Facebook Privacy Concerns among High-School Teens

Ari Kusyanti[1], Dita Rahma Puspitasari[2]

Department of Information Technology, Universitas Brawijaya[1]
Department of Information Systems, Universitas Brawijaya[2]
ari.kusyanti@ub.ac.id
135150400111002@ub.ac.id

***Abstract*-Privacy concerns have become public attention [1] along with the rising popularity of social networking sites [2]. According to Emarketer (2016) [3], Facebook is the most popular social networking site in the world, although there are many new social networking sites arise. This paper investigated Facebook privacy concerns among teens using Internet Users' Information Privacy Concerns (IUIPC) and Technology Acceptance Model (TAM) which revised by Rauniar *et al*. (2014) [4] to meet the need of investigating user acceptance of social networking sites. The research model comprised of thirteen constructs which three of them are second-order constructs of IUIPC. The constructs are perceived ease of use (EU), critical mass (CM), capability (CP), perceived playfulness (PP), perceived usefulness (PU), intention to use (IU), actual use (AU), trust, risk, internet users' information privacy concerns (IUIPC) and its second-order: collection (CL), control (CTRL), and awareness (AW). The data are collected from a questionnaire survey and analyzed using Structural Equation Modeling. This paper attempted to explore the effects of privacy concerns on teens' intention to use Facebook and provide reference for future study of privacy concerns on social networking sites. The result shows that privacy concerns does not affect teens' trust to Facebook which it is also does not have effect on teens' intention to use Facebook. The only factor that has a positive effect on teens' intention to use Facebook is perceived usefulness.**

***Keywords*: privacy concerns, social networking sites, Facebook, teens, IUIPC, TAM**

I. INTRODUCTION

Facebook is a social networking site which becomes both an information source and communication tools [5]. According to research which conducted by Pew Research Center, teens is the most dominating user on Facebook [6]. Along with the development of social networking sites, privacy concerns become attention to the public because personal information that users provide to social networking sites they use [1][2]. Facebook is one of the social networking sites which ever into the public spotlight related to the privacy concerns issue when two university students in India sued Facebook about WhatsApp's policy which will give its user information to Facebook [7]. The other similar case happened before because Facebook accused for scanned its users' personal messages for their advertising issue [8].

There are also some criminal cases involving Facebook which dragged teens as victims [9][10][11]. United States of America has a government regulation which protects kids under the age of 13 from organizations which collected their personal information [12]. But that kind of regulation does not discuss teens above the age of 13 which voluntarily provide their personal information to the organizations, although they are not aware of privacy as much as adult are [2].

In this paper, we adopt the Technology Acceptance Model (TAM) which developed by Davis (1986) [13] and revised by Rauniar *et al.* (2014) [4] to meet the need of investigating user acceptance of social networking sites and Internet Users' Information Privacy Concerns which proposed by Malhotra, Kim, & Agarwal (2004) [14] to investigate users' privacy concerns on internet issues. Data are collected through a questionnaire survey and analyzed using Structural Equation Modeling to understand the correlations between constructs.

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

A. *Facebook*

Facebook is a social networking site which developed by Mark Zuckerberg in 2004 which originally intended for people in Harvard University and must provide Harvard official email to register, and it become public in September 2005 [15]. In 2010 Facebook has gained 400 million active users all over the world [16]. Facebook also recorded as third world most visited site according to page views, and more than 60% users accessing Facebook every day and spending on average three hours in a month [5]. The most common users' activity on Facebook is browsing profiles, interact with the applications, browsing pictures, joining or visiting groups, looking for group members, and join in a browsing network [5]. Users of Facebook have mostly been teens with an age range from 12 to 24 although users with age over 35 also have an almost similar number [5].

A feature that differentiates Facebook with the other social networking sites is the possibilities for outside developers to build applications which enable users to do other tasks such as personalize their own profile [15]. The other difference that owned by Facebook is it can shows as much information about the users and what happened to other users through the home page [5]. The other advantage about Facebook is it also can be accessed through many types of gadget [5] which it allows users to access their account everywhere and anytime.

B. *Technology Acceptance Model (TAM)*

Technology Acceptance Model (TAM) was developed by Davis (1986) [13] build from importance concept in the Theory of Reasoned Action (TRA); that behavior and intention of a user is determined by trust. TAM states that a user's acceptance of a new system is influenced by their behavior toward the system. This statement is acceptable to the diversity of technology, gender of the user, and user groups [17]. The model of TAM is shown in Fig. 1.

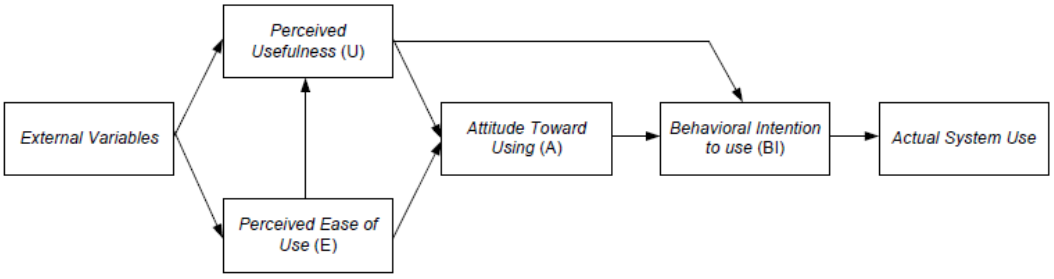

Figure 1. Technology Acceptance Model (TAM).

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

The constructs which build TAM are explained and presented in Table 1.

