2nd International Conference on Computer Science and Computational Intelligence 2017, ICCSCI 2017, 13-14 October 2017, Bali, Indonesia

Analysis of Affecting Factors Technology Acceptance Model in The Application Of Knowledge Management for Small Medium Enterprises in Industry Creative

Junita Juwita Siregar[1]*, R.A. Aryanti Wardaya Puspokusumo [2], Anita Rahayu[3]

[1,3] Department of Computer Science,Bina Nusantara University, KH. Syahdan No 9, Jakarta, 11480,Indonesia ,
[2]Departmen of Busisness Management, Bina Nusantara University, Jl. KH. Syahdan No. 9, Jakarta 11480, Indonesia

Abstract

This paper explains the factors of affecting the technology acceptance model (TAM) in the application of Knowledge Management to small medium enterprises in creative economy. The objective of this research is to analyze the correlation among the perceived ease of use(PEOU) variable, voluntaries use(VU) variable, perceived entertainment value (PEV) variable, perceived usefulness (PU) variable and factor of Web usage attitude (WU) which is a factor influencing the technology acceptance model of knowledge management in small and medium enterprises. The method of research is explanatory research which aims to analyze the relationship between one variable stage above. The Data collection techniques used in this study is a questionnaire using semantic differential scale and explained the research design, data retrieval, data processing and data analysis. Data analysis used in analyzing factors of technological acceptance model (TAM) in the application of Knowledge Management in small medium enterprises in creative economy is descriptive statistics to consider a frequency distribution the size and spread of data on characteristics of the sample (respondents) and indicator variable endogenous and provide explanation of its mean value, standard deviations, variant, maximum, range, skewness and kurtosis. Statistical analysis inferential using structural equation model (SEM). The result of this paper is the technology acceptance model of knowledge management small medium enterprises influenced by the ease of use (PEOU) which will cause the advantage in using (PU) because of advantage in using the user will be willing (have willingness) in using (VU), so that have an attitude of the use of Web Knowledge Management (WU)

© 2017 The Authors. Published by Elsevier B.V.
Peer-review under responsibility of the scientific committee of the 2nd International Conference on Computer Science and Computational Intelligence 2017.

Keywords: TAM; Knowledge Management ; Web; SEM.

* Corresponding author.
  E-mail address: witas1reg4r@gmail.com

1. Background

The creative industry is an industry with renewable resources because it focuses on creating innovation and creativity that is a competitive advantage of a nation and provides a positive social impact. In contrast to the industry in the mining of oil and gas sectors that are getting longer it run out. The Creative Industry focuses on the creation of goods and services by depend on expertise, talent, and creativity as intellectual property. The creative industry is an integral part of the creative economy. According to the trade department of the republic of Indonesia the definition of creative industry is defined as "Industries derived from the utilization of creativity, skills and talents of individuals to create prosperity and employment through the creation and utilization of the creative power and creativity of the individual. The development of technology information, communication and economic globalization has encouraged human development to be creative. Industrial developments have created a cheap and efficient of work patterns, production patterns and distribution patterns. Technological developments has make people become more productive. Creative activities related to the creation , production and distribution of product made which are made by craftsmen from the initial design to the completion of the product, Includes handicrafts made of: precious stones, natural and artificial fibers, leather, rattan, bamboo, wood, metals (gold, silver, copper, bronze, iron) wood, glass, porcelain, fabrics, marble, clay, and lime . Handicraft products are generally only produced in relatively small quantities (not mass production). The Related Knowledge Management (KM), creative industry today also requires knowledge management that there on each individual within an organization or company. In principle, the concept of knowledge management can be used to improve the performance of creative industries. The purpose of Knowledge Management (KM) attempted to transfer knowledge in the form of tacit to explicit, then from explicit back to tacit knowledge, and so on to form the Nonaka's spiral. Web Application is an Implementation of Knowledge Management which will be used to store, collect, organize, synthesize individual knowledge in order to be utilized, disseminated and optimally utilized for every individual. Acceptance Model Technology Acceptance Model (TAM) is used to predict user acceptance of technology new .The Technology Acceptance Model (TAM) was developed by Davis [4] to explain computer-usage behavior.

According to the above exposure, the authors are interested in making research analysis of affecting factors technology acceptance model (TAM) in the application of knowledge management for small and medium enterprises industry creative.

