical internet behaviors are the behaviors that are the result of internet use and that are illegal or are not socially accepted as moral. Examples of the unethical behaviors are copying software without permission, spread of information without permission, sending spam, and entering unsuitable virtual environment such as pornography environment.

Theory of Planned Behavior

Theory of Planned Behavior (TPB) was introduced in 1985 by Icek Ajzen, and it is an extension of Theory of Reasoned Action (Ajzen, 1985). As stated by Ajzen (1991) a person's action is established by behavioral intentions which then are affected by an attitude towards the behavior and subjective norms. TPB is predominant and continues to be applied to ethical decision-making in an IT context. There are two dependent factors in the theory including behavioral intention and actual behavior, and three independent factors including attitude, subjective norms, and perceived behavioral control. Attitude refers to the degree to which the person has a favorable or unfavorable evaluation of the behavior in question; subjective norm refers to the perceived social pressure to perform or not to perform the behavior; perceived behavioral control refers to the individual's belief in the ease to execute a behavior; behavioral intention refers to the subjective probability of individual's engagement in any behavior; and actual behavior is driven by behavioral intention.

PAPA Framework

Mason (1986) developed a theoretical social framework in dealing with the major ICT issues. The

four significant issues highlighted in the PAPA framework are Privacy, Accuracy, Property and Accessibility. Previous researchers had also proposed the PAPA framework as the most influential article on ICT ethics (Ellis & Griffith, 2001). There are four important issues highlighted in the PAPA framework which are property, accuracy, privacy, and accessibility.

- (i) Property refers to the information about self an individual is willing or forced to give up.
- (ii) Accuracy refers to the legitimacy, precision and authenticity which information is rendered.
- (iii) Privacy refers to the ownership details, exchange fairness, and access characteristics.
- (iv) Accessibility refers to the right or privilege to obtain data or information from another source.

Research Framework and Hypotheses

This research adopted Theory of Planned Behavior (TPB) in investigating the cyberethics and internet behavior of students. Based on TPB and PAPA framework, a framework for ethical use of ICTs in Malaysian primary schools is proposed as in Figure 1 below. The framework highlights the constructs that encourage ethical use of ICTs in Malaysian primary education. The framework consists of combination of three variables from TPB model which are attitude, behavioral intention and actual behavior, with four major cyberethics issues, namely property, accuracy, privacy, and accessibility.

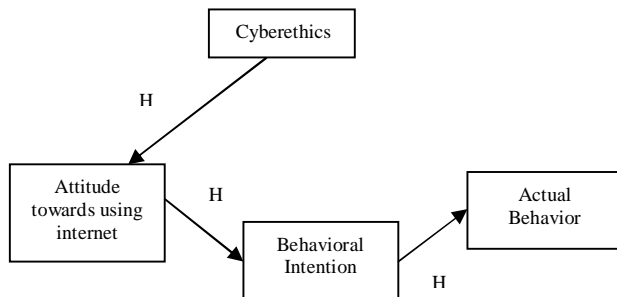


Figure 1: Research Framework

We posit the hypotheses related to cyberethics issues as follows:

Hypothesis 1 (H1) : There is a significant relationship between cyberethics issues and attitude towards using internet.

Hypothesis 2 (H2) : There is a significant relationship between attitude towards using internet and behavioral intentions.

Hypothesis 3 (H3) : There is a significant relationship between behavioral intentions and actual behavior in using internet.

METHODS

This research used survey method and treated primary school students Year 4 (age - 10 years old), Year 5 (age - 11 years old) and Year 6 (age - 12 years old) in West Malaysia as research subjects. A

survey questionnaire was developed to collect data, and it was divided into three parts. The first part of the survey instrument was designed to get information about the respondents' demographics and reasons for using computer and internet. The second part of this survey instrument contains twenty-nine questionnaire items that measure four constructs in the research framework. These questionnaire items are measured using a seven-point Likert Scale (from 1 – strongly disagree to 7 – strongly agree). These items were selected from past related research and subsequently modified to fit the cyberethics issues and internet behavior.