TABLE 1
DEFINITION OF THE CONSTRUCTS WHICH BUILD TAM

Item	Definition	Reference
Perceived usefulness	The extent to which a person believes that by using a specific application system will improve his or her job performance within an organizational context.	Davis, Bagozzi, & Warshaw (1989) [18]
Perceived ease of use	The degree to which a person expects the specific application system to be free of effort.	
Attitude toward using	The attitude of a person towards a specific application system which simultaneously affected by perceived usefulness and perceived ease of use.	Wu *et al.* (2011) [17]
Behavioral intention	The intention of a person using a specific application system affected by his or her attitude and perceived usefulness.	
Actual system use	A person's performance of a specified behavior towards using a specific application system.	Davis, Bagozzi, & Warshaw (1989) [18]

C. Technology Acceptance Model (TAM) Social Media

Rauniar *et al*. (2014) [4] developed TAM to investigate user acceptance of social networking sites. This developed model used in their research titled *"Technology acceptance model (TAM) and social media usage: an empirical study on Facebook"*. In this model states that the people's intention of using social networking site are influenced by perceived ease of use (EU), critical mass (CM), capability of social networking site (CP), perceived playfulness (PP), trustworthiness (TW), and perceived usefulness (PU). The model of TAM social media is shown in Fig. 2.

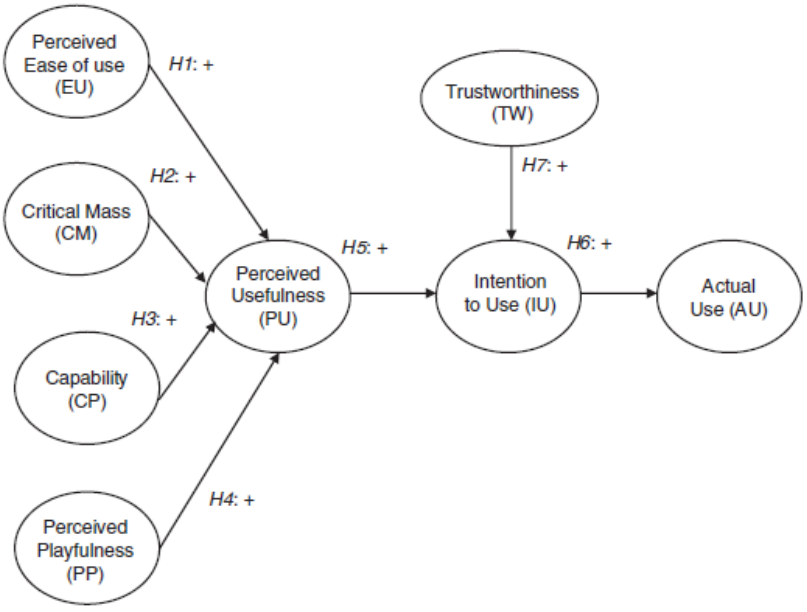

Figure 2. Technology Acceptance Model (TAM) Social Media.

The constructs which build TAM are explained and presented in Table 2.

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

TABLE 2
CONSTRUCTS DEFINITION WHICH BUILD TAM SOCIAL MEDIA

Item	Definition	Reference
Perceived ease of use	The degree to which a user may assess the site based on how easy it is to use and how effective it is in helping them accomplish their social-media-related needs.	Rauniar *et al*. (2014) [4]
Critical mass	The extent of the membership of people that matters most in a user's social media network.	
Capability	The site's features, applications, and social media tools to benefit the user's need for his or her social media activities.	
Perceived playfulness	The extent to which the social-media-related activities are perceived to be fun and enjoyable.	
Perceived usefulness	The extent to which the social media user believes that using a particular social media site helps to meet the related goal-driven needs of the user.	
Trustworthiness	The extent to which a social media user feels security of their social-media-related activities	
Intention to use	Reflects a decision that the person has made about whether to perform behavior or not.	
Actual use	In terms of the frequency of social media used by the user.	

D. Internet Users' Information Privacy Concerns (IUIPC)

Internet Users' Information Privacy Concerns (IUIPC) is a model which proposed by Malhotra, Kim, & Agarwal (2004) [14] to reflect internet users' attention towards information privacy. IUIPC has three dimensions—collection, control, and awareness—which placed as a second-order. The model of IUIPC is shown in Fig. 3.