2. RESEARCH METHODOLOGY

Research methodology that the author uses in this paper is explanatory research Namely research that aims to analyze the relationship between one variable with other variables or how a variable affects other variables.

2.1 Sample Selection Method

Population is the total number of units of analysis to be investigated its characteristics while the sample is part of the population that can represent the characteristics of the population. The population of this study is the business people with a total of 105. Sampling for this research is by sampling random sampling technique by purposive sampling, that is sampling based on appraisal that deserve to full fill requirement to be sample or sample determination according to research purpose (get accurate data). Each indicator item is measured using a Differential Semantic Scale.

2.2 Instrumentation

The instrument was developed by the researcher based on the objectives of the study and previous literature review. Variables used in this study are variables that not be obtained measured directly (latent variable) that is:

a.   Exogenous variables as a variable (X) consisting of
perceived ease of use (PEOU)
perceived Entertainment Value (PEV)
b.   Endogen Variable as dependent variable (Y) that is:
perceived Usefulness (PU)
Voluntariness using (VU)
Web KM Usage (WU)

2.3 Research hypotheses

According to the previously stated objectives this study tested the following hypotheses:
H1: perceived ease of use variable is expected to perceived usefulness (PU) variable

H2: perceived usefulness (PU) Variable is expected to affect voluntariness using (VU) variable
H3: perceived Entertainment Value (PEV variable is expected to Web KM Usage (WU)
H4: voluntariness using Variable be expected to Web KM Usage (WU)
H5: perceived ease of use (PEOU) Variable is expected to Web KM Usage (WU) variable

2.4 Related Work

This section will discuss some of the research that analyze about TAM :

Adnan Abd. et all [1] analyze the relationships between predictor's variable (perceived usefulness and perceived ease of use) and criterion variable which is continuance intention to use e-government.

Dumpit and Fernandez [10], analyze that perceived usefulness, perceived ease of use, subjective norm, and perceived playfulness (happiness) are robust predictors of usage behavior of students. However, Internet reliability and speed were only significant in (some) public HEIs. This evidence may be explained by the fact that information and communications technology (ICT) infrastructure in public HEIs is not a priority or underinvested in developing countries.

Gamal Aboelmaged et all[11], analyze the adoption of mobile banking through integrating Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB). The results indicated a significant positive impact of attitude toward mobile banking and subjective norm on mobile banking adoption. Surprisingly, the effects of behavioral control and usefulness on mobile banking adoption were insignificant. Furthermore, the regression results indicated a significant impact of perceived usefulness on attitude toward mobile banking while the effect of perceived ease of use on attitude toward mobile banking was not supported.

Yogesh Malhotra et al [26], analyze study establishes theoretical and empirical bases for the above conceptualization originally suggested by Davis [8] and his colleagues. The construct of social influence is operationalized in terms of Kelman's processes of internalization, identification and compliance. Analyses of field study data provide evidence of the reliability and validity of the proposed constructs, factor structures and measures. The findings enable future researchers to account for social influence in further investigating TAM.

3. Results and discussion

3.1. Descriptive Statistics Analysis

An important variation of the fundamental frequency distribution is to use its relative frequency value, composed by dividing the frequency of each class by the total of all frequencies (the number of data). For the following relative frequency formula is $= \frac{fi}{\sum fi} \; x \; 100\% \; = \frac{fi}{n} \; x \; 100\%$

Table 3.1 Frequency Distribution Number of Respondents by Variable.

Variabel	< p106		p > 105		Total
	N	%	N	%	
PEOU	47	44.07	58	55.23	105
PU	41	39.04	64	60.95	105
PEV	61	58.09	44	41.90	105
VU	45	42.85	60	57.14	105
WU	43	40.95	62	59.04	105

According to table 3.1 above the results of descriptive statistical analysis for each variable states that 58 of 105 respondents (55.23%) state that KM web usage is easy and 47 of 105 respondents (44.07%) state KM web usage is difficult. 64 of 105 respondents (60.95%) stated that KM web has advantage and 41 of 105 respondents (39.04) state that KM web is disadvantage. 61 of 105 respondents (58.09%) stated that KM web has no entertainment value and 44 respondent of 105 (41.90%) stated that have entertainment value. 60 of 105 respondents (57,14%) stated voluntariness using and 45 0f 105 respondents (42.85%) stated not willing to using (VU). 62 of 105 respondents (59.04%) stated willing to use web Usage (WU) And as many as 43 of 105 respondents (40.95 %) said not willing to use web KM.

