FACTORS OF CYBER ETHICS AWARENESS AND ITS RELATIONSHIP WITH INTERNET ADDICTION AMONG STUDENTS FROM SECONDARY SCHOOLS IN TAMBUNAN

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I hereby declare that the material in this thesis is entirely my own, except for quotations and summaries sources of which have been duly acknowledged.

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ABSTRACT

Internet has been the main source of information especially for students because it provides fast information and entertainment for them. The use of Internet among students has been debated especially in terms of addiction, ethical or unethical use of it. Cyberbullying and cybercrime are some of the alarming issues to the society especially to students. This study aims to examine the level of Internet addiction, level of cyber ethic awareness, gender differences according to Internet addiction and cyber ethic awareness, the factors of Internet addiction and its relationship with cyber ethic awareness among students from secondary schools in Tambunan. The modified diagnostic questionnaire for Internet addiction criteria and the four cyber ethic issues: Privacy, Accuracy, Property, Accessibility (PAPA) were used in this study to construct the research conceptual framework. This paper focuses on two main components namely Internet addiction and cyber ethic awareness. A total of 375 respondents were randomly selected from three public schools in Tambunan they were selected regardless of factors such as class, gender, and age. Data was then analysed using IBM Statistical Package for Social Sciences (SPSS) 24 which includes descriptive statistics (mean and standard deviation), t-test, Pearson correlation analysis and multiple regression analysis. Result showed that the level of Internet addiction among students were in mild level with 52.5% (N=197). It was also revealed that the highest percentage is from medium level of cyber ethic awareness with a percentage 49.9% (N=187) followed by high level of cyber ethic awareness at 48.8% (N=183). There were no significant differences in gender according to level of internet addiction but there were significant differences in gender according to cyber ethics awareness among the students. It was found that there was a significant relationship between Internet addiction and cyber ethic awareness among students from secondary school. Finally, Privacy and Property were found to be significant as the factors of Internet addiction. According to these results, it is recommended that schools to include in the curriculum about awareness on Internet addiction and ethical use of the Internet. Parents can contribute to monitor their children when they are surfing the Internet at home.

Keywoods : Cyber Ethics, Internet Addiction, High School Students

ABSTRAK

FAKTOR-FAKTOR MEMPENGARUHI KESEDARAN ETIKA SIBER DAN HUBUNGANNYA DENGAN KETAGIHAN INTERNET DALAM KALANGAN PELAJAR SEKOLAH MENENGAH DALAM DAERAH TAMBUNAN

Internet menjadi sumber utama maklumat terutama bagi pelajar kerana ia menyediakan maklumat yang cepat dan hiburan untuk mereka. Penggunaan Internet di kalangan pelajar telah dibahaskan terutama dari segi ketagihan menggunakan Internet, penggunaan serta penggunaan secara beretika atau tidak beretika. Jenayah siber adalah antara isu yang membimbangkan terutamanya di kalangan pelajar. Kajian ini bertujuan untuk mengenalpasti faktor-faktor mempengaruhi tahap ketagihan Internet dan mengkaji hubungannya dengan etika siber dalam kalangan pelajar sekolah menengah di Tambunan. Kriteria-kriteria ketagihan Internet dan isu-isu etika siber: Privacy, Accuracy, Property, Accessibility (PAPA) *telah digunakan untuk membentuk kerangka konseptual penyelidikan ini. Sejumlah 375 responden dipilih secara rawak dari tiga buah sekolah awam dalam daerah Tambunan yang dipilih tanpa mengira faktor seperti kelas, jantina, dan umur. Data dianalisis dengan menggunakan IBM Statistical Package for Social Sciences (SPSS) 24 yang merangkumi statistik deskriptif (min dan sisihan piawai), ujian t, analisis korelasi Pearson dan analisis regresi berganda. Keputusan menunjukkan bahawa tahap ketagihan Internet di kalangan pelajar berada pada tahap sederhana dengan 52.5% (N = 197). Dapatan kajian juga mendedahkan bahawa peratusan tertinggi adalah untuk tahap kesedaran siber etika adalah dalam kadar sederhana dengan peratusan 49.9% (N = 187) diikuti oleh kesedaran siber etika tinggi iaitu 48.8% (N = 183). Tidak terdapat perbezaan yang signifikan antara jantina untuk tahap ketagihan Internet tetapi terdapat perbezaan yang signifikan antara jantina untuk kesedaran etika siber di kalangan pelajar. Selain itu, dapatan mendapati bahawa terdapat hubungan yang signifikan antara ketagihan Internet dan kesedaran siber etika di kalangan pelajar dari sekolah menengah.* Privacy *dan* Property *didapati penting sebagai faktor ketagihan Internet. Berdasarkan keputusan ini, adalah disyorkan agar sekolah memasukkan ke dalam kurikulum sekolah mengenai kesedaran tentang kesan negatif ketagihan Internet dan penggunaan Internet secara beretika. Ibu bapa boleh menyumbang untuk memantau anak mereka semasa melayari Internet di rumah.*