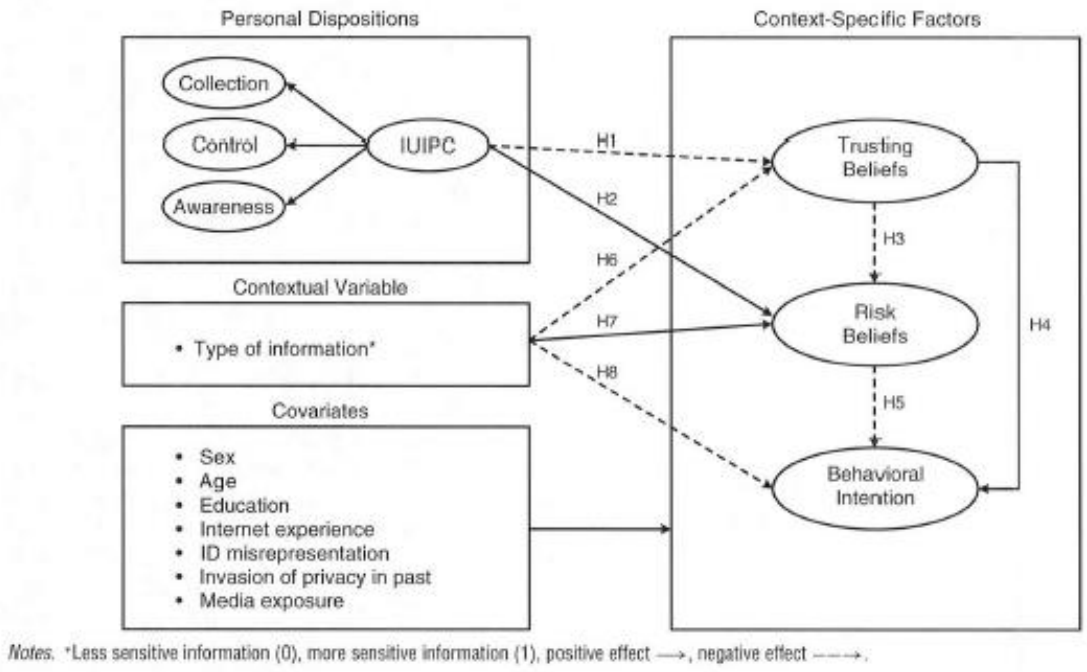

Figure 3 Internet Users' Information Privacy Concerns (IUIPC).

The constructs which build IUIPC model are explained and presented in Table 3.

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

Table 3
Definition of constructs build IUIPC model

Item		Definition	Reference
IUIPC	Collection	How far a person aware about their personal data collected by a specific organization.	Malhotra, Kim, & Agarwal (2004) [14]
	Control	The freedom of a person which determine whether he or she will give their personal information to a specific organization or not.	
	Awareness	How far a person aware about the activities of a specific organization towards their personal information they have given.	
Trusting beliefs		The degree to which people believe a firm is dependable in protecting consumers' personal information.	
Risk beliefs		The expectation that a high potential for loss is associated with the release of personal information to the firm.	
Behavioral intention		A predictor of actual behavior of a person.	

II. Model and Hypotheses

This paper uses a model that mainly adopts Rauniar *et al.*'s (2014) [4] TAM to explore factors that affecting teens' acceptance of Facebook. The model also combined with IUIPC constructs to investigate teens' privacy concerns on Facebook. The difference between this study with prior study is lies in risk factor that expose the negative effect of giving personal information to social networking site.

A. Definition of each construct

The constructs that build this model are defined according to items in TAM developed by Rauniar *et al*. (2014) [4] and IUIPC proposed by Malhotra, Kim, & Agarwal (2004) [14]. The definition of each constructs that used in the research is presented in Table 4.

TABLE 4
Definition of each constructs in this research

Item		Definition	Reference
Perceived ease of use		The degree to which a user may assess Facebook based on how easy it is to use and how effective it is in helping them accomplish their social-media-related needs.	Rauniar *et al*. (2014) [4]
Critical mass		The extent of the membership of people that matters most in a user's Facebook account network	
Capability		The Facebook's features, applications, and social media tools to benefit the user's need for his or her social media activities.	
Perceived playfulness		The extent to which the social-media-related activities are perceived to be fun and enjoyable.	
Perceived usefulness		The extent to which the user believes that using Facebook helps to meet the related goal-driven needs of the user.	
Trust		The degree to which a user believes Facebook will protect their personal information related to social-media-related activities.	Rauniar *et al.* (2014) [4]; Malhotra, Kim, & Agarwal (2004) [14]
Risk		The expectation that a high potential for loss is associated with the release of personal information to Facebook.	Malhotra, Kim, & Agarwal (2004) [14]
IUIPC	Collection	How far a user aware about their personal data collected by Facebook.	
	Control	The freedom of a user which determine whether he or she will give their personal information to Facebook.	
	Awareness	How far a user aware about the activities of Facebook towards their personal information they have given.	
Intention to use		Reflects a decision and that a user has made about whether to perform an actual behavior or not.	Rauniar *et al.* (2014) [4]; Malhotra, Kim, & Agarwal (2004) [14]
Actual use		In terms of the frequency of Facebook used by the user.	Rauniar *et al*. (2014) [4]

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

B. Hypotheses for the constructs

Davis, Bagozzi, & Warshaw (1989) [18] explained that perceived ease of use would have a direct effect on perceived usefulness. Rauniar *et al.* (2014) [4] also indicate that the easiness to use website can enhance users' experience and helping them to accomplish their social-media-related needs. Therefore, we are hypothesize:

H1: "Perceived ease of use" will have a positive effect on "perceived usefulness".

According to Rauniar *et al*. (2014) [4], users are using social networking sites to communicate with people that already being part of their social networks offline to meet the needs of the user. Therefore, we are hypothesize:

H2: "Critical mass" will have a positive effect on "perceived usefulness".

There are many social networking sites providing tools and features to enhance users' experience and to meet their social-media-related activities so the users can feel the benefits of their site (Rauniar *et al.,* 2014) [4]. Therefore, we are hypothesize:

H3: "Capability" will have a positive effect on "perceived usefulness".

A study indicates that mixing work and play can enhance productivity and performance of a person [4]. Wolfinbarger & Gilly (2001) in Rauniar *et al*. (2014) [4] also state that when a person feels pleasure when using a website, the frequency of visiting that website will increase. Therefore, we are hypothesize:

H4: "Perceived playfulness" will have a positive effect on "perceived usefulness".

TAM assumes that perceived usefulness has a direct effect on intention to use because people's intention formed by believes that using a specific system will increase their job performance [18]. Rauniar *et al.* (2014) [4] also state a person's intention to use a social networking site is determined by what benefit they get from that social networking site. The intention itself is a reflection of a person's decision whether he or she will use the system or not. Therefore, we are hypothesize:

H5: "Perceived usefulness" will have a positive effect on "intention to use".