3.2 Inferential Statistics Analysis.

Inferential analysis is done using SEM. Structural equation modeling (SEM) [3] is a statistical methodology that takes a confirmatory (i.e., hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon. Typically, this theory represents "causal" processes that generate observations on multiple variables.The term structural equation modeling conveys two important aspects of the procedure: (a) that the causal

processes under study are represented by a series of structural (i.e., regression) equations, and (b) that these structural relations can be modeled pictorially to enable a clearer conceptualization of the theory under study.

a. Univariate and Multivariate Data Normality Test

The data normality test univariate and multivariate are use skewness and kurtosis where both parameters are in each indicator of critical ratio value (c.r). At a significant level of 1%, the value of c.r between (-2.58 ≤ c.r ≤ 2.58).

Table 3.2 Ease of Using the Web variable (PEOU)

Indicator	Skewness	CR	Curtosis	cr
X1	-0.831	-3.476	-2.535	1.741
X2	-0.310	-1.298	0.927	1.940
X3	-0.433	-1.809	-0.664	-1.390
X4	-0.283	-1.6.18	0.440	0.920
X5	0.877	3.668	-0.099	-0.207
X6	-0.109	-0.456	-0.588	-1.230

According to Amos output results in the table 3.2 Assessment of Normality, the values found in the column c.r are all within a recommended value of between -2.58 ≤ CR ≤ 2.58 and thus the data is normally distributed to qualify for further data analysis.

Table 3.3 Entertainment Value variable (PEV)

Indicator	Skewness	CR	Curtosis	cr
X7	-0. 675	-2.823	0.878	1.835
X8	1.184	-4.952	0.214	0.449
X9	-0.555	-2.324	0. 690	1.443
X10	-1.384	-0.5789	0. 611	1.277

According to Amos output results in the table 3.3 Assessment of Normality, the values found in the column c.r are all within a recommended value of between -2.58 ≤ CR ≤ 2.58 and thus the data is normally distributed to qualify for further data analysis.

Table 3.4 Usesfullnes Variabel (PU)

Indicator	Skewness	CR	Curtosis	cr
Y1	-0.119	-0.498	-0.786	-1.644
Y2	-0.868	-3.632	-0.258	-0.540
Y3	0.659	2.759	0.566	1.183
Y4	0.113	0.180	0. 631	0.528
Y5	-0.228	-0.952	-1.178	-2.465
Y6	-0.528	-2.208	-0.335	-0.701

According to Amos output results in the table 3.**6** Assessment of Normality, the values found in the column c.r are all within a recommended value of between -2.58 ≤ CR ≤ 2.58 and thus the data is normally distributed to qualify for further data analysis.

Table 3.5 Usesfullnes Variabel (PU)

Indikator	Skewness	CR	Curtosis	cr

Y7	**0.** 167	0.700	-1.097	-2.295
Y8	-0.357	-1.494	-0.876	-1.832

According to Amos output results in the table 3.5 Assessment of Normality, the values found in the column c.r are all within a recommended value of between $-2.58 \leq CR \leq 2.58$ and thus the data is normally distributed to qualify for further data analysis.

Table 3. **6** Web Usage Variable (WU)

Indikator	Skewness	CR	Curtosis	cr
Y9	-0.355	- 1.486	- 0.597	-1.249
Y10	-0.593	-2.482	-0.724	-1.515
Y11	-0.952	-3.981	0.475	0.994
Y12	-0.606	-2.535	-0.633	-1.324

According to Amos output results in the table 3.**6** Assessment of Normality, the values found in the column c.r are all within a recommended value of between $-2.58 \leq CR \leq 2.58$ and thus the data is normally distributed to qualify for further data analysis.

b. Confirmatory Factor Analysis

The measurement model test, between the indicator with the construct will get relationship. If the measurement model, the test is continued on the structural model to obtain a number of correlations that show the relationship between constructs. The process of validating the measurement model requires testing each cluster of observed variables separately to fit the hypothesized CFA model. The statistical test uses the most popular procedures of evaluating the measurement model: Chi-square ($\chi2$), Goodness-of-Fit Index (GFI), and Percent Variance Explained. The percent variance explained should be calculated as the sum of the communalities (h2) divided by the number of variables (Σ h2/m) [4]. Chi-square should be divided by degrees of freedom (chi-square/df) at the expected ratio of two chi-square variables divided by their respective degrees of freedom and model fit statistics should be close to the $p < .05$ level of significance. The GFI represents the overall degree of fit, which are the squared residuals. Values of .90 or above for the GFI indicate a good fit and values below 0.90 simply suggest that the model can be improved. The model fit statistics for the measurement models should be summarized and presented in a separate table. Testing of the confirmatory factor model, however, may well be a desirable validation stage preliminary to the main use of SEM to identify the causal relations among latent variables [22]

