

Teen's Social Media Adoption: An Empirical Investigation in Indonesia

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Abstract—Social media has reached their popularity in the past decade. Indonesia has more than 63 million social media users who are accessing their account through mobile phone and therefore Indonesia is the third largest users in the world after United States and India. This study is attempted to determine the factors affecting user behaviour intention of social media usage. TAM (Technology Acceptance Model) for Social Media by Rauniar et al. is adopted to provide empirical evidence of teens in Indonesia. Data were collected through questionnaire survey and hypotheses are analyzed with SEM (Structural Equation Modeling). Result shows that factor affecting Indonesian teens in using social media is perceived usefulness (PP), while Trustworthiness (TW) has no significant influence towards their intention to use social media.

Keywords—Social media; Technology Acceptance Model (TAM); user behavior; perceived usefulness; trust; intention; actual use; Structural Equation Modeling (SEM)

I. INTRODUCTION

In the past decade, social media has reached their popularity rivaling search engines as the most visited sites [1]. Among the many social media sites that have emerged, Facebook is the most popular social media site in the world, although many new social media sites arise [2]. Social media nowadays has over 70 million active users who log in daily to check their account [3]. Because of its popularity, some people even said if someone hasn't connected with social media, then he doesn't exist [4].

In Indonesia, there are around 63 million social media users who access their account via mobile phone, and therefore Indonesia is the third largest social media user's population in the world after United States and India [5]. Emarketer also stated that 80,9% of internet users on mobile phone aged range from 16 to 19 years old in Indonesia always access their social media account every week [6].

This study using TAM (Technology Acceptance Model) Social Media developed by [7] investigate user's intentions to use social media and their behavior. TAM introduced by [8] and only assumed that the information system was used only as an organization's arrangement to improve the efficiency of its employees. TAM excludes the fact that system information can be used outside of organizational settings that can also be used by individual users. If TAM used by an individual user then an "entertainment" factors can be added, and known as Perceived

Playfulness (PP) factor [7]. Furthermore, TAM does not discuss the role of other users in influencing individual attitudes toward social media. It is considered problematic because many psychological researches proves that individual behavior can be influenced by the behavior of others around them. Therefore, the mass number of users in social media can be an important factor known as Critical Mass (CM) [7].

In a previous study conducted by [9] found that young people or teens in Greece use social media because it is influenced by 'social surfing' and 'wasting time'. The results of this study found that social networking applications are successful in helping them to communicate with others even though the person is not located near them.

This study focuses on Indonesian teens as the research object to determine what factors influencing teens' behaviour intentions toward social media usage. Data used in this research are collected through a questionnaire survey and hypotheses are analyzed with Structural Equation Modeling.

II. MODEL STRUCTURE AND HYPOTHESIS

A. Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) was introduced by Davis based on Theory Reasoned Action (TRA). TAM exploring the main concept of TRA that someone's intention and behavior is determined by trust. TAM explains that user acceptance on new system is affected by their behavior towards the new system and this theory is acceptable to the diversity of technology, gender and groups [10]. The model of TAM is shown in Fig. 1.

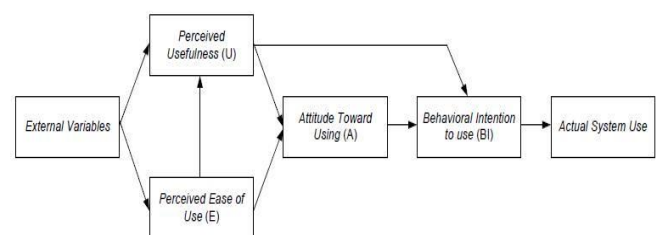


Fig. 1. Technology Acceptance Model (TAM).

According to [8], the constructs which build TAM are explained and presented in Table I.

TABLE I. DEFINITION OF EACH CONSTRUCT ON TECHNOLOGY ACCEPTANCE MODEL

Constructs	Definition
Perceived Usefulness	The degree of an individual believes that by using a specific system will improve his or her job performance.
Perceived Ease of Use	The degree of an individual expects the specific system needs less effort.
Attitude Toward Using	The degree of attitude of an individual towards a specific system.
Behavioural Intention	The intention of an individual in using a specific system.
Actual System Use	The degree of an individual's performance of a specified behaviour towards using a system.

B. Technology Acceptance Model (TAM) Social Media

Rauniar et al. [10] developed TAM Social Media from the original TAM which is proposed by Davis. The TAM Social Media is used by Rauniar et al. [7] on their research to understand user behaviour on using social media sites [7]. The model of TAM Social Media is shown in Fig. 2.

