A Survey on Security Awareness among Social Networking Users in Malaysia

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Abstract: Of late, social networking has become among the most popular activities for Internet users. However, this creates opportunities for cyber-crime offenders to commit their crime especially to the users who are not aware of the security threat. Therefore, the security awareness study is very important in order to know the level of the awareness of the Malaysian social networking users. In this study, a group of respondents with different academic background, age and gender responded to a survey that questions about their experience of using social networking sites. The results are then examined and analyzed by dividing them into group based on gender and education background. The results also analyzed based on the category of the questions related to basic awareness, technical awareness, advocacy and responsiveness towards the proper usage of social networking sites. The study managed to collect and analyzethe measurement of awareness of the users of social networking sites. It can be concluded that there is a significant gap between Malaysian Internet users based on gender and education background in terms of awareness of social networking sites usage.

Key words: Social networking, cybercrime, Internet security, Internet, social media

INTRODUCTION

Social networks are Internet based systems and services that allow individuals to create and manipulate public or semi-public profiles either within or between different social networks, articulate a list of other users with whom they shared connection, often referred to as "friends" and view, transverse, and communicate with their list of connections and those made by others within the system (Streck, 2011). Most of the social networking sites are attracting peoples by providing their service such as finding friends from all over the world as well as finding customer for their business.

As a medium for finding new and old friends, many social networking users tend to disclose their information, such as name, gender, photos, and age, with others. Some of them even share their contact number and sexual preferences (Lawler and Molluzo, 2010). The disclosure of this information will actually expose someone to the danger as people could use this information for some illegal purposes, such as identity theft, apply for credit card, or even cause the physical harm to the users. However, an empirical research has revealed that while users are sometimes aware of the privacy and security issues associated with social networking sites, but they do not always have a good grasp of the risks that they take in disclosing information to their online social networks (Raynes-Goldie, 2010).

Besides that, as the Internet has been part of human life, the social networking users are not adults or teenagers only nowadays, but the children as well. Most of them get their first social networking sites account at the early age of 13 (David, 2010). However, most of them do not understand the important of privacy and security at that age. According to the recent Teen Internet Safety Survey, Wave II Study, source from Cox Communications (2007), most of the children (age between 13 and 17 years old) are posting their real age, city of living, photos, videos and name of their school (Choo, 2009). And most of this information are disclosed to the public and can be view by anyone. Therefore, parents play the most important role in educating and guiding their children in using social networking.Due to the fact that social networking phenomenon has created such impact globally, the impacts towards Malaysian society need to be studied.

Based on the report by CyberSecurity Malaysia (Bernama, 2012), cyber security incidents in Malaysia are always on the rise every year. This shows that such awareness study is very important especially regarding the security awareness on social networking from the Malaysian perspective.

Related Works:

Social networking has become a phenomenon and it revolutionizes the way Internet is being used. Instead of just browsing for information or sending e-mails, Internet is now popular for social networking. Through social networking sites, Internet users will engage with their friends by posting status about the things they do including images, audio or video. Among the active users of the social networking sites are university students

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(Young and Haase, 2009) and that tells the significance of our study to measure the awareness when using social networking sites.

Table 1: Survey questions for Social Networking Awarenes.

Code	Questions
Q1	Aware of pretenders and are very vigilant (in adding them as your friend)
Q2	Share or post your personal information such as your phone numbers, home/work address in your profile
Q3	Do you think before posting your photos (to avoid it from being exploited)
Q4	Share your password with anyone
Q5	Add people as friends to your site only if you know them
Q6	Meet someone whom you have first 'met' on social networking site
Q7	Respond to harassing or threatening comments posted on your profile
Q8	Use privacy setting of the social networking site
Q9	Install monitoring software to monitor online activities
Q10	Educate them on what information should be kept private and not shared
Q11	Tell them to inform you if someone asks or talks about sensitive issues that makes them uncomfortable
Q12	Tell them that information posted online cannot be taken back
Q13	Enable privacy setting to restrict who can post and access information on your children websites
Q14	Report if you reasonable belief that someone is a scam artist or sexual predator on the social networking site

The result of the study will give a general idea of the trend of awareness as wellas knowledge of the users regarding the usage of social networking sites.