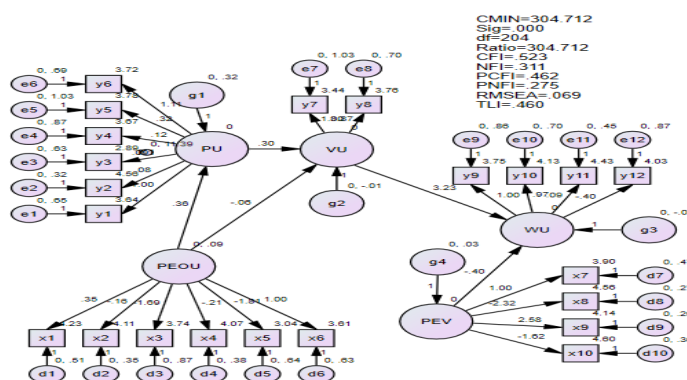## c. Equation Model Tests with Structural Model (SEM)

Figure 3.1 First Equation Model Test

Based on Figure 3.1 it can be seen that the model has a chi-square CMIN / DF value of 304.712 with 204 degrees of freedom (DF).The chi-square probability is sig (p = 0,000) which means that the model is marginal. The value of GFI obtained is 0.781. This shows that the marginal model is due to the GFI fit value> 0.90.The value of AGFI

obtained by 0.705 indicates a marginal value. The recommended value is ≥ 0.90. CMIN / DF value in the model is 304/204 = 1,493 its shows that fit model. The CFI value in the model is 0.523 that model indicates that the marginal model due to fit CFI Value is > 0.95. The TLI value in the model is 0.640, indicating that the model is marginal. The RMSEA value of the model is 0.609 indicating that the model is marginal due to the RMSEA fit value < 0.008. The theoretical model proposed in Figure 3.1 does not match the population model observed because the probability value (p) = 0.00 does not meet the requirements because the result is below the recommended value of p > 0.05. Based on the results of estimation and regression weight then modified by deleting latent variable and indicator variable which is not a valid construct for SEM model proposed.

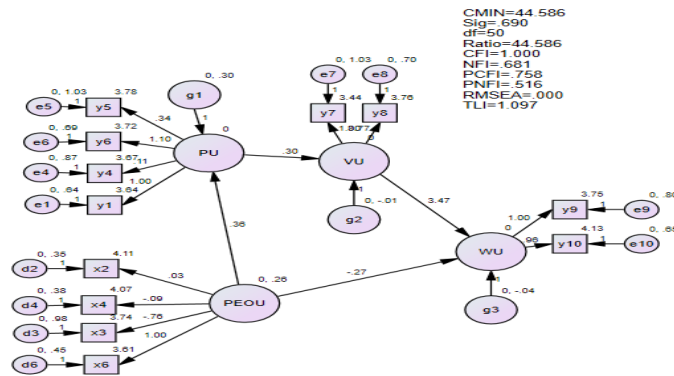**d. Last Model Equation Model Structural**

Figure 3.2 Last Model Equation Model Structural

According to the Figure 3.2 Based on the 8 parameters of the goodness of fit index value the seven goodness of fit parameters are good, so it can be said that the overall SEM model is fit (there is a suitability between the model and the data) although AGFI is accepted marginally.

e. Model Conformity Test

Test of Conformity Model In accordance with the objectives of the research will be tested using a model of structural equations through AMOS Software 18.0, based on the existing theoretical framework. The test results on the model presented in figure 3.2, give the following results:

Table 3.7 Confirmatory Factor Analysis

Sizeof Conformity	Critical Limit	Result Model	explanation
Absolut Fit Measures			
Chi-Squres x^2	$<x^2 \alpha$;df	44.586	Good
CMIN/DF	<= 2.0	0.892	Good
Probability	> 0.05	0.690	Good
GFI	> 0.90	0.945	Good
RMSEA	< 0.08	0.000	Good
Incremental Fit Measeure			
AGFI	>0.90	0.905	Good
TLI	>0.95	1.097	Good
NFI	>0.90	0.816	Marginal
CFI	>0.95	1.000	Good
Parsimonious Fit Measures			
PNFI	>0.60	0.516	Marginal
PGFI	>0.60	0.758	Good

