MEASUREMENT OF INFORMATION SECURITY AWARENESS AMONG SOCIAL MEDIA PATH USERS IN INDONESIA

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Abstract

This research was conducted to examine security awareness of the users of Path as one of the social media which is based on demographic aspects. The purpose of this research is to comprehend the level of security awareness by involving the demographic aspects such as gender, age, income, and education background. The variables used are security awareness and demographic. Moreover, the method used in this research is a quantitative descriptive research as the basic foundation for conducting research. The population consists of the social media users of Path with the total sample of 400 respondents, while non-probability sampling is the way to use the sampling technique for these respondents. The data analysis technique in this research is using Crosstab technique and Chi square. The data processing is using Microsoft excel software and SPSS statistics tool version 2.0. The results of this research show that according to factor of gender, the men are more aware about information security. Regarding age factor, respondents within 26-29 year-old are more aware. Furthermore, the respondents which have anincome of>RP.6.000.000 and those with apostgraduate education background show the same result which are more aware about the security awareness. However, there are the obvious differences accordingto gender, age, income, and education background through some items of security awareness such as privacy setting, the limitation of information access, privacy education, sensitiveissue report, information sharing, and responseto threats.

Keywords: security awareness, gender, age, income, academic background, Path

1. Introduction

The rapid developments of technology currently affects the number of internet users. Indonesia is ranked #4 with a population of approximately 253.60 million and is followed by Brazil, which reaches202.65 million. By looking at this number of population, it encourages the opportunities for increasing the number of Internet users in Indonesia (Purnomo, 2014). The large number of Internet users have an impact on the level of social media users. According to the Data as of March 2015, the number of Internet users in the Asia-Pacific region are 1,436 billion while active social media users amounted to 1,088 billion with penetration. The number of Path users in Indonesia reached more than 4 million users. According to Morin, Indonesia accounted for Path in monthly traffic globally, and it showed approximately ¼ Path in daily traffic. Which means about 7 million users access Path from Indonesia (Desyana, 2014). The excellence of Path isthat it enables one to keep the privacy of its lure users. However, news had been spread that Path had been allegedly collecting data on as many as 3,000 children aged under 13 years without the consent of theirparents both for iOS and Android. Other cases occurred in February 2012 in which the application for iOSthrough the proven evocative of data - the data user's personal phone book is uploaded to the servers of Path (Infokomputer, 2013). The above case illustrates that Path has not been able to fully maintain the privacy and confidentiality of

the information of its users. The statement an important point for the use of social media, especially for users with regards tosocial media awareness about the importance of information security in the use of social media. Various characteristics are possessed by the users of social media, and the social media Pathmight be one of the factors for information security awareness. This is what underlies the author in conducting research on security awareness in social media users more specifically, Path has different characteristics from other social media which has been described previously, which is also associated with some of the characteristics of demographics such as gender, age, income and education background.

2. Research Problem

Based on the brief description that has been proposed above, this study has several purposes as follows:

1. How is the *Security Awareness* of Path users based on gender and how is the relationship between the both of them ?

2. How is the *Security Awareness* of Path usersbased on age and how is the relationship between the both of them ?

3. How *is the Security Awareness* of Path usersbased on revenue and how is the relationship between the both of them ?

4. How *is the Security Awareness* of Path usersbased on efucation background and how is the relationship between the both of them?

3. Review of The Relevant Literature

Management Information System

Amsyah(2005, p. 1) defines ManagementInformation System(MIS) as astudy which examines the way tomanagejobinformationby using asystem basedon the principlesof management. According to Mulyanto (2009, p. 32) Information System components are divided into:

    a. Human Resouces, taking an important role for information systems

    b. Hardware Resouces,all the equipment used in information processing.

    c. Software Resouces,alltheseries ofcommands(instructions) that is used to process the information.

    d. Data Resouces, not just raw materialfor the input ofan information system, but also as a basic form of organizational resources

    e. Network Resouces, whichconnects computers, communicationsprocessors, and other equipment, as well as controlled through software.