The surveys were conducted in classes with a convenient sample of two public primary school students in West Malaysia. A total of 250 questionnaires were distributed and 236 respondents completed the survey yielding a response rate of 94.4%. This research used statistical software SPSS version 18.00 for analyzing the data, and the statistical methods included descriptive statistics, correlation and regression analyses. Correlation matrices were used to identify if there were any relationships between the variables examined. Thereafter, the results of the correlation analyses were used as the basis of regression analyses. In order to validate the measuring instrument, we established the psychometric validity of the scales use through the construct reliability. Cronbach Alpha was used to test the internal reliability of the final scales. The minimum acceptable level of reliability was set to 0.7 as suggested by Nunnally and Bernstein (1994). Overall, the final scales reliability for the data set was 0.719.

RESULTS

Demographics of the Respondents

The respondents' demographics include gender, age, and reasons for using computer and internet. The results indicated that male students represent 42.8% (n=101) and female students represent 57.2% (n=135). A majority 40.3% (n=95) of the respondents were 12 years old, 38.6% (n=91) of the respondents were 11 years old, and 21.2% (n=50) were 10 years old. The result also showed that majority of the respondents 45.3% (n=107) used the internet or a computer to surf the websites, 41.9% (n=99) used the internet or a computer to chatting with friends through e-mail or social networking sites, 40.7% (n=96) used the internet or a computer to play online games. This result confirms KERIS's (2000) investigation that playing online games and collecting information are the main purposes for students to use the internet. Thereafter, about 16.1% (n=38) used the internet or a computer to download files (eg. songs, pictures, and video), 13.6% (n=32) used the internet or a computer to watch DVD or video, and 9.3% (n=22) used the internet or a computer to use software writing or drawing. Table 1

shows the distribution of the respondents by gender, age and reasons for using computer and internet.

Table 1: Respondents' Demographics

Item	Characteristics	Percentages (%)
Gender	Male	42.8
	Female	57.2
Age	10 years old	21.2
	11 years old	38.6
	12 years old	40.3
Reasons of using computer and internet	1. I use the internet or a computer to play on-line games.	40.7
	2. I use the internet or a computer to watch DVD or video.	13.6
	3. I use the internet or a computer to chatting with friends (e-mail or social networking sites – Facebook, Yahoo Messenger, Twitter).	41.9
	4. I use the internet or a computer to download files (eg. songs, pictures, and video).	16.1
	5. I use the internet or a computer to use software writing / drawing.	9.3
	6. I use the internet or a computer to surf the websites.	45.3

Results of Students' Cyberethics and Internet Behavior

Descriptive statistics is reported in Table 2. The students were asked about their perceptions on cyberethics issues and their behavior while using computer and internet. Regard to cyberethics (as shown in Table 2), as to intellectual property, most of the students often download files such as videos, movies, games and songs for free from internet. With regard to privacy, most of the students never give out personal information to unknown websites. In terms of accuracy, the students were able to find the required information very easily on the internet.

Regarding the accessibility, most of the students will not enter the website banned by their parents or teachers. In terms of attitude towards using internet, the results of analysis of the survey questionnaire show that most of the students were very happy when using the internet and never get bored when using it. Most of them responded that they will continue to use the internet and computers to complete school assignments. In addition, most of the students stated that they can choose any internet facilities and computer that they preferred, and using the internet and computer facilities are completely their choice.

Table 2: Descriptive Statistics (n= 236)