According to Amos Output in the Table 3.7 The result of evaluation of goodness of fit index can be seen in The result of model conformity testing shown Table 3.7.Tthe model has a chi-square CMIN / DF value of 44.586 with 50 degrees of freedom (DF).The chi-square probability is sig (p = 0, 690) which means that the model is fit. The value of GFI obtained is 0.90. This shows that the fit model is due to the GFI fit value > 0.90 The value of AGFI obtained

by 0.905 indicates a fit model. The recommended value is ≥ 0.90 CMIN/DF value in this model is $44.586/50 = 0.891$ it's show that fit model. The CFI value in the model is 1.000 its indicates the fit model due to fit CFI Value is > 0.95. The TLI value in the model is 0.640, indicating that the model is marginal. The RMSEA value of the model is 0.000 indicating that the model is fit due to the RMSEA fit value < 0.008.

f. Hypothesis Test

The Formula of Variabel laten Exogen $H_{0:}\gamma_{n=0};$ No Influence (Accept H0)
$H_{1:}\gamma_{n\neq0};$ Influence (Reject H0)

The Formula of Variabel laten Endogen $H_{0:}\beta_{n=0};$ No Influence (Accept H0)
$H_{1:}\beta_{n\neq0};$ Influence (Reject H0)

Table 3.8 Result **Hypothesis Test**

Hypothesis	P	Result
H1 : (PEOU – PU)	***	Reject H0
H3 : (PU - VU)	0.000	Reject H0
H4: (VU – WU)	0.000	Reject H0
H5: (PEOU –WU)	***	Reject H0

According to the Amos Output in Table 3.8 All Probability (Sig) Results of Hypothesis value < 0.05 can be explained that (H1) The Perceived Ease of Use (PEOU) has an influence on Perceive Usefulness (PU). (H2) Perceive Usefulness (PU) has an influence on Voluntariness Using (VU). (H3) Voluntariness Using (VU) has an influence on Web Usage (WU) and (H4) that PEOU has an influence on Web Usage (WU).

Limitation

- Technology Acceptance Model in a professional context has several limitations. The constructs included in the research model was basically drawn from prior TAM studies.
- Non normal data can lead to estimation problems and unreliable results.
- Small sample size is unreliable as parameter estimation (variances, regression coefficients and covariances among variables is often done by Maximum Likelihood (ML), which assumes normality among the indicator variables.

CONCLUSION

In this research, the author concluded the following :

Based on the results of data processing and analysis obtained, the authors concluded factors that affect the acceptance of technology on the implementation of knowledge management on small and medium enterprises are as follows:

The result of this paper is the technology acceptance model of knowledge management small medium enterprises influenced by the ease of use (PEOU) factor which will cause the advantage in using of using web knowledge management (PU) then user will be willing (have willingness) in using (VU), so that have an attitude of the use of Web Knowledge Management (WU). The Utilization of web technology as a repository of knowledge management on small medium enterprises in industry creative should be analysing first against the needs of users to prevent system failure.

The author's recommendations in this research are:

In the future research for the population used can be focused on one creative industry such as fashion. In addition to the variables studied in the present study, the model can be extended by adding other related variables such as other socio economic variables. Further research is needed to test the methodologically approach to facilitate analysis in succes factor implementing knowledge management web for small medium enterprise industry creative research through SEM

REFERENCE.

1. Adnan Abd. Hamida , Fahmi Zaidi Abdul Razakb , Azlina Abu Bakarc , Wan Salihin Wong Abdullahc (2015),"The Effects Of Perceived Usefulness And Perceived Ease Of Use On Continuance Intention To Use

E-Government ",7th International Economics & Business Management Conference, 5th & 6th October.

2.   Beverly Hills, CA: Sage. MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. Psychological Methods, 1, 130–149.

3.   Barbara M. Byrne (2010)",Structural Equation Modeling With AMOS: Basic Concepts, Applications, and Programming", 2nd edition, Routledge Taylor & Francis Group 270 Madison Avenue New York,

4.   Bentler, P. M. (1999). Structural equation modeling with small samples: Test statistics. Multivariate Behavioral Research, 34(2) 181-197.