Kata Kunci : Etika Siber, Ketagihan Internet, Pelajar Sekolah Menengah

TABLE OF CONTENTS

CHAPTER 2 : LITERATURE REVIEW

CHAPTER 3 : RESEARCH METHODOLOGY

CHAPTER 4 : RESEARCH FINDINGS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

IA	- Internet Addiction
IAT	- Internet Addiction Test
ICT	- Information Communication Technology
IT	- Information Technology
MCMC	- Malaysian Communication and Multimedia Commission
MDA	- Malaysia Digital Association
MOE	- Ministry of Education
MOSTI	- Ministry of Science, Technology and Innovation
MyCERT	- Malaysia Computer Emergency Team
PAPA	- Cyber ethic awareness; Privacy, Accuracy, Property, Access
UK	- United Kingdom
TRA	- Theory of Reasoned Action
TAM	- Technology Acceptance Model

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Introduction

Advances in information technology (IT) have changed our lives profoundly (Inonu *et al.*, 2011), revolutionizing every aspect of how the modern society operates (Acilar and Yoruk, 2010). Realizing the potential benefits that IT can bring to the education sector, governments around the world have increasingly promoted and implemented changes to the way teaching and learning is delivered (Venkatesh *et al.*, 2014; Edmunds *et al.*, 2012). The Internet has become an information hub that provide lots of useful information for students. Similarly, it also provides entertainment and online social interaction for its users.

In Malaysia, higher learning institutions have included Information Communication Technology (ICT) topics into their curriculum that can equip students with proficiency of computer knowledge (Masrom & Ismail, 2008). The same study also surmises that students' method of learning in the future is yet to be known with the increasing use of computers in academic environment. The great growth of computer and technology availability in academia has indirectly contributed to the unethical use of computer systems. It is then imperative that students infuse the knowledge of computer ethics when acquiring information through the use of technology. The explosive growth of Internet usage all over the world has triggered researchers to further investigate its impact to society.

Jamil *et al.* (2013) mentioned that students' learning activities have been affected due to the expanding use of technology which leads to either positive or negative learning practices. In the same study, results show that teachers are using technology in their teaching process by preparing their notes or lectures as well as students using the Internet to search for information to do their assignments or

exercises given by their instructor (Jamil *et al.*, 2013). At the same time, students could use the Internet for non-educational purposes such as playing online games or surfing social networking sites (Blikstad-Balas, M., 2015).

The availability of Internet access anywhere and anytime can indirectly lead to excessive use of the Internet. Outside of the classroom, these students would most likely engage in the same activities either due to their limited capacity for self-regulation as well as peer pressure on using the Internet for social interactions and entertainment (O'Keeffe *et al.*, 2011). A study by Lim *et al.* (2013) explains that "a good or bad technology must be built in an ethical way to provide its best efficiency to users". It is then also questionable whether any symptoms of Internet addiction can lead to ethical issues in terms of Internet use.

The latest Malaysian Education Blueprint (2013-2025) includes ICT as one of the key elements in transforming and improving the quality of education in Malaysia (as cited by Simin *et al.*, 2015). A study by the same author regarding the effectiveness of ICT integration into public secondary schools in Kuala Lumpur reveals a positive result for both teachers and students, confirming the result by Jamil *et al.* (2013) that was conducted in Pakistan.

When adolescents indulge in entertainment and social media on the Internet unfettered either through lack of parental guidance or self-control, by consuming negative content it could alter their behaviour based on what they perceive. A literature study by Wahab *et al.* (2017) illustrates the strong influence of mass media medium such as Internet in shaping the behaviour of teenage students. By simply misusing the Internet, for example an extreme use of social media, it can then lead to depression and further health complications.