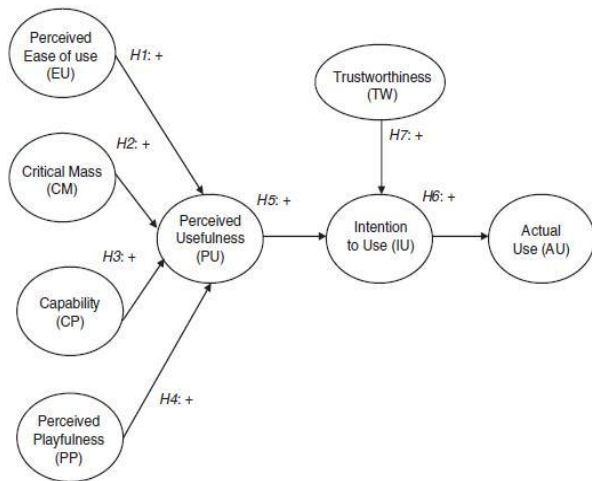


Fig. 2. Technology Acceptance Model (TAM) social media.

The construct which build TAM are explained and presented in Table II based on [7].

C. Research Model

This paper uses a model that adopts by [7] TAM Social Media to explore factors that affecting Indonesian teens' behavior intention on using social media. The difference between this study with prior study lies on research object which this study focusing on teens' behavior on using social media site in Indonesia.

D. Research Model

This paper uses a model that adopts by [7] TAM Social Media to explore factors that affecting Indonesian teens' behavior intention on using social media. The difference between this study with prior study lies on research object which this study focusing on teens' behavior on using social media site in Indonesia.

TABLE II. DEFINITION OF EACH CONSTRUCT ON TECHNOLOGY ACCEPTANCE MODEL SOCIAL MEDIA

Constructs	Definition
Perceived Ease of Use	The degree of an individual in assessing the social media based on how easy it is to use and how effective it is in helping them accomplish their social-media-related activities.
Critical Mass	The degree of the membership of society that matters most in a user's social media network.
Capability	The social media site's capability including features, applications, and other tools that help users accomplish their social-media-related activities.
Perceived Playfulness	The degree of an individual perceived that the social-media features and applications are fun and enjoyable.
Perceived Usefulness	The extent to which the social media user believes that using a particular social media site helps them accomplish their goal.
Trustworthiness	The degree of an individual feel safe and secure about their data and activities in social media
Intention to Use	The degree of a decision that an individual has to take whether to perform behaviour or not.
Actual Use	Frequency of social media used by the user.

E. Hypotheses for the construct

On the research conducted by [8], they explained that perceived ease of use have a direct effect on perceived usefulness. Study conducted by [7] also indicates that easier a website to use therefore it can enhance users' experience on doing activities on it and helping them to accomplish their social-media-related activities.

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

TAM Social Media indicates that social media sites is used by user to mainly communicate with people that they already know in real life and being part of their social life [7].

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

TAM Social Media explain that social media sites are providing tools and features to enhance their users' experience and fulfill their social media activities so that they can get benefit of the site [7].

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

A study conducted by [7] states that mixing work and play can enhance people's productivity and performance. When a person enjoys using a website, then the frequency of visiting that website will increase [7].

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

TAM states that user intention formed by believes that using a system will increase their productivity [8]. A person's intention to use a social media site is determined by the benefits they get if they use it [7]. And intention itself is a reflection of people's decision whether they will use the particular system or not [7].

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

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

Malhotra, Kim, & Agarwal [11] stated that trust has a significant effect on intention to use. And when a person decided to be a user of a social media site, then he must trust the social media related to their personal information safety [7].

H7: “Trustworthiness” will have a positive effect on “intention to use”.

III. DATA ANALYSIS

Data used in this research were collected through paper-based questionnaire survey with respondents are teens with age ranged from 15 to 18 years old. The survey took place in a public senior high-school in Indonesia. A critical sample size needed in this research according to SEM is 200 samples [12].

A. Descriptive Analysis

Pilot study was conducted before the full-scale study to measure the reliability to ensure the consistency of respondents in answering the questionnaire [13]. Reliability of each construct was measured using Cronbach’s alpha coefficient. The reliability of each construct is shown in Table III.