Information Security Management System

According to Whit manandMattord(2011), information security efforts to protect in formation and important elements that are inside, either the system orhardware that is usedto storeandtransmit information.

Security Awareness

Security Awareness is divided into 4(Ishak et al., 2012):
1. *Basic Awareness*
   Explains the security actions performed by users using their social networks.
2. *Technical Awareness*
   Technical Awareness refers to the settings that have been changed and used by the users in order to have a secure social networking site.
3. *Advocacy*
   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.
4. *Responsiveness*
   Responsiveness describes the action of the social networking site's users towards any incidents or suspicious profile accounts on the sites.

Social Media

Social media is a means for consumers to share information in the form of text, images, audio, and video with each other and with the company and vice versa (Kotler & Keller, 2012).

Segmentation

Segmentation consists of a group of customers who have the same needs and wants (Kotler & Keller, 2012). Which is divided into several sections :

a. Geographical
   Dividing the market into geographical units. Such as country, state, city or neighborhood
b. Demographic
   Divided into : age, family size, family life cycle, gender, income, occupation, academic background, religion, race, generation, nationality and social class.
c. Psychographic
   Divided into : personality trait psychological / personality, lifestyle, or value
d. Behaviour
   Divided into : knowledge, attitude, use of, or response to a product

Hypotheses

The hypotheses of this studyinclude :

H1 : There is a difference between the security awareness of Path users based on gender and there is a relationship between both of them

H2 : There is a difference between the security awareness of Path users based on age and there is a relationship between both of them

H3 : There is a difference between the security awareness of Path users based on income and there is a relationship between both of them

H4 : There is a difference between the security awareness of Path users based on academic background and there is a relationship between both of them

4. Methods

The calculation of the sampling using the Bernoulli formula and the results obtained 384.16 and rounded to the 400 respondents to make it easier to do the calculations. The authors used nonprobability sample technique and a convenience sampling method, i.e. selecting some members of the population through convenience to be sampled in order to provide information needed for the research (Indrawati, 2015). Data analysis was performed using SPSS statistical tools version 20 and Microsoft Excel. By using the analysis that conducted which are: *Crosstab* and *Chi-Square.*

This is following list of questions items which were used as a measurement tool of the questionnaire.

Table 1 : Survey question for Social Networking *Security Awareness*

Item	Question
Basic_3	Do you think before posting your photos (to avoid it from being exploited)
Technical_1	Use privacy setting of the social networking site
Technical_2	Install monitoring software to monitor online activities
Technical_3	Enable privacy setting restrict who can post and access information on your family or friends websites
Advocacy_1	Educate them on what information should be kept private and not shared
Advocacy_2	Tell them to inform you if someone asks or talks about sensitive issues that makes them uncomfortable
Advocacy_3	Tell them that information posted online cannot be taken back
Respon_1	Respond to harrasing or threatening comments posted on your profile
Respon_2	Report if you reasonable belief that someone is a scam artist or sexual predator in the social networking site

Source : Iskandar (2012)

5. Data Analysis and Conclusion

The results are categorized based on several groups; basic awareness, technical awareness, advocacy, and responsiveness. The findings are analyzed based on gender, age, income and academic background. The following sub-sections discussed the results obtained for each category.
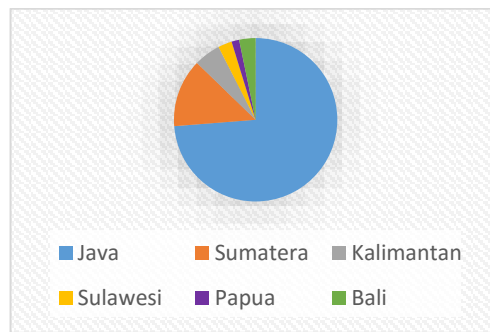