1.2 Background of the study

Internet usage across the country has been rapidly increasing the past few years. Present study aims to investigate Internet addiction and cyber ethic awareness amongst students from secondary school in rural area. According to Pew Research Centre's study, there was a notable increase in the percentage of teenager's Internet

usage which was reported to be 92% in year 2015 and subsequently increased to 95% in year 2018. Furthermore, the same study also reveals that 45% of the teenagers stay online on a near-constant basis (Pew Research Centre, 2018). This was also evident in a study in Turkey stating that young adolescents are more prone to adopt the use of technologies which can lead to Internet abuse (Gencer, S.L. & Koc, M., 2012). This study also investigated Internet abuse among 1380 teenagers from high school and found that a small group of students are experiencing severe problems in their lives as Internet abusers while one fourth of them are possible abusers with occasional problem in their lives (Gencer, S.L. & Koc, M., 2012).

In this modern era, Internet use is pervasive among students. Based on statistics taken from Internet Users Survey 2017 conducted by Malaysian Communication and Multimedia Commission (MCMC) in year 2017, Internet users from education sector are proved to be influenced by the level of education. According to report in Figure 1.1, the adoption rate of Internet users by education attainment is dominated by tertiary education (94.4%) followed by post-secondary (85.5%), and secondary level (71.9%). It was notable from the statistic that Internet users from secondary education attainment shows the highest percentage with 39.5% amongst all. It can be suggested that the ever-increasing source of information on the Internet have influenced students to stay longer online and lessen their offline activities (Andri Efstathiou *et al.,* 2017). Students were more likely to use the Internet to obtain resources for their studies whilst also using the Internet for entertainment purposes. As such, addiction to Internet use and ethical issue towards computer use are also likely to emerge in this situation.

Due to the increasing number of Internet users in Malaysia especially among students, it is important to understand the risks that might occur. As an initiative, the Ministry of Education in Malaysia and CyberSecurity Malaysia partnered with a telecommunications company, Digi Telecommunications, to conduct a large-scale study with 18,729 students in Malaysia named Digi CyberSAFE: The National Survey 2015 to investigate on the nature of risks when using the Internet and to find out students' view on interactions and experiences over the Internet. It was reported that Internet penetration for all states in Malaysia is high together with a high degree

of digital resilience amongst the students. This survey also confirmed that a big number of students have access to the Internet and most of them are frequently using it (Digi Telecommunications, 2015).

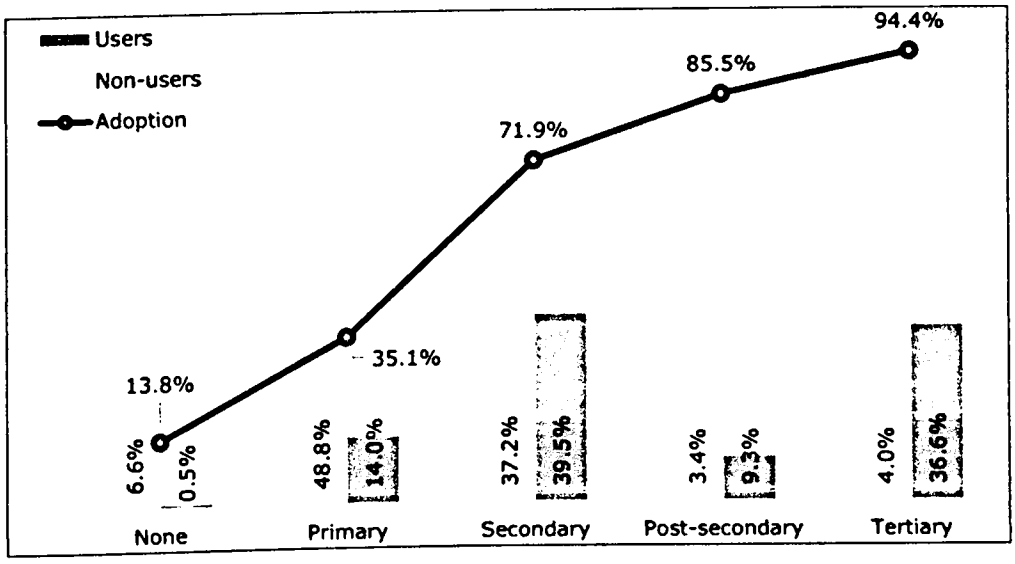

Figure 1.1 : Bar chart - Percentage distribution of Internet users by highest educational attainment; Line graph – Adoption rate of Internet by highest educational attainment.

Source : Internet Users Survey 2017, MCMC (2017)

In the context of Internet use among secondary schools at rural areas, it is always a challenge to provide Internet access compared to schools in urban areas because of the social and cultural gap. For example, in Chile, although rural communities have been improving their way of living but issues such as poverty, lack of infrastructure and poor educational results has impacted the economy of the nation. Similarly, the rural communities in Malaysia has lower income and this has become a hindrance for them to own computers or devices that could enable them to access the Internet (Nair *et al.*, 2010).