H6: "Intention to use" will have a positive effect on "actual use".

When a person decided to be a user to a social networking site, she or he must be free from worries related to their personal information safety [4]. Malhotra, Kim, & Agarwal (2004) [14] state that trust and risk have a significant effect on intention. Several other works also indicate that risk has a negative effect on perceived usefulness which has a direct effect on intention [19]. Therefore, we are hypothesize:

H7: "Trust" will have a positive effect on "intention to use".

H8: "Risk" will have a negative effect on "intention to use".

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

Some studies indicate that trust beliefs would reduce a person's view on risk in providing personal information to a specific organization [14]. Therefore, we are hypothesize:

H9: "Trust" will have a negative effect on "risk".

Users who have a high degree of their information privacy concerns are likely to be low on trusting beliefs, but high on risk beliefs [14]. Kuo & Talley (2014) [20] also state that people with strong privacy concerns may worry that organizations does not have enough security to their personal information. Therefore, we are hypothesize:

H10: "IUIPC" will have a negative effect on "trust".

H11: "IUIPC" will have a positive effect on "risk".

C. Research model

Based on the hypotheses, we develop model used in this study as shown in Fig. 4.

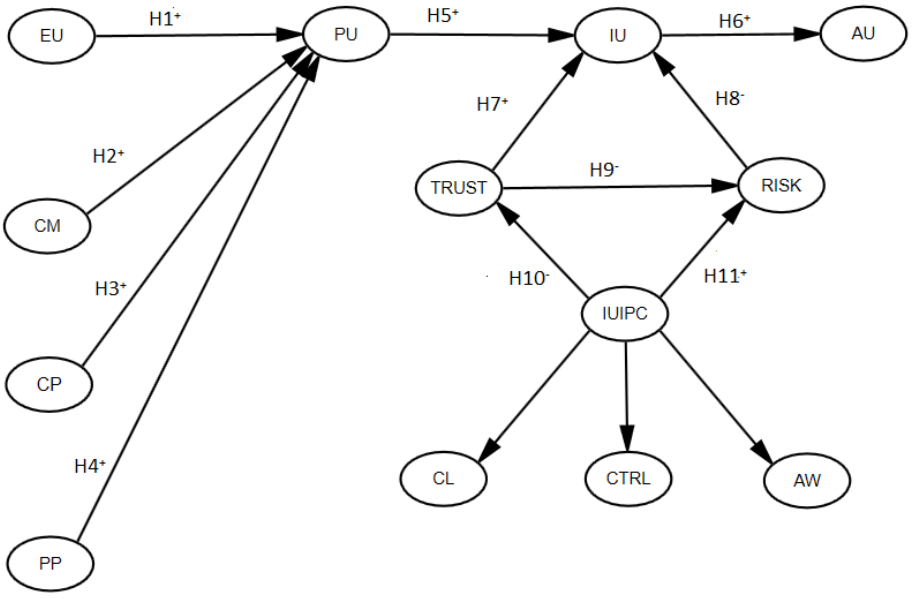

Figure 4. Research model.

III. DATA ANALYSIS

The respondents of this study are teens which high-school students with the age range from 15-18. The research data sample was collected using paper-based questionnaire and distributed in a public senior high-school Indonesia. A critical sample size needed in this research according to SEM is 200 samples [21].

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

A. Descriptive analysis

The pilot study was conducted before the full-scale study to measure the reliability. Reliability analysis was conducted to know the respondents consistency in answering the questionnaire [22]. Reliability was measured using Cronbach's alpha efficient proposed by Cronbach (1951). On this test, there are two constructs which represent an intention to use construct. The first construct is intention to use adapted from Rauniar *et al.* (2014) [4] and the second is intention to use information adapted from Malhotra, Kim, & Agarwal (2004) [14]. There are also two constructs which represent trust constructs. The first is trustworthiness adapted from Rauniar *et al.* (2014) [4] and the second is trust adapted from Malhotra, Kim, & Agarwal (2004) [14]. The reliability of each construct is shown in Table 5.

TABLE 5
RELIABILITY OF EACH CONSTRUCT

Construct	Cronbach's α Criteria α > 0,6
Perceived ease of use (EU)	0,852
Critical mass (CM)	0,872
Capability (CP)	0,671
Perceived playfulness (PP)	0,837
Perceived usefulness (PU)	0,901
Intention to use (IU)	0,738
Intention to give information (IGI)	0,608
Actual use (AU)	0,670
Trustworthiness (TW)	0,750
Trust	0,812
Risk	0,842
Collection (CL)	0,902
Control (CTRL)	0,843
Awareness (AW)	0,860

A total of 303 questionnaires are collected from students in a public senior high-school in Indonesia. The students have range between age 15-18. From the total obtained questionnaire, there are 294 valid responses with valid response rate at 97,03%. The characteristic of respondents is shown in Table 6.

TABLE 6
CHARACTERISTIC OF RESPONDENTS

Age	Sample Size	%	Sex	Sample Size	%
15	72	24,49	Female	53	18,03
			Male	19	6,48
16	158	53,74	Female	115	39,12
			Male	43	14,63
17	57	19,39	Female	35	11,9
			Male	22	7,48
18	7	2,38	Female	4	1,36
			Male	3	1,02
Total	294	100		294	100

Little's MCAR test was conducted using SPSS software to ensure that there are no missing values in the collected data. The result of the Little's MCAR test showed that there is no missing values. After the Little's MCAR test, the collected data are screened by removing outlier data. Outlier data searched by mahalanobis distance value—which measure the distance of cases from the mean of the predictor variables [23]—and then deleting data that exceeds the value of mahalanobis. The research data that are collected has mahalanobis distance value 72,44 with

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

failure probability at 1%. From 294 data that have been passed the missing values screening, there are 31 data which have mahalanobis distance value above the limit. Therefore, they should be eliminated.