One of the problems of social networking usage is that these sites are also being used for sexual crime offenders, in which youth are their main target (Mitchell *et al.* 2010). This means that university students are within the target group of the offenders since they are usually aged between 17 to 30 years old.

In terms of gender-based awareness, (Hoy and Milne, 2009) found out that young women are more concern and being more protective towards their privacy in Facebook than their men counterpart. But that does not mean that women users are safer thantheir men counterpart. Based on a media report, women are more addicted to the usage of social networking sites than men (Revoir, 2008). It means that there will be more opportunity for women to be at risk when using the social networking sites since they are more likely to spend more time using the sites. Although (Mitchell *et al.* 2010) clearly mentioned about the youth as being the target of crime offenders, however, youth in the literature is defined as between 7-17 years old, which is different than the target group of this paper; school leavers (17 years old) and older (degree and post-graduate students).

Regarding the target group reviewed by the literatures, (Ishak, 2010) reviewed the impact of social networking on Malaysian people which relatively used the similar country. However, the literature only described the impact of social networking in general, without specifying the target group based on age and the environment of the group. Other related literatures reviewed are focused on the students from other countries like Australia (Choo, 2009), the United States (Hoy and Milne, 2010), (Lawler and Molluzo, 2010) and Canada (Young and Haase, 2009). This paper however will focuses on social networking usage awareness specifically to Internet users in Malaysia.

MATERIALS AND METHODS

The data of the study is based on a survey distributed to a total of 400 respondentsin which it was distributed randomly in November 2011. All of them were returned, yielding 100% response rate. There were 14 questions (Table 1) focusing on the respondents' awareness of computer security from the perspective of social networkingusage.All surveys responses were recorded and used for statistical analysis. Descriptive cross tabulation method was used to conduct the data analysis and SPSS v20 is used. These questions were designed based on the computer security guideline, called "General Information Security Best Practices"[1], which is published by CyberSecurity Malaysia.

The respondents came from different kind of academic background with the minimum education wasSijilPelajaran Malaysia (Malaysia's equivalent to General Certificate in Secondary Education in the United Kingdom) and highest education level were PhD holder. In terms of age, the respondents were aged between 17 to 45 years old. 61% of the respondents were female, and the rest were male respondents. Figure 1,2, and 3 describe the composition of the respondents in details.

RESULTS AND DISCUSSION

The results are categorized based on several groups; basic knowledge on social networking usage awareness; technical awareness for secure social networking; social networking awareness advocacy and responsiveness towards incidents and suspicious profile over such sites. The findings are analyzed based on gender and also academic background of the respondents. The following sub-sections discussed the results obtained for each category.
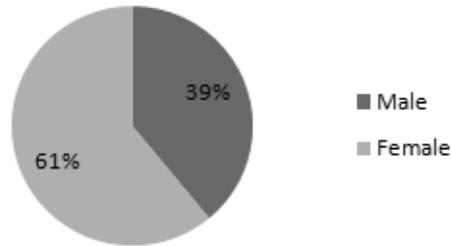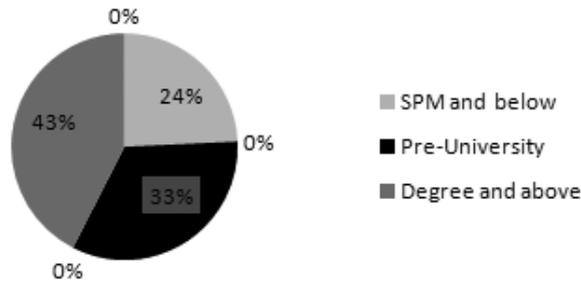
Fig. 1: Respondents composition based on gender.