The government of Malaysia has launched multiple initiatives to improve Internet literacy especially for the schools in rural communities. Several programs have been initiated to improve the delivery of teaching and learning in schools and amongst them are Smart School Program and 1BestariNet project. According to

Abedalaziz *et al.* (2013), almost all developed countries in the world integrate technology in schools to aid in the process of teaching and learning. The Malaysian Ministry of Education (MOE) has stated that one of their main goals is to have the education system equipped with ICT to deliver productive, efficient, and effective management system (Abedalaziz *et al.*, 2013). Coupled with the ease of Internet access provided by the government, students could utilize the Internet in an unethical way and this may lead to Internet addiction.

A past study regarding the utilization of Internet use in rural and urban secondary schools in Kenya revealed that the integration of Internet in teaching and learning process is increasing and students are using the Internet mostly for communication as well as seeking for information (Kiptalam & Rodrigues, 2010). Similarly, a recent study in Turkey reported that 88.6% of students from secondary school in a rural area namely Konya have accessed the Internet (Gorkemli, 2017). It was further deliberated that they accessed Google search engine highly than social media (YouTube and Facebook) and other sites. Thus, it was suggested that students have been using the Internet to find information to help with their studies (Gorkemli, 2017).

With the ever-surging Internet usage, issues regarding Internet addiction and cyber ethic has been heavily debated in the education sector especially regarding teenagers. As communication through the Internet became an essential element of our daily lives, ethical issues would no doubt arise. These new ethical issues could either be positive or negative and can have an effect in the academic environment. Jamil and Shah (2011) mentioned that "technology facilitated in terms of management, communication, administration, coordination, development, collaboration and distribution of learning activities". In the wake of this situation, it is important to study the importance of Internet addiction and cyber ethic awareness especially among students from secondary schools in rural area.

It was reported by MCMC that there was an increase of Internet users in Malaysia in year 2018 compared to year 2016. According to the MCMC Internet Users Survey 2018, Internet users were 87.4% which was an increase of 10.5% from the

previous survey conducted in 2016. It was also notable that male users (59.0%) outnumber female users (41.0%) in the distribution of Internet users. The average duration of daily Internet use by age group was dominated by younger respondents who are in their 20's, were reported using the Internet for an average of 8 hours daily (MCMC, 2018). Based on these statistics, it indicates that youths were using the internet more than the other age groups.

Present study aims to solely focus on the level of Internet addiction and cyber ethics among students from secondary schools in the rural area of Sabah, Malaysia namely Tambunan. Gender differences were also investigated for both Internet addiction and cyber ethic awareness. Students' level of Internet addiction and level of cyber ethic awareness were examined to measure the relationship between cyber ethics issues and Internet addiction. Lastly, the factors in terms of cyber ethics that determine Internet addiction were identified.

1.3 Problem Statement

Global prevalence of Internet addiction has been widely discussed by scholars. Table 1.1 shows the prevalence rates according to age group from several countries like United States, Greece, Italy, Norway, United Kingdom, India, Qatar, South Korea, China, Taiwan, and Korea. According to the statistics, it shows that adolescents are the age group that shows notable prevalence on Internet addiction. This recent statistic shows that there is a need to investigate the factors that determine Internet addiction especially among adolescents. For example, in Asia, South Korea shows an Internet addiction prevalence of 1.6 – 20.3%, China shows Internet addiction prevalence of 5.5 – 13.5% and Taiwan with Internet addiction prevalence of 17.9% for college age (Mihajlov & Vejmelka, 2017). The statistics did not show the Internet prevalence in Malaysia, but it can be suggested that all countries in Asia can be a victim of this epidemic.

Internet addiction among adolescents is currently in a worrying state. As reported by Young & Abreu (2011), with the ease of access to the Internet and the vast amount of information it provides, several issues might arise when accessing the contents of the Internet. The Internet provides almost all the information we need

nowadays though the content of the information can be misleading and can trigger misinformation. Unfiltered information such as manipulated information on the Internet are easily accessible and can be shared to others with a click of a button. It can be hard to find accurate information on the Internet because various websites provide almost similar but different content of the same information.