B. Factor analysis

Factor analysis conducted to ensure that the questions asked related to the construct we want to measure [23]. In this paper, we use Kaiser-Meyer-Olkin test which measure sampling adequacy. The factor analysis that conducted in this paper has KMO value 0,838 which means great enough [23]. The value criteria for KMO test is shown in Table 7.

TABLE 7
KMO VALUE CRITERIA

Value	Criteria	Reference
<0,5	Not acceptable	Hutcheson & Sofroniou, 1999 cited in Field, 2005
0,5 – 0,7	Mediocre	
0,7 – 0,8	Good	
0,8 – 0,9	Great	
>0,9	Superb	

C. Normality test

Normality test conducted to know whether the data sample is normally distributed or not [23]. The test that we used is Kolmogorov-Smirnov test. The sample could tell as non-significantly different from normal distribution if when the test result is (*Sig.* > 0,05) [23]. The result of this test shown that *Sig.* is 0,2 which means that the data sample is normal.

D. Measurement model fit

Measurement model fit is conducted to know the fitness between latent variable and their manifest variable [22]. In this paper, we use confirmatory factor analysis which explains the structure and relationship between latent variables in data testing [23]. CFA is used to confirm that the questions asked can be used to explain the latent variable [22]. Three are two approaches used in CFA to evaluate the measurement model: (1) deciding the goodness-of-fit index, (2) and to evaluating the validity and reliability [24]. The result of the model goodness-of-fit is shown in Table 8. Based on this result we can conclude that the model fitted to the data.

TABLE 8
GOODNESS-OF-FIT INDEX OF THE RESEARCH MODEL

Fit index	Value	Recommended value	Reference
x^2/df	1,712	<3	Oruç & Tatar, 2017 [25]
GFI	0,835	>0,8	
AGFI	0,802	>0,8	
RMSEA	0,049	<0,08	
CFI	0,921	>0,9	

The CFA result that represents the validity and reliability each manifest variable on its latent variable is shown in Table 9. In this result, we can conclude that the entire manifest has a significant relationship with their latent. This means that manifest variables used in this research is suitable to measure their latent variable.

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

Average variance extracted (AVE) is a value that shows the percentage of variance interpreted by constructs. The criteria for average variance is should be above 0,5 [24]. The average variance extracted is less than 0,5 for all five constructs in this study as show in Table 9.

TABLE 9
MEASUREMENT RESULT OF RELATIONSHIP BETWEEN MANIFEST AND THEIR LATENT

Items		Factor loading	t-value	p-value	AVE
Criteria		>0,5	>1,96	<0,5* <0,01** <0,001***	>0,5
Perceived ease of use	EU1	0,701	-	-	0,44
	EU2	0,523	9,028	***	
	EU3	0,580	8,307	***	
	EU4	0,726	9,291	***	
	EU5	0,753	10,298	***	
Critical mass	CM1	0,665	-	-	0,65
	CM2	0,883	12,284	***	
	CM3	0,851	12,220	***	
Capability	CP1	0,539	-	-	0,32
	CP3	0,595	7,888	***	
Perceived playfulness	PP1	0,842	-	-	0,57
	PP2	0,800	14,782	***	
	PP3	0,588	10,212	***	
	PP4	0,752	13,752	***	
Perceived usefulness	PU1	0,783	-	-	0,6
	PU2	0,739	12,326	***	
	PU3	0,787	14,255	***	
	PU4	0,854	15,685	***	
	PU5	0,719	12,780	***	
Trust	TW2	0,911	-	-	0,75
	TW3	0,937	19,852	***	
	TW4	0,625	12,168	***	
Risk	RISK1	0,695	-	-	0,62
	RISK2	0,742	14,530	***	
	RISK3	0,879	12,641	***	
	RISK4	0,811	12,219	***	
Intention to use	IU1	0,784	-	-	0,45
	IU2	0,913	13,865	***	
	IU3	0,529	9,017	***	
Actual use	AU1	0,663	-	-	0,4
	AU2	0,605	5,200	***	
Collection	CL1	0,843	-	-	0,73
	CL2	0,757	15,874	***	
	CL3	0,987	23,144	***	
	CL4	0,810	17,695	***	
Control	CTRL1	0,829	-	-	0,65
	CTRL2	0,963	18,307	***	
	CTRL3	0,567	10,943	***	
Awareness	AW1	0,711	-	-	0,61
	AW2	0,862	13,990	***	
	AW3	0,772	12,784	***	

E. Hypotheses testing

Path analysis conducted to test the proposed hypotheses. This analysis used to test the relation between latent variables in the model. The eleven hypotheses are tested using SPSS AMOS—a software program used for structural equation modeling. The hypotheses could be state as supported if the relation shown the significant value (t-value>1,96; p-value<0,05). The strength of the relationship among the variables can be reviewed using the

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

standardized regression weights value. The relationship classified as strong when the standardized regression weights value is above 0,5 and it is when the value is under 0,1 the relationship just has a little effect [21][26]. The result of hypotheses testing is shown in Table 10.