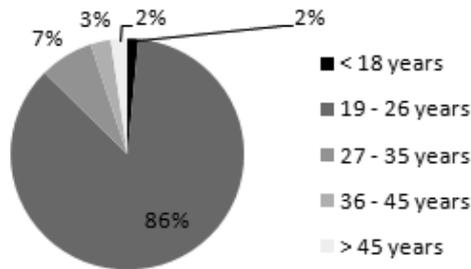**Fig. 2:** Respondents composition based on academic background.

Fig. 3: Respondents composition based on age.

Table 2: Social Networking Basic Awareness Survey Questions.

Code	Questions
Q1	Aware of pretenders and are very vigilant (in adding them as your friend)
Q2	Share or post your personal information such as your phone numbers, home/work address in your profile
Q3	Do you think before posting your photos (to avoid it from being exploited)
Q4	Share your password with anyone
Q5	Add people as friends to your site only if you know them
Q6	Meet someone whom you have first 'met' on social networking site

Table 3: Social Networking Basic Awareness Based on Gender.

Code	Male		Female	
	Yes (%)	No (%)	Yes (%)	No (%)
Q1	79.5	20.5	82.8	17.2
Q2	17.9	82.1	12.3	87.7
Q3	67.3	32.7	80.7	19.3
Q4	7.7	92.3	7.4	92.6
Q5	80.1	19.9	83.6	16.4
Q6	31.4	68.6	20.5	79.5

Table 4: Social Networking Basic Awareness Based on Education Level.

Code	SPM and below		Pre-University		Degree and above	
	Yes	No	Yes	No	Yes	No
	(%)	(%)	(%)	(%)	(%)	(%)
Q1	52.6	47.4	80.6	19.4	85.9	14.1
Q2	31.6	68.4	16.6	83.4	10	90
Q3	57.9	42.1	73.9	26.1	79.4	20.6
Q4	15.8	84.2	9	91	4.7	95.3
Q5	63.2	36.8	82	18	84.7	15.3
Q6	26.3	73.7	25.1	74.9	24.1	75.9

Basic Awareness:

The survey has six questions that measures the basic awareness of the respondents (Table 2); Q1, Q2, Q3, Q4, Q5, and Q6. Questions Q2, Q4, and Q6 are questions which were asking whether the users will do negative actions on the social networking sites. These types of questions were expecting respondents to answer "No", while other questions; Q1, Q3, and Q5 are questions that were expecting "Yes" answers. Table3shows the responds on the survey questions that measure the basic awareness on social networking usage.

Based on the result shown in Table 4, most of the respondents or more than 60% respondents for both gender answered "Yes" for questions Q1, Q3, and Q5. This shows that most of the respondents have good knowledge in basic awareness. However, male respondents produced 67.3% of "Yes" answers for Q3 compared to female's 80.7%. This shows that male respondents were lacking in thinking before they post their status than the female respondents.

In terms of questions Q2, Q4, and Q6, respondents from both gender gave over 60% of "No" answers. This shows that they are aware of the danger of sharing their personal information in the social networking sites. Female respondents again dominate the results by giving 87.7%, 92.6% and 79.5% for "No" answers respectively for all the questions while male respondents gave slightly lower percentage of "No" in all questions. Although most of the respondents gave high percentage of awarenessregardless of their gender, based on the findings, female respondents showed higher awareness than the male respondents. Based on the respondent's educational background, the result shows that, respondents with higher educational background are more aware on social networking security than respondents with lower educational background.

Based on Table 4, it shows that pre-university, graduates, and post-graduates respondents gave more than 70% of "Yes" answers to questions Q1, Q3, and Q5. While there were only 52.6%, 57.9% and 63.2% of "Yes" answered by respondents with SPM certificate and below for the same set of questions. In terms of questions Q2, Q4, and Q6, similar trend repeated when respondents with higher educational background recorded higher percentage of basic awareness. Pre-University and Degree (at least) holder responded 83.4%, 91% and 74.9% of "No" answers for this set of questions. While respondents with the lowest educational background recorded 68.4%, 84.2% and 73.7% which are slight lower than the other group. It can be concluded that respondents with higher educational background have basic awareness of using social networking sites. However, in general, regardless of educational background, most of the respondents have basic awareness in social networking sites usage.