Variable	Item	Mean	Std. Dev
Cyberethics – Intellectual Property	1. I often download files such as videos, movies, games and songs for free from the internet.	*3.89	1.957
	2. I often share files (videos, songs, games and pictures) with others.	*3.41	1.901
	3. I did not ask any permission before downloading any files (videos, songs, games and pictures) from the internet and distribute it to my friends.	*2.43	1.582
	4. I often put the images obtained from the internet to my social sites.	*3.20	1.760
	5. I often upload my pictures and friends' pictures on the internet without their permission.	*2.51	1.723
Cyberethics –Privacy	1. I never open email from unknown email address.	*5.40	2.140
	2. I never give out personal information to unknown websites.	*5.88	1.860
	3. I never download files (pictures, songs, videos) from an unknown source.	*5.21	2.075
	4. I never give out personal information to the new people on the internet.	*5.41	2.066
	5. I never entered others' social networking site without authorization.	*5.20	2.025
Cyberethics -Accuracy	1. I find it hard to understand some information available on the internet.	*4.34	1.631
	2. I often get the wrong information on the internet.	*3.25	1.863
	3. I was able to find the required information very easily on the internet.	*5.32	1.750
	4. I strongly believe all the information available on the internet	*3.43	1.496
	5. I found some information in the internet is not renewed in accordance with the current time.	*4.58	1.449
Cyberethics – Accessibility	1. I am free to access the internet without parental supervision or my teacher.	*2.94	2.011
	2. I will not enter the website banned by my parents or teachers.	*5.67	1.966
	3. I do not have a time limit to surf the Internet at home.	*3.91	1.948
	4. I will not activate a computer virus barrier system (firewall) on the computer at school or home.	*3.64	2.120
Attitude towards Using Internet	1. I am allowed to use a personal computer in my room.	*4.11	2.136
	1. I am very happy when using the internet.	*5.59	1.428
	2. I found that, using the internet is complicated and cumbersome.	*4.82	1.812
Behavioral Intention	3. I never get bored when using the internet.	*5.08	1.669
	1. I intend to use the internet and computers in the future.	*5.26	1.645
	2. I will continue to use the internet and computers to complete school assignments.	*5.64	1.494
Actual Behavior	3. I will continue to use the internet and computers for entertainment and fun.	*4.19	1.688
	1. I am free to use any computer facilities that I want.	*3.93	1.851
	2. Using the internet and computer facilities are completely my choice.	*4.88	1.389
	3. I can choose any internet facilities and computer that I want.	*4.96	1.600

*1 = Strongly Disagree, 7 = Strongly Agree

Results of Hypotheses Testing

Firstly, correlation analysis was performed to identify the relationships between the variables. The results of the Pearson correlation are presented in Table 4. Table 3 shows that attitude is significantly and positively related to behavioral intention ($r = .179, p < .01$), actual behavior ($r = .140, p < .05$), intellectual property ($r = .153, p < .05$), and accuracy ($r = .142, p < .05$). Meanwhile behavioral intention is significantly and positively related to actual behavior ($r = .288, p <$

$.01$ and accuracy ($r = .224, p < .01$). Actual behavior is significantly and positively related to accuracy ($r = .227, p < .01$). Intellectual property is significantly and negatively related to privacy ($r = -.220, p < .01$), and positively related to accessibility ($r = .268, p < .01$). Privacy is significantly and positively related to accuracy ($r = .224, p < .01$). Further, accuracy is significantly and positively related to accessibility ($r = .174, p < .01$).

Table 3: Inter-correlations among Research Variables

Research Variables	Attitude	Behavioral Intention	Actual Behavior	Intellectual Property	Privacy	Accuracy	Accessibility
Attitude	1	.179**	.140*	.153*	.080	.142*	.011
Behavioral Intention	.179**	1	.288**	.007	.066	.224**	.012
Actual Behavior	.140*	.288**	1	.059	.041	.227**	.126
Intellectual Property	.153*	.007	.059	1	-.220**	.082	.268**
Privacy	.080	.066	.041	-.220**	1	.224**	.095
Accuracy	.142*	.224**	.227**	.082	.224**	1	.174**
Accessibility	.011	.012	.126	.268**	.095	.174**	1

Note: N = 236; **, Correlation is significant at the 0.01 level (2-tailed). *, Correlation is significant at the 0.05 level (2-tailed).

Secondly, regression analysis was performed for four cyberethics variables (i.e. intellectual property, privacy, accuracy and accessibility) factors with attitude as dependent variable, and the result of the regression model is shown in Table 4. The model

explained 5.2% of the variance in attitude and its associated F statistics indicated that it was significant at the $p < 0.05$ level. Intellectual property is shown as significant at the $p < .01$ level. However, accuracy was significant at the $p < .085$ level.