TABLE 10
HYPOTHESES TESTING RESULT

Hypotheses	Relationships	Standardized regressionw weight	t-value	p-value	Supported
Criteria			>1,96	<0,05* <0,01** <0,001***	
H1	EU → PU	0,279	1,558	0,119	NO
H2	CM → PU	0,035	0,492	0,623	NO
H3	CP → PU	0,224	0,875	0,381	NO
H4	PP → PU	0,205	1,755	0,079	NO
H5	PU → IU	0,610	8,689	***	YES
H6	IU → AU	-0,335	-4,427	***	NO
H7	TRUST→ IU	0,086	1,585	0,113	NO
H8	RISK → IU	0,078	1,387	0,165	NO
H9	TRUST → RISK	-0,148	-2,309	*	YES
H10	IUIPC → TRUST	0,208	3,031	**	NO
H11	IUIPC → RISK	0,407	4,410	***	YES

IV. RESEARCH AND DISCUSSION

The overall hypotheses result is presented in Figure 5.

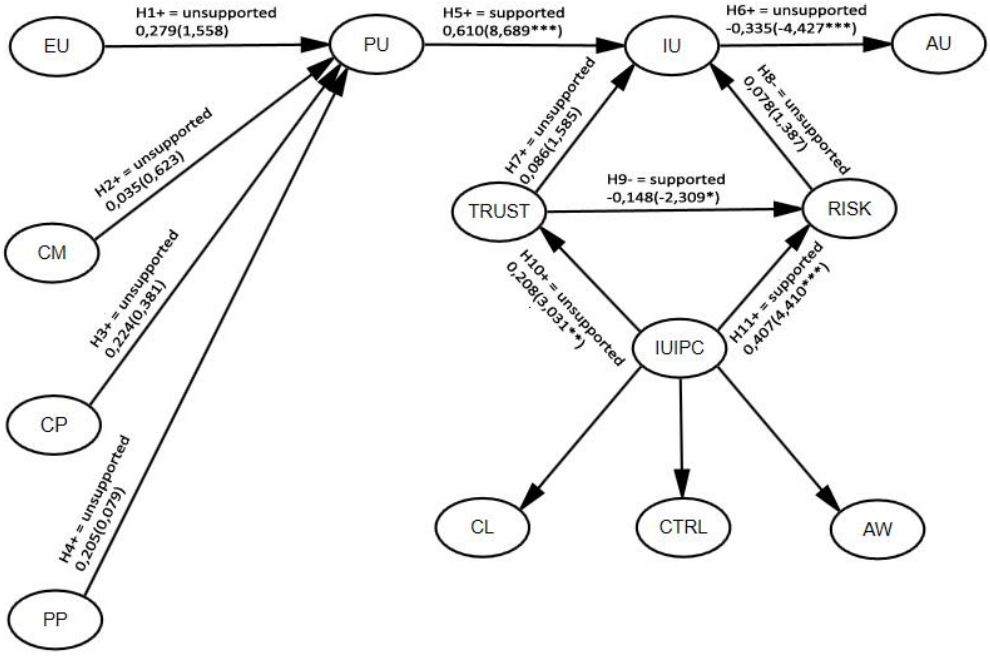

Figure 5. Path coefficients and relationships of the variables.

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

This paper evaluates teens' awareness of privacy concerns on Facebook. An extended TAM model was developed to investigate the teens' awareness of privacy concerns on Facebook. The model evaluated perceived usefulness, trust, and risk as antecedent to teens' intention to use Facebook. The perceived usefulness is affected by perceived ease of use, critical mass, capability, and perceived playfulness. Risk and trust beliefs are affected by teens' privacy concerns. The research data sample was collected using paper-based questionnaire and distributed to respondents aged range from 15-18 in a public high-school in Bantul, Special District of Yogyakarta, Indonesia.

The result confirmed that none of perceived ease of use, critical mass, capability, and perceived playfulness that has a significant effect on perceived usefulness. Thus the hypotheses are not supported for these relationship.

1. H1 Result Discussion

Davis, Bagozzi, & Warshaw (1989) [18] explained that perceived usefulness and perceived ease of use is two different dimensions, though in some studies prove that the two variable is correlated. Perceived usefulness can be affected by many external variables above the perceived ease of use. When a system has two advantages: accuracy and ease of use, then the accuracy, not ease of use that can be a factor that affected perceived usefulness.

2. H2 Result Discussion

Cameron & Webster (2005) [27] state when a specific technology is used by many people, then it is possible for users to communicate with people easily. Thus, critical mass is not directly related to perceived usefulness but it likely more related to perceived ease of use.

3. H3 Result Discussion

Rauniar *et al*. (2014) [4] defined capability as features on a social networking site that bring benefits to users in their social media activities. The definition is similar to perceived usefulness. But the questions supported this variable is likely more focus on the ease of using the features like how clear the instruction and how easy to use the feature.

4. H4 Result Discussion

In a previous study conducted by Chung & Tan (2004) [28], they posit perceived playfulness as a factor that affect a person's attitude toward using and affected by perceived usefulness with the other factors.

5. H5 Result Discussion

The positive influence of perceived usefulness on teens' intention to use Facebook is strongly supported by standardized regression weights value 0,610. Thus, the hypothesis about this relationship is supported. This result showed that benefits that teens' get from using Facebook make they intend to keep using Facebook.

6. H6 Result Discussion

The positive effect of teens' intention to use Facebook on their actual use is not supported by the result of this study. Previous study states that users' actual use on a specific system is relative and cannot represent the accuracy

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

of their actual use [29]. Tao (2009) [29] also states that this result can happen because of the respondents' perception of the questions about the frequency and duration may vary on some contexts.