5.   Browne, M., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A.

6.   Cooper, Robert G., & Kleinschmidt, Elko J. (1985). The impact of export strategy on export sales performance. Journal ofInternational Business Studies, 3, 7-55. NY 10016

7.   Dalkir, Kimiz(2011). Knowledge Management in Theory and Practice. The MIT Press.

8.   Davis, F. D (1986). "A Technology Acceptance Model for Empirically Testing New EndUser Information Systems: Theory and Results," in MIT Sloan School of Management. Cambridge, MA: MIT Sloan School of Management,

9.   Davenport, Thomas, and Laurance Prusak. (1998) .*Working Knowledge : How Organisation Manage What They Know.* Harvard Busisnes School Press, Boston.

10. Dumpit and Fernandez (2017) ."Analysis of the use of social media in Higher Education Institutions (HEIs) using the Technology Acceptance Model", International Journal of Educational Technology in Higher Education 14:5 DOI 10.1186/s41239-017-0045-2.

11. Gamal Aboelmaged and Tarek R. Gebba (2013)),"Mobile Banking Adoption: An Examination of Technology Acceptance Model and Theory of Planned Behavior Mohamed", International Journal of Business Research and Development ISSN 1929-0977 | Vol. 2 No. 1, pp. 35-50.

12. Nonaka, Ikujiro and Takeuchi H.(1995). *The Knowledge Creating Company : How Japanese Companies Create the Dynamic In Inovation*. Oxford University Press.

13. Kaplan, D. (2000). Structural equation modeling: Foundations and extensions. Thousand Oaks, CA: Sage. Kline, R. B. (2005). Principles and practices of structural equation modeling (2nd ed.). New York: Guilford Press.

14. Kline, R. (2005). Principles and practices of structural equation modeling (2n ed.). New York: Guilford Press.

15. Long, J. S. (1983). Confirmatory factor analysis: A preface to LISREL. Beverly Hills, CA:

16. Mohamed Gamal Aboelmaged* and Tarek R. Gebba Al Ghurair (2013) "Mobile Banking Adoption: An Examination of Technology Acceptance Model and Theory of Planned Behavior " , International Journal of Business Research and Development ISSN 1929-0977 | Vol. 2 No. 1, pp. 35-50

17. Park, S. Y. (2009). "An Analysis of the Technology Acceptance Model in Understanding University Students" *Behavioral Intention to Use e-Learning*. Educational Technology & Society, 12 (3), 150–162.

18. Sage. Long, J. S. (1983). Covariance structure models: An introduction to LISREL.

19. Steiger JH. 1999. Structural equation modeling (SEPATH). In Statistica for Windows, Vol. 3. Tulsa, OK: StatSoft

20. S. Kocakaya and F. Kocakaya (2014)," A Structural Equation Modeling on Factors of How Experienced Teachers Affect the Students", Science and Mathematics Achievements. Education Research International Volume, Article ID 490371.

21. Sobel, Michael E. (1982). "Asymptotic confidence intervals for indirect effects in structural equation models. In Samuel Leinhardt (Ed.)", Sociological methodology (pp. 290-293). San Francisco: Jossey-Ba.

22. Schumacker, R. Lomax, R. (2004). A Beginner's Guide to Structural Equation Modeling 2nd Ed. Mahwah, NJ: Lawrence Erlbaum

23. Rahmath Safeena, Hema Date, Nisar Hundewale, and Abdullah Kammani 2013, "Combination of TAM and TPB in Internet Banking Adoption,International ,"Journal of Computer Theory and Engineering, Vol. 5, No. 1, February.

24. R. Rauniar, G. Rawski, J. Yang, and B. Johnson (2014), "Technology acceptance model (TAM) and social media usage: an empirical study on Facebook," Journal of Enterprise Information Management, vol. 27, no.1, pp. 6–30.

25. V. Yılmaz, H. E. C¸ elik, and E. H. Ekiz (2006), "Investigation of the factors that affect the Authority's Commitment with structural equation modeling; a sample of bank of primary and government," Journal of Social Sciences, vol. 2, pp. 171–184, (Turkish).

26. Yogesh Malhotra , Dennis F. Galletta (1999),"Extending the Technology Acceptance Model to Account for

Influence: Theoretical Bases and Empirical Validation", Proceedings of the 32nd Hawaii International. Conference on System Sciences –