Table 5: Social Networking Technical Awareness Survey Questions.

Code	Questions
Q8	Use privacy setting of the social networking site
Q9	Install monitoring software to monitor online activities
Q13	Enable privacy setting to restrict who can post and access information on your children websites

Technical Awareness:

Technical awareness of the respondents has also measured. Technical awareness refers to the settings that have been changed and used by the respondents to have a secure social networking site. In this study, the technical changes are the privacy setting of the social networking sites to make its page or status can only be viewed by users who are connected to them. Another technical mean that have been measured in this study is the use of 3rd party monitoring software to monitor the usage in the social networking sites. Table 5 describes the questions used in the survey for measuring technical awareness for social networking users. Based on the acquired data about the technical usage on their social networking sites, the technical awareness of the users is then measured.

Table 6: Social Networking Technical Awareness Survey Response based on Gender.

Code	Male		Female	
	Yes (%)	No (%)	Yes (%)	No (%)
Q8	81.4	18.6	83.6	16.4
Q9	52.6	47.4	56.6	43.4
Q13	64.1	35.9	74.2	25.8

Table 7: Social Networking Technical Awareness Survey Response based on Educational Background.

Code	SPM and below		Pre-University		Degree and above	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
Q8	63.2	36.8	81	19	87.1	12.9
Q9	26.3	73.7	54.5	45.5	58.8	41.2
Q13	63.2	36.8	73.5	26.5	67.1	32.9

Table 6 shows the percentage of the awareness survey based on gender. Based on the table, respondents of both gender showed majority of them uses some technical measures that include networking settings, and installing software for secure social networking activities. Majority the respondents are also aware of the

privacy settings of the social networking sites. This is shown in the result where more than 50% of the respondent, answered "yes" to all three questions, regardless of the gender. However, women users are more aware users when compared to the men users where the women respondents' percentage are higher than men in all three questions. The result also showed that the percentage of awareness in terms of more advance approach as described in Q9 and Q13 are smaller than in Q8. This reflects that most of the users are not keen to explore further the security mechanism in social networking sites. Table 7 shows the percentage of the technical awareness survey based on academic background. In general the results showed that for each questions, majority of the respondents from all education category aware of technical awareness for social networking sites. However, the percentage of awareness is different based on each category. The category of SPM and below recorded the lowest percentage of awareness on all questions when compared to other category. Respondents with bachelor degree and above recorded highest percentage of awareness except for question Q13 where pre-university respondents have the highest technical awareness.

Table 8: Social Networking Awareness Advocacy Survey Questions.

Code	Question
Q10	Educate them on what information should be kept private and not shared
Q11	Tell them to inform you if someone asks or talks about sensitive issues that makes them uncomfortable
Q12	Tell them that information posted online cannot be taken back

Table 9: Social Networking Security Awareness Advocacy Survey Response based on Gender.

Code	Male		Female	
	Yes (%)	No (%)	Yes (%)	No (%)
Q10	73.1	26.9	79.5	20.5
Q11	71.8	28.2	76.2	23.8
Q12	66.7	33.3	70.9	29.1

Table 9: Social Networking Security Awareness Advocacy based on Educational Background.

Code	SPM and below `		Pre-University		Degree and above	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
Q10	36.8	63.2	78.7	21.3	79.4	20.6
Q11	42.1	57.9	75.8	24.2	76.5	23.5
Q12	36.8	63.2	69.2	30.8	72.9	27.1

Advocacy:

In the survey, questions regarding security advocacy on social networking sites usage have also been asked. The advocacy of security for social networking is regarding the effort of the users to teach, educate and advocating people around them especially their siblings, family members or their children on security measures and issues for social networking usage. The questions for this category are shown in Table 8.