7. H7 Result Discussion

The result of hypotheses testing on the relationship between trust and intention to use showed that the value of t-value is not significant enough to support the hypotheses. Thus, this hypothesis is rejected. From the result we can conclude that there is no effect on teens' trust to their intention to use Facebook. Although teens' trusting Facebook for personal information they had given, it is not enough to make them have an intention to use Facebook. A study conducted by Wu & Liu (2007) [30] that investigate the effects of trust and enjoyment factors on a person's intention to play online games also has the same result. Wu & Liu (2007) [30] explain the reason why trust is not enough to build a person's intention to play online games is because that trust variable used only measures a person's trust beliefs on online games provider and does not measures the technology that used to play the online games. The same reason may lies in this result because the used trust variable in this research only measures users' trust on Facebook and does not measures users' trust in technology which used to accessing Facebook.

8. H8 Result Discussion

The negative effect of teens' risk beliefs on intention to use is not supported by the result of the hypotheses testing. The result showed that though teens' aware about the risk if they give their personal information to Facebook, that awareness does not significantly affect their intention to use Facebook. This result proves that the respondents do not have any afraid of their personal information loss [19] if they keep using Facebook.

9. H9 Result Discussion

The result confirmed that there is a significant negative effect of trust beliefs on risk beliefs. Thus, the proposed hypothesis that explains the relationship between these variables is accepted. From the result we can conclude that when teens' have trust on Facebook they can barely see the risk if they keep using Facebook.

10. H10 Result Discussion

The negative relationship of privacy concerns on trust is not shown by the result. It showed teens' awareness of their information privacy does not lower their trust on Facebook. Although a social networking site tells their users about the activities they do to protect their users' personal information, they may only express legal things and that is why it cannot ensure that every organization related to the social networking site can be trusted [20].

11. H11 Result Discussion

The last hypotheses state that privacy concerns positively affect risk beliefs is supported by the result with standardized regression weights value 0,407 and t-value 5,410. The value shows that there is strong significant positive effect of teens' privacy concerns on their awareness of risk if they give too much their personal information to Facebook.

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

V. CONCLUSION

In this paper, our findings are shown that none of perceived ease of use, critical mass, capability, and perceived playfulness that have a significant effect on teens' perceived usefulness. Privacy concerns also do not have any significant effect on teens' intention to use Facebook although along with teens' awareness to privacy concerns, their awareness of risk beliefs also increases. The only factor that makes teens decide to use Facebook is only benefits they get from Facebook. If they think that using Facebook helps to meet their needs, then they will continue to use Facebook though that fact cannot ensure whether they really using Facebook or not.

This paper investigates teens' privacy concerns on Facebook using developed TAM by Rauniar *et al*. (2014) [4] to explore teens' acceptance of Facebook and IUIPC to explore whether their awareness of privacy concerns will affect their intention to keep using Facebook. the research was conducted in a public senior high-school in Indonesia. The result may vary if the research is done in a different location or in different age range. Also the research model can be extended to include constructs from a security aspect to obtain a better understanding on privacy issues regarding social networking sites.

REFERENCES

[1] Lewis, K., Kaufman, J. and Christakis, N. 2008. The Taste for Privacy: An Analysis of College Student Privacy Settings in an Online Social Network. *Journal of Computer-Mediated Communication,* 14(1), p.79-100 (http://onlinelibrary.wiley.com/doi/10.1111/j.1083-6101.2008.01432.x/pdf)

[2] Govani, T. and Pashley, H. 2005. Student Awareness of the Privacy Implications When Using Facebook. *Unpublished paper presented at the "Privacy Poster Fair" at the Carniege Mellon University School of Library adn Information Science,* 9, p.1-17 (http://lorrie.cranor.org/courses/fa05/tubzhlp.pdf)

[3] Emarketer. 2016a. Facebook Remains the Largest Social Network in Most Major Markets. *Emarketer* (http://www.emarketer.com/Article/Facebook-Remains-Largest-Social-Network-Most-Major-Markets/1013798)

[4] Rauniar, R., Rawski, G., Yang, J. And Johnson, B. 2014. Technology acceptance model (TAM) and social media usage: an empirical study on Facebook. *Journal of Enterprise Information Management,* 27(1), p.6-30 (http://www.emeraldinsight.com.sci-hub.cc/doi/abs/10.1108/JEIM-04-2012-0011)

[5] Ginger, J. 2008. *The Facebook Project-Performance and Construction of Digital Identity.* Department of Sociology University of Illinois at Urbana-Champaign (https://www.ideals.illinois.edu/handle/2142/8818)

[6] Lenhart, A. 2015. Teens, Social Media & Technology Overview 2015. *Pew Research Center Internet, Science & Tech* (http://www.pewinternet.org/2015/04/09/teens-social-media-technology-2015/)

[7] Wardani, A.S. 2016. Dua Mahasiswa Akan Gugat facebook Gara-Gara WhatsApp. *Liputan 6* (http://tekno.liputan6.com/read/2609386/dua-mahasiswa-akan-gugat-facebook-gara-gara-whatsapp)

[8] Efendi. 2016. Dituduh Telah Melanggar Privasi Pengguna, FB (Facebook) Kembali Harus Berurusan Dengan Hukum. *Smeaker* (http://smeaker.com/26353/dituduh-telah-melanggar-privasi-pengguna-fb-facebook-kembali-harus-berurusan-dengan-hukum/)

[9] Anestia, C. 2016. Remaja Tuntur Orangtuanya yang Unggah Foto Masa Kecil ke Facebook. *Liputan 6* (http://tekno.liputan6.com/read/2603135/remaja-tuntut-orangtuanya-yang-unggah-foto-masa-kecil-ke-facebook)

[10] Qodar, N. 2016. Bella yang Tewas di Hotel Cipulir Kenal Pembunuhnya dari Facebook. *Liputan 6* (http://news.liputan6.com/read/2568892/bella-yang-tewas-di-hotel-cipulir-kenal-pembunuhnya-dari-facebook)