Table 4: Regression Model for Cyberethics and Attitude towards Internet Behavior

Variables	Unstand. Coef. B	Stand. Coef. β	t	R square	F	Sig.
				.052	3.153	.015
(Constant)	3.501		9.037			.000
Intellectual Property	.150	.184	2.657			.008
Privacy	.060	.101	1.482			.140
Accuracy	.121	.116	1.728			.085
Accessibility	-.058	-.068	-1.003			.317

Note: Dependent variable: attitude

Regression analysis was also carried out for behavioral intention to use internet as the dependent variable and the result of the model is shown in Table 5. The result of the regression model explained 3.2% of the variance in behavioral intention and its

associated F statistics indicated that it was significant at the $p < .001$ level. The models implies that attitude towards internet behavior is a pre-condition for a student's intention to adopt internet behavior.

Table 5: Regression Model for Attitude and Behavioral Intention

Variables	Unstand. Coef. B	Stand. Coef. β	t	R square	F	Sig.
				.032	7.720	.006
(Constant)	3.627		9.773			.000
Attitude	.221	-.179	2.779			.006

Note: Dependent variable: behavioral intention

Regression analysis was performed for behavioral intention with actual behavior as the dependent variable, and the result of the regression model is shown in Table 6. The model explained 8.3% of the

variance in actual behavior and its associated F statistics indicated that it was significant at the $p < .001$ level.

Table 6: Regression Model for Behavioral Intention and Actual Behavioral

Variables	Unstand. Coef. B	Stand. Coef. β	t	R square	F	Sig.
				0.83	21.135	.000
(Constant)	2.994		9.731			.000
Behavioral Intention	.297	.288	4.597			.000

Note: Dependent variable: actual behavior

Regression analysis was also performed for four cyberethics variables with actual behavior as the dependent variable, and the result of the regression model is shown in Table 7. The model explained

6.0% of the variance in actual behavior and its associated F statistics indicated that it was significant at the $p < .01$ level.

Table 7: Regression Model for Cyberethics and Actual Behavioral

Variables	Unstand. Coef. B	Stand. Coef. β	t	R square	F	Sig.
(Constant)	2.835		5.745	0.60	3.659	.007
Intellectual Property	.017	.016	.235			.814
Privacy	-.009	-.012	-.170			.865
Accuracy	.286	.213	3.199			.002
Accessibility	.093	.086	1.267			.206

Note: Dependent variable: actual behavior

In a nutshell, intellectual property and accuracy have been identified as the important predictors of attitude

leading to the behavioral intention and actual internet behavior. The result of the hypothesis testing can be seen at Table 8.

Table 8: Results of Hypothesis Testing

Hypothesis	Results	Comments
H1: There is a significant relationship between cyberethics issues and attitude towards using internet. Intellectual property → Attitude Privacy → Attitude Accuracy → Attitude Intellectual property → Attitude	Significant positive relationship established No significant relationship established Significant positive relationship established No significant relationship established	Fully supported at 1% level of significance Not supported Supported at 8.5% level of significance Not supported
H2: There is a significant relationship between attitude towards using internet and behavioral intentions.	Significant positive relationship established	Fully supported at 0.1% level of significance
H3: There is a significant relationship between behavioral intentions and actual behavior in using internet.	Significant positive relationship established	Fully supported at 0.1% level of significance

CONCLUSIONS

The objective of the research is to investigate the cyberethics and internet behavior of Malaysian primary education students. The results revealed that intellectual property and accuracy affected attitude towards using internet, and also influenced behavioral intention and actual behavior in using internet. It was therefore recommended that teachers are to be trained on how to educate cyber responsibilities to stay safe online, in order to provide cyberethics foundation to students. This research is important to the scholars and readers in understanding how the internet can affect the learning process and ethical behavior development of students. The limitations to this research included samples focused on two public primary schools which limits its generalizability and respondents were mainly 10 years (Year 4) to 12 years (Year 6) of age. Further research is needed to generalize the results across demographics of students especially from other public and private primary schools.

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