Table 1.1: World-wide prevalence of Internet Addiction

Country	Age group	Prevalence rates
United States	Adult	0.7-6%
	College	4-25%
Greece	Adolescents	3.1-15.3%
Italy	Adolescents	5.4%
	College	5%
Norway	General	1%
United Kingdom	College	18.3%
India	Adolescents	0.7%
	College	0.7%
Qatar	College	17.3%
South Korea	Adolescents	1.6-20.3%
China	Middle school	2.4-6.3%
	Adolescents	5.5-13.5%
	College	6.4%
Taiwan	College	17.9%
Croatia	High school	3.4%

Sumber : Reprinted from "Internet addiction: A review of the first twenty years.", by Mihajlov, M., & Vejmelka, L. (2017). *Psychiatria Danubina, 29*(3), p. 260-272.

In general, male adolescents were more likely to be afflicted with Internet addiction compared with female adolescents due to the different manners of expressing their emotions. This was confirmed in a study by Hashim *et al.* (2016) for four schools in Perak, Malaysia where it was also noted that external factors such as parental involvement and socioeconomic factor can affect Internet addiction among students especially male. A similar study was performed recently among teenagers in similar number of schools in Selangor, a state with the highest Internet penetration rate in Malaysia by Kumar *et al.* (2018) reveal that only a minimal level of Internet addiction was found instead. On a separate study on Internet addiction for higher education students, these external factors were confirmed and expanded upon by Safiah *et al.* (2016), creating a conceptual framework that includes personality, family

background, socio-economic background, usage pattern, info-structure, demography background, community and peers as well as government policy.

Another concern regarding information on the Internet is the access to negative content, for instance, pornographic materials. Ease of access to these materials can trigger various problems within the context of an individual such as personal, academic performance and professional life (as cited by Young & Abreu, 2011). Various incidents on the Internet in Malaysia has been on the rise year by year as recorded by CyberSecurity Malaysia, an agency under the Ministry of Science, Technology and Innovation (MOSTI) who established a Malaysia Computer Emergency Team (MyCERT) to address the general computer security concerns of Malaysian Internet users.

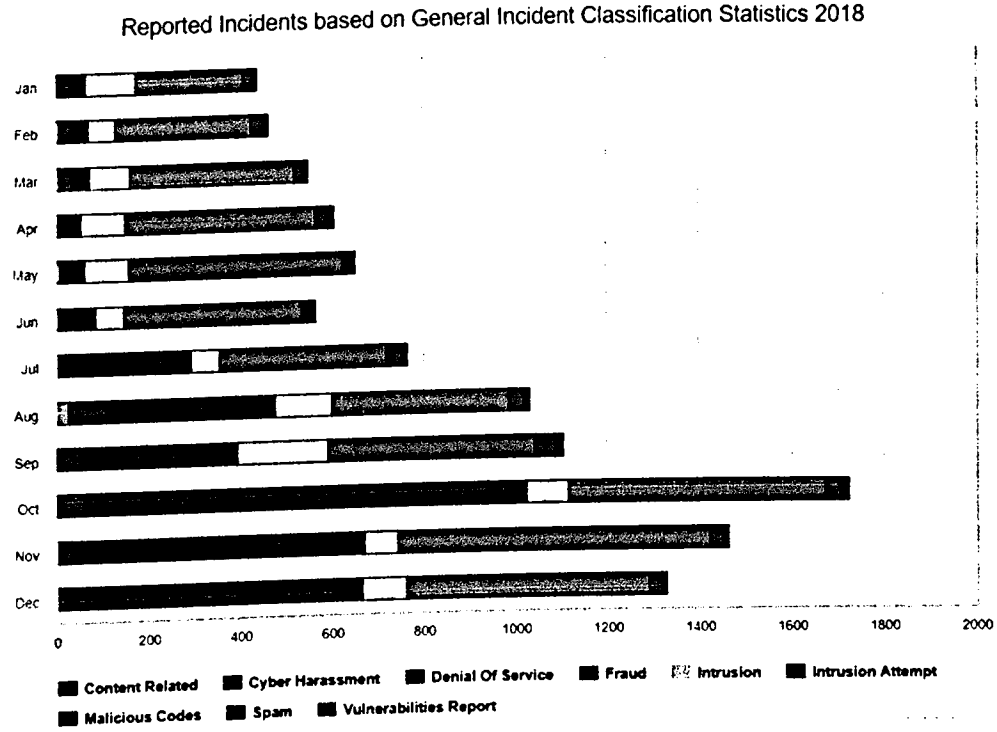

Figure 1.2 : Reported Incidents based on General Incident Classification Statistics 2018.

Source : MyCERT Incident Statistics (2018)

A statistic on General Incident Classification Statistics 2018 provided by MyCERT (refer to Figure 1.2) shows that various types of incidents reported to

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