[11] Affan, H. 2010. Remaja Menjadi 'Korban' Facebook. *BBC Indonesia* (http://www.bbc.com/indonesia/berita_indonesia/2010/02/100217_facebook.shtml)

[12] Feng, Y. and Xie, W. 2014. Teens' Concern for Privacy When Using Social Networking Sites: An Analysis of Socialization Agents and Relationships with Privacy-protecting Behaviors. *Computers in Human Behavior,* 33, p.153-162 (http://www.sciencedirect.com/science/article/pii/S0747563214000144/)

https://sites.google.com/site/ijcsis/
ISSN 1947-5500

[13] Davis Jr, F.D. 1986. A technology acceptance model for empirically testing new end-user information systems: Theory and results. Doctoral. Massachusetts Institute of Technology.

[14] Malhotra, N.K., Kim, S.S. and Agarwal, J. 2004. Internet users's information privacy concerns (IUIPC): The construct, the scale, and a causal model. *Information systems research,* 15(4), p.336-355 (http://csis.pace.edu/ctappert/dps/d861-09/team2-2.pdf)

[15] Boyd, D.M. and Ellison, N.B. 2007. Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication,* 13(1), p.210-230 (http://onlinelibrary.wiley.com/doi/10.1111/j.1083-6101.2007.00393.x/epdf)

[16] Steinfield, C., Ellison, N., Lampe, C. and Vitak, J., 2012. Online Social Network Sites and the Concept of Social Capital. *Frontiers in new media reasearch,* 15, p.115-131 (https://msu.edu/~steinfie/Steinfield_Internetat40.pdf)

[17] Wu, Mei-Ying., Chou, Han-Ping., Weng, Yung-Chien. and Huang, Yen-Han. 2011. TAM2-based Study of Website User Behavior—Using Web 2.0 Websites as an Example. *WSEAS Transactions on Business and Economics,* 4(8), p.133-151 (http://www.wseas.us/e-library/transactions/economics/2011/53-665.pdf)

[18] Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. 1989. User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science,* 35(8), p.982-1003. U.S.A: The Institute of Management Sciences. (https://www.researchgate.net/profile/Fred_Davis2/publication/35465050_A_Technology_Acceptance_Model_for_Empirically_Testing_New_End-User_Information_Systems/links/0c960519fbaddf3ba7000000.pdf)

[19] Ayo, C.K., Mbarika, V.W. and Oni, A.A. 2015. The Influence of Trust and Risk on Intention to Use E-Democracy in Nigeria. *Mediterranian Journal of Social Sciences,* 6(6 S1), p.477 (http://www.mcser.org/journal/index.php/mjss/article/viewFile/8044/7709)

[20] Kuo, Kuang-Ming. and Talley, P.C., 2014. An Empirical Investigation of The Privacy Concerns of Social Network Site Users in Taiwan. *International Journal of Scientific Knowledge,* 5(2) (http://ijsk.org/uploads/3/1/1/7/3117743/1_privacy_of_social_network_070414.pdf)

[21] Hoe, S.L. 2008. Issues and procedures in adopting structural equation modeling technique. *Journal of applied quantitative methods,* 3(1), p.76-83 (http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.497.1504&rep=rep1&type=pdf)

[22] Haq, O.S.W., 2016. Analisis faktor-faktor yang mempengaruhi publikasi foto pribadi pengguna pada instagram dengan menggunakan structural equation modelling. S1. Universitas Brawijaya.

[23] Field, A., 2009. *Discovering statistics using spss.* 3rd ed. [e-book]. Sage Publications. (http://fac.ksu.edu.sa/sites/default/files/ktb_lktrwny_shml_fy_lhs.pdf)

[24] Chandio, F.H., 2011. *Studying acceotance of online bankin information system: a structural equation model*. S3. Brunel Bussiness School, Brunel University London. (https://core.ac.uk/download/pdf/338499.pdf)

[25] Oruç, Ö.E. dan Tatar, Ç. 2017. An investigation of factors that affect internet banking usage based on structural equation modelling. *Computers in Human Behavior,* 66, p.232-235 (http://dx.doi.org.sci-hub.cc/10.1016/j.chb.2016.09.059)

[26] Suhr, D. 2008. Step your way through path analysis. *Western users of SAS software conference proceedings* (http://wuss.org/proceedings08/08WUSS%20Proceedings/papers/pos/pos04.pdf)

[27] Cameron, A.F. and Webster, J. 2005. Unintended consequences of emerging communication technologies: Instant messaging in the workplace. *Computers in Human behavior,* 21(1), p.85-103 (http://dx.doi.org.sci-hub.cc/10.1016/j.chb.2003.12.001)

[28] Chung, J. and Tan, F.B. 2004. Antecedents of perceived playfulness: an exploratory study on user acceptance of general information-searching websites. *Information & Management,* 41(7), p.869-881 (http://dx.doi.org.sci-hub.cc/10.1016/j.im.2003.08.016)

[29] Tao, D. 2009. Intention to use and actual use of electronic information resources: further exploring technology acceptance model (TAM). *AMIA Annual Symposium Proceedings,* 9, p.629 (https://www.researchgate.net/publication/42639785_Intention_to_use_and_actual_use_of_electronic_information_resources_further_exploring_Technology_Acceptance_Model_TAM)

[30] Wu, J. and Liu, D. 2007. The effects of trust and enjoyment on intention to play online games. *Journal of electronic commerce research,* 8(2), p.128 (http://web.csulb.edu/journals/jecr/issues/20072/paper2.pdf)