TABLE III. RELIABILITY OF EACH CONSTRUCT

Factor	Cronbach Alpha
Limit Value	>0.6
Perceived Ease of Use (EU)	0.739
Critical Mass (CM)	0.889
Capability (CP)	0.672
Perceived Playfulness (PP)	0.894
Perceived Usefulness (PU)	0.881
Perceived Ease of Use (EU)	0.739
Intention to Use (IU)	0.798
Actual Use (AU)	0.725
Trustworthiness (TW)	0.854

TABLE IV. CHARACTERISTIC OF RESPONDENT

Age	Total	%	Gender	%
15	72	24.49	Female	53
			Male	19
16	158	53.74	Female	115
			Male	43
17	57	19.39	Female	35
			Male	22
18	7	2.38	Female	4
			Male	3
Total	294	100		100

Questionnaires obtained from teens with age ranged from 15 to 18 years old who are actively using Facebook. The characteristic of respondents is shown in Table IV.

B. Missing Data and Outlier

Outlier data is data which have very different value with the average data and should be removed to avoid problems in further analysis [14]. Outlier data is examined by using Mahalanobis Distance. Data that exceeds the value of Mahalanobis Distance should be deleted. The collected data has Mahalanobis Distance value of 49.58. There are 30 data which have Mahalanobis Distance value of more than 49.58, therefore they should be eliminated.

C. Sample Adequacy Test

Kaiser-Meyer-Olkin Sample Adequacy Test was conducted to see the value of KMO to decide whether the data is appropriate for factor analysis or not [14]. The result of KMO test is 0.854 which means the data are appropriate for factor analysis [14].

D. Normality Test

Kolmogorov-Smirnov test is conducted to determine the normality of the data. The result of this test is 0.078 which means that the data sample is normally distributed.

E. Structural Equation Modeling

To analyse the data, Structural Equation Modelling (SEM) is used. There are two steps used in SEM: 1) measurement model fit to determine goodness of fit indices, and 2) structural model fit to evaluate the relationship of each construct. [15].

The result of the model goodness-of-fit indices is shown in Table V. Based on this result can be concluded that the model is fitted to the data.

TABLE V. GOODNESS OF FIT INDICES OF THE RESEARCH MODEL

Fit Index	Value	Recommended Value [16]
χ^2/df	2.764	$1 < \chi^2/df < 3$
GFI	0.881	>0.8
AGFI	0.840	>0.8
RMSEA	0.078	<0.08
CFI	0.920	>0.9

TABLE VI. HYPOTHESES TESTING RESULT

Hypothesis	Relationship	P	Supported
		<0.05	
H1	PU← EU	***	Yes
H2	PU← CM	0.024	Yes
H3	PU← CP	0.500	No
H4	PU← PP	***	Yes
H5	IU← PU	***	Yes
H6	AU← IU	0.035	No
H7	IU← TW	0.403	No

The next step is evaluating the relationship between construct, in this case is the hypotheses, by using structural mode fit. The hypotheses is supported if the significant value is p-value<0.05. The results of structural model fit can be seen in Table VI.

IV. RESEARCH AND DISCUSSION

This paper evaluates teens’ attitude and behaviour on using social media in Indonesia. An extended TAM model is used to understand the relationship between constructs. The research data sample was collected through paper-based questionnaire survey from a public senior high-school in Indonesia. The respondents are teens with age range from 15 to 18 years old.

A. H1 Result Discussion

Based on the test results from Hypothesis 1, it can be concluded that respondents assumes that social media is very easy to use and does not require much effort to use it so it

makes respondents can feel the benefits of using this social media. It shows that in this research the factor of ease of use (EU) has a significant influence to the factor of perceived usefulness (PU). Therefore, in this study Hypothesis 1 is accepted.

The results of this study is similar to the results of research conducted by [7] which suggests that when a person feels that in using a social media does not require much effort and easy to use then the user will tend to feel the benefits of using social media.

B. H2 Result Discussion

Based on the test results from Hypothesis 2, it can be concluded that the respondents are using social media because of the influence of people around them, i.e their classmates. It shows that in this study critical mass factor (CM) has a significant influence on the factor of benefit in the use (PU). Therefore, in this study Hypothesis 2 is accepted.

The results of this study are similar to the results of research conducted by [7] which suggests that when a group of people use a new technology then the news about the features and benefits in the technology will spread to the people around them so it will attract people to use the technology.

C. H3 Result Discussion

Based on the test results from Hypothesis 3, it can be concluded that respondents thought that social media is useful though it does not provide clear instructions or explanation about its features, i.e how to post, how to upload/download pictures or videos. It shows that in this research, factor capability (CP) has no significant influence on perceived usefulness (PU) factor. Therefore, in this study Hypothesis 9 is rejected.

The results of this study are similar to the results of research conducted by [7] which suggests that the capability is one of the factors that influence users to use social media.