Table 9 shows the results for technical awareness among the respondents based on gender. It shows that more than half of the respondents answered yes for all questions asked regardless of their gender. Women respondents showed better percentage in terms of advocacy where they responded 79.5%, 76.2% and 70.0% percents to all three questions respectively. Men respondents recorded lesser percentage of advocacies with 73.1%, 71.8% and 66.7% respectively. It shows that women are more aware of advocating security in social networking sites usage.

In terms of educational background, survey results showed in Table 10 showed that, only two categories; Pre-University and Degree and Above obtained majority of percentage of awareness advocacy for social networking sites usages. While respondents with SPM and below education recorded lowest and smallest percentage with 36.8%, 42.1% and 36.8% for all three questions respectively. This shows majority of the respondents with SPM and below education are not advocating social security sites usage among their friens and family. However, respondents with at least pre-university and degree and above education obtained majority percentage in terms of the advocacy of social networking sites awareness towards their family and friends.

Table 11: Social Networking Responsiveness based on Gender.

Code	Male		Female	
	Yes (%)	No (%)	Yes (%)	No (%)
Q7	44.9	55.1	32.8	67.2
Q14	71.2	28.8	76.2	23.8

Table 12: Social Networking Responsiveness based on Educational Background.

Code	SPM and below		Pre-University		Degree and above	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
Q7	36.8	63.2	34.6	65.4	41.2	58.8
Q14	42.1	57.9	75.8	24.2	75.9	24.1

Responsiveness:

Responsiveness describes the action of the social networking sites users towards any incidents or suspicious profile account on the sites. Question Q7 refers to the respond of the users, positive or negative in any approach (comment, message) to the person who are writing harassing or threatening comments on their profile. Question Q14 refers to the respond by users through reporting to the authority (police, MMC) on suspicious account that may be administered by scam artist or sexual predators.

Table 11 describes the responds by the respondent on the given survey questions based on gender. Based on the result, majority of the respondents from both gender are not responsive towards harassmentand threats that are happening in the social networking sites with the women are the least responsive. Male users recorded higher responsive percentage towards such incident on the sites with 44% while women respondents only obtained 32.8%. In terms of reporting on suspiciously scam profile on the social networking sites, majority of the users responded positively with 71.2 % responded by male users while 76%.2 female users will report for the scam profile incident.

Table 12 describes the responsiveness percentage in terms of incidents on social networking sites based on educational background. Respondents with SPM and below have the lowest percentage in terms of responsiveness towards harassment and threat over social networking sites with only 36% answered "Yes" for question Q7. They also recorded the lowest percentage of responsiveness towards suspicious profile in the social networking sites with only 42.1% of them answered "Yes" for question Q14.

Similarly for the SPM and below category, both categories of pre-University and Degree and above respondents obtained low responsiveness towards harassment and threat incident in the social networking sites with only 34.6% and 41.2% of "Yes" for question Q7. Ironically, both category of respondents are more responsive towards suspiciousor scam profile in such sites with 75.8% and 75.9% answered "Yes" for question Q14. This shows thatthey are responsible to report for any suspicious profile in the sites that could harm other people. They also obtained better result with and respectively will respond towards such incident.

Conclusion:

The primary motivation of this paper was to measure the security awareness on social networking sites usage. The awareness is divided into three categories; basic, technical, advocacy. The results of the present study can be categorized based on gender and education level. In terms of gender-based user category, women respondent are more aware of social networking usage than the men users. These results are congruent with the work by (Hoy and Milne, 2009) that has also found that women are more aware than their men counterpart in terms of using the social networking sites.

Most of the respondents regardless of their education background are reluctant to meet new friend that they engaged in their networking sites. However, the respondents with higher academic qualification are not keen to share their personal information on the social networking sites. They also educate their children on proper use of social networking sites. Clearly, there is a gap within these categories where men and also less educated respondents are found to be less aware about their usage on the social networking sites. As a conclusion, this study gives an outlook upon the need for social networking users in Malaysiahave high awareness when dealing with the usage of the sites in order to combatthe increase of cyber security incidents.

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