Figure 1 : Respondents composition based on origin

Figure 1 shows that 73.75% of the respondents are from Java, 13.50% are from Sumatera, Kalimantan (5.25%), Bali (3.35%), Sulawesi (2.75%) and Papua (1.5%)
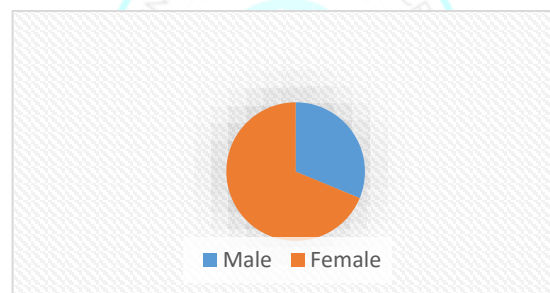

Figure 2 : Respondents composition based on gender

Figure 2 shows that there were 68.75% female respondents and 31.25% male respondents
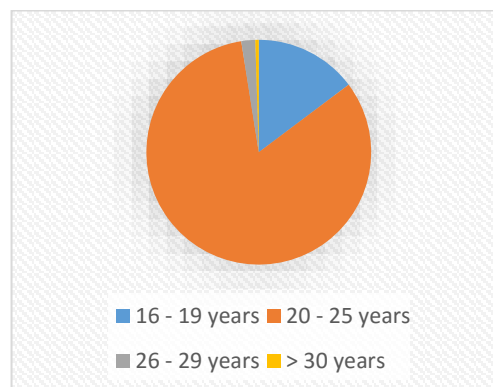
Figure 3 : Respondents composition based on age

Figure 3 shows that 82.75% of the respondent are20-25 years old, 14.75% are 16-19 years old, 2%are 26-29 years old and 0.50% are>30 years old

Figure 4 : Respondents composition based on income

Figure 4shows that 73.50% of the respondents havean income of <Rp.2.600.000, followed by Rp.2.600.000-Rp.6.000.000 (22%), > Rp.6.000.000 (4,5%).
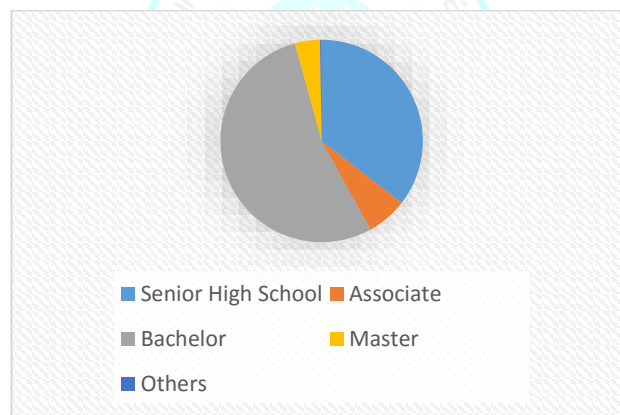

Figure 5 : Respondents composition based on academic background

Figure 5shows respondents composition:53.75% have bachelor's degrees, 35.50% have completed up until senior high school, 6.50% have associate's degrees, 4% have master's degrees, 0.25% were categorized as "Others."

Table 2 : Security Awareness Based on Demography

Demography	Yes (%)	No (%)
Gender		
Male	65.6	34.4
Female	62.6	31.5
Age		
16-19 years	61.8	38.1

20-25 years	63.6	36.4
26-29 years	76	23.9
> 30 years	31.25	68.75
Income		
< Rp.2.600.000	61.9	38.02
Rp.2.600.000 – Rp.6.000.000	68	32
> RP.6.000.000	68.52	31.47
Academic Background		
Senior High School	61.6	38.4
Associate	56.3	43.7
Bachelor	65.2	34.9
Master	71.6	28.4
Others	70.8	29.2

Security Awareness Based on Gender

Table 2 shows that male respondents have moresecurity awarenesswith a percentage ofthe average of65.6% compared to62.6% forwomen respondents. As defined byKotlerandKeller(2012),men are morelikely tofocus on theenvironmentto helpthem achieve their goals. Pathhas the purposeofmaintainingthe privacyof theuserswhich is considered appropriateto the characteristicsofthe men.Thefocus onthe achievement ofobjectivesin this regardisthe use ofsocialmediaPaththat can maintainitsprivacy.