D. H4 Result Discussion

Based on the test results from Hypothesis 4, it can be concluded that respondents thought that features and applications offered by social media are delightful, exciting thrilling, and fun so that respondent thought it benefits them. It shows that in this research perceived playfulness (PP) have significant influence to perceived usefulness (PU). Therefore, in this study Hypothesis 4 is accepted.

The results of this study is similar to the results of research conducted by [7] which suggests that when a user feels that the application used provide fun for them then users can feel the benefits of the application.

E. H5 Result Discussion

Based on the test results from Hypothesis 5, it can be concluded that respondents can feel the benefits obtained from the use of social media so that respondents have an interest to continue using the social media. It shows that in this research; perceive usefulness (PU) has a significant influence towards intention to use (IU). Therefore, in this study Hypothesis 5 is accepted.

The results of this study are similar to the results of research conducted by [7] which suggests that when a user can feel the benefits of using an application then the user will tend to continue using the application.

F. H6 Result Discussion

Based on the test results from Hypothesis 6, it can be concluded that respondents think that although they intend to use social media this does not affect the frequency of using social media. In this research most of respondents' access their social media couple times in a week and spending 2 hours on average. It shows that in this research intention to use (IU) has no significant influence towards actual use (AU). Therefore, in this study Hypothesis 6 is rejected.

The results of this study are similar to the results of a study conducted by [17] which suggests that measuring the intentions of the use of an application by a user of an application is relative and can't accurately represent the actual use.

G. H7 Result Discussion

Based on the test results from Hypothesis 7, it can be concluded that respondents thought that the social media does not guarantee the security of their profile and their post in social media therefore it affects their intention to use the social media. It shows that in this research, respondents' trust (TW) has no significant influence towards intention to use (IU). Therefore, in this study Hypothesis 7 is rejected.

The results of this study are similar to the results of a study conducted by [18] who suggested that users have no intention to disclose their personal information to an application unless they trust the application and know the risks that may occur.

V. CONCLUSION

Based on the results, this study provides empirical evidence of Indonesian teens' behaviour intention in using social media. Factors that influence them in using social media is Perceived Usefulness (PU) since they thought the features of social media benefits them in accomplishing social-media-related activities. This is due to the features of social media are easy to use (EU) and enjoyable (PP), even though there are no clear instructions or explanation about its features (CP). Moreover, the respondents use the social media since their fellows are also using social media therefore it can benefit them in communicating with their friend (CM). However, the respondents thought that social media can not be trusted (TW) since it does not guarantee the security of their profile and post. Therefore, this factor does not affect the intention to use social media.

REFERENCES

- [1] Steinfield, C., Ellison, N., Lampe, C. and Vitak, J., 2012. Online Social Network Sites and the Concept of Social Capital. *Frontiers in new media research*, 15, p.115-131
- [2] Emarketer. 2016a. Facebook Remains the Largest Social Network in Most Major Markets. Emarketer
- [3] 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
- [4] Svensson, A.E.C. 2011. Facebook – the Social Newspaper That Never Sleeps-A study of Facebook eWOM's persuasiveness on the receivers,

- [5] Emarketer. 2015. Facebook Users in Indonesia Have Highest Mobile Usage Rate Worldwide. Emarketer.
- [6] Emarketer. 2016b. In Indonesia, Facebook Remains the Most Popular Site. Emarketer.
- [7] 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
- [8] 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.
- [9] Giannakoss, M. N., Pateli, A.G., and Chorianopoulos, K. 2013 Investigating Facebook's acceptance and satisfaction: a study in the Greek university community. *International Journal Social and Humanistic Computing*, Vol. 2, Nos. 1/2, 2013
- [10] Wu, Mei-Ying., Chou, Han-Ping., Weng, Yung-Chien. dan 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,
- [11] 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
- [12] Hoe, S.L. 2008. Issues and procedures in adopting structural equation modeling technique. *Journal of applied quantitative methods*, 3(1), p.76-83
- [13] Kusyanti, A., Haq., 2016. "How do I look?": Self-disclosure of Instagram users in Indonesia. *Journal of Education and Social Sciences*, Vol. 5, issue 2, (October) ISSN 2289-1552
- [14] Field, A., 2009. *Discovering statistics using spss.3rd ed.* [e-book]. Sage Publications.
- [15] Chandio, F.H., 2011. Studying acceptance of online bankin information system: a structural equation model. S3. Brunel Bussiness School, Brunel University London.
- [16] Oruç, Ö.E. and Tatar, Ç. 2017. An investigation of factors that affect internet banking usage based on structural equation modelling. *Computers*
- [17] 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
- [18] 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