Security Awareness Based on Age

Respondents aged 26-29 years show the highest level of security awareness, i.e. the average of percentage is 76%. Meanwhile, respondents aged> 30 years have the lowest security awareness level, which is 31.25%. The sequences of age range from the highest level of security awareness to the lowest level is 26-29 years (76%); 20-25 years (63.6%); 16 -19 years old (61.8%); and age> 30 years (31.25%). As proposed by Kotler and Keller (2012)the willingness and the ability of consumers (in this case the use of social media Path including the attitude of the security awareness) change according to age.

Security Awareness Based on Income

The respondents with incomes> Rp.6.000.000 have the highest level of security awareness (68.52%) followed by Rp.2.600.000 - Rp.6.000.000 (68%) and the respondents who have incomes <Rp.2.600.000 (61.9 %). As expressed by Setiadi (2003), high-income people tend to have vast interests and are open to change (in this case open to technologies regarding information security in the use of social media Path). This may be one of the reasons why high-income respondents with a range of> Rp.6.000.000 have a better level of security awareness than others.

Security Awareness Based on Academic Background

The respondents with aMaster's Degree as academic background have the highest level of security awareness (71.6%), followed by respondents with another academic background (70.8%), Bachelor's (65.2%), high school (61.6%) and Associate's(56.3%). Basic Awareness has a flat - the biggest average percentage for all categories of academic backgrounds with details of the percentage of Advocacy has the lowest level of security awareness for respondents with high school academic background (42.2%), Associate (35.9%), and

Bachelor (52, 1%). While Responsiveness has the lowest level of security awareness for respondents with Master's degree as academic background (59.4%) and others (50%). This is because education is not only related to the ability to obtain better income levels but also affects the attitudes and behaviors that are related to daily life(Tarigan, 2006). Furthermore, according toSetiadi (2003),highly educated people tend to gain enough information and are open to new ideas. (The information here can be in terms of information security awareness).

Table 3 : Result of Chi Square Test

			Demography			
		Description	Gender	Age	Income	Academic Background
Security Awareness	**Basic_3**	*Consideration before posting*	x	x	x	x
	Technical_1	*Privacy Setting*	x	x	√	x
	Technical_2	Install monitoring software	x	x	x	x
	Technical_3	Limit Information access	x	x	√	x
	Advocacy_1	*Privacy education*	x	x	√	√
	Advocacy_2	*Reporting sensitive issue*	x	√	x	√
	Advocacy_3	The information cannot be withdrawn	√	x	x	x
	Response_1	Responding to the threat	x	√	x	x
	Response_2	Respond to the things relate to sexual crimes	x	x	x	x

Descriptions:
√: There is relationship and differences
x: There is no relationship and differences

Conclusion

1. Based on gender, the men respondents have a higher level of security awareness compared to the women respondents. In other words, there is a difference between men and women, both in the delivery of education and the concern of the form of the information submitted as awareness in the formof education to people nearby that information has been shared on social media Path cannot be withdrawn / removed.

2. Based on the group of age, the respondents aged 26-29 years have the highest level of security awareness and usersaged> 30 years have the lowest level of security awareness. In addition, there is a correlation between awareness and differences in reporting sensitive issues and in terms of responding to threats that exist in social media Path to the age of social media Path users

3. Based on income, the respondents with incomes> Rp.6.000.000 have the highest level of security awareness. Conversely, income level<Rp.2.600.000 has the lowest level of security awareness. In addition, there is a difference between security awareness in the use of privacy settings on the social media Path accounts, security awareness in restrictions on the access to information, and security awareness in the provision of privacy education (such as what information should and should not to be shared) with income.

4. Based on academic background, social media Path users in Indonesia with Master's degree as academic background have the highest level of security awareness and those with Associate's degree as academic background show the lowest level of security awareness. In addition, there is a difference between education provision and reporting sensitive privacy issue with education.

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