

The Relationship Between PU and PEOU Towards the Behavior Intention in New Student Placement (NSP) System of Senior High School in Banjarmasin, South Kalimantan, Indonesia

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ABSTRACT

Since 2004 year, Indonesian education recruitment new student system changes from manual to computer base, namely new student placement (NSP) system. NSP System has become effective way to reach the majority of new student especially in senior high school (SHS). The purpose of this paper is to determine the pattern of technology acceptance model (TAM) towards behavior intention to use in NSP system of SHS in Banjarmasin South Kalimantan Indonesia. A set of working hypothesis pertaining to the relationship between TAM and behavior were drawn from configurationally acceptance behavior of NSP System framework emphasizing a linkage between TAM and behavior. This paper's conceptual model and specific hypothesis were tested using factor analysis and regression with 126 sample respondents of committee member of new student recruitment from 18 state SHS in Banjarmasin. This study contribute the education new students recruitment in improving the NSP system hence the committee members (users) would have positive acceptance towards the system.

Keywords: Acceptance, Behavior, NSP system, TAM.

INTRODUCTION

The pace of development in Indonesia in this century focuses on aspects of the utilization of Information Technology (IT). In order to follow the fast development of IT and implementation autonomy to regions that are starting today so Indonesia as one of the great potential for progress, certainly do not want to be left behind by countries in the region of Southeast Asia.

Survey results in 2008 years shows Indonesia is still far behind when compared to Malaysia and Singapore where Indonesia is located on level 36 in mathematics (TIMMS, 2008). This is in line with that expressed by Sukardika (2001) that the quality of education in Indonesia is currently at the level below, especially when compared to neighbouring ASEAN countries. One cause is when planning education is not founded by a good implementation of Information Technology (Dalle, 2007). For example, technology implementation, especially in management education is still at very low levels. Technology can facilitate tasks and work management education (Hjetland,

1995). It also can ensure the situation where the information obtained by users is accurate, relevant and easy (Rahmad Sukor & Moh. Subhi, 2001).

In the case of the utilization of technology in order to achieve management excellence, the Malaysian government has taken initiatives to further develop ICT in education (Abdul Manaf, 2006). These include implementation of new system of student admission application online for boarding schools, technical and tertiary institutions. In Indonesia, a new registration application online student is being actively pursued. Starting in 2003, the Department of Education Indonesia adopts a system that can help placing new students by online. However, implementation of information systems (IS) has shown that a whole lot of problems faced and must be addressed.

Among the problems that occur is failure of the system known as PSB Online (New Student Placement (NSP) System) to place students in schools of their choice (Dalle, 2006). Other problems occur one is counting score criteria students until the students failed to cause a place of study (Vitri, 2006; Kompas, 2006; Tempo Interaktif, 2006; Adi, 2007). System was also found not provide service as expected by its user community (Tempo Interaktif, 2006; Padang Ekpres, 2007). In addition, studies Vitri (2006) and Irfiandi (2007) found that successful implementation of new system of registration for students online in Indonesia is very low because the system does not meet the requirements of users Padang Ekpres, 2007; Tempo Interaktif, 2006). This view is in line with the opinion Flaatten et al. (1989) and Glass (1992).

Evaluation studies done by IS general acceptance of users. Studies relating to the acceptance of user acceptance of technology in the education domain have been done in many different countries like the United Kingdom (UK), United States of America (USA), and Japan. But in Indonesia, such as the study is still in a low level (Tempo Interaktif, 2006; Padang Ekpres, 2007). Therefore, user acceptance studies (Davis, 1989; King & Gribbins, 2002) needs to be done because it is an important step in ensuring the relation of PU, PEOU, and BIU in using NSP system as the objective of study.

LITERATURE REVIEW

Faulkner (1998) state that the use of technology acceptance in the case describe the relationship between product and consumer in the process to ensure the product (software or system) become more effective and efficient while implementing and improving specific tasks in specific environments. According to Shackel (1991) consumerism a system that can be defined as the ability of words, the function of man to use easily and effectively by a group of users who have given special training and help users to complete a task in a particular environment scenario. While Preece et al. (2007) also use the facilities in the state where a system that can be learned or used, its safety features, efficiency and effectiveness and user opinion against him. Consumerism is a system that must meet the following criteria: easy to learn, easy to remember, efficiency, and satisfaction treasure user (Nielsen & Mack, 1994).

Various models have been built to analyze and understand the factors that influence the acceptance of computer technology (Rogers, 1995). These models between the Theory of Reasoned Action (TRA) and the Technology Acceptance Model (TAM). King and Gribbins (2002) states that in 1975, Fishbein and Ajzen theory has been developed that can help researchers in the field of IS to anticipate the attitude and behavior of individuals. Davis (1989) in building TAM adopts TRA as a basis for explaining the acceptance of technology will be used by users of technology.

The purpose of TAM is a model to explain the main factors of the behaviour of user acceptance of the use of IS itself. Van der Heijden (2004) describes the TAM as a parsimonious, theoretically and empirically justified model intended to explain the acceptance of information systems. TAM model explained in more detail with IS receiving certain factors that affect enrolments IS easily by the user (Fahmi, 2004). This model factors placing attitude from every user with the behaviour of two variables, namely the use of perception (perceived usefulness) and applied research facilities (perceived ease of use) (refer figure 1).

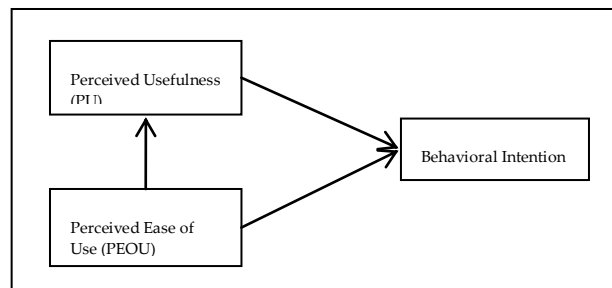


Figure 1. Technology Acceptance Model (TAM) (Davis, 1989)

Figure 1 shows both the TAM model variables and use facilities applied to explain aspects of user behaviour (Davis, 1989). Therefore, TAM model can explain the perception that user attitudes will determine the acceptance of the use of IS. This more detailed model that describes the use of IS affected by the acceptance and use of facilities applied. Both have a high Determining and validity have been tested by empirical (Chau, 1996; Davis, 1989).

Perceived Usefulness (PU)

PU is the level at which a user is confident the system will enhance the work (Davis, 1989; Adams et al., 1992). Davis (1989) suggested the use of dimension contains three parts: the implementation of work, productivity and time savings. Which means, by using the IS application users can perform their work more quickly, enhance and facilitate productivity work and more useful (Fahmi, 2004). Thompson et al. (1991, 1994) stated that PU is the benefits system that is expected by the user in implementing the system task. Thomas and Fisher (1996) suggested PU system based on the extensive functionality, providing the information interesting and relevant.

In addition, Hubona and Blanton (1996) proposed the implementation of work relating to the PU can be improved with the format of information

indicated by the user interface. Therefore, it is the need for content related to the required user information. The statement agreed by Fuhr et al. (2007) says that PU systems correlate with each other and user content component information.

Perceived Ease of Use (PEOU)

PEOU is the level at which the user believes that using the system will save energy (Davis, 1989). According to Goodwin (1987) and Silver (1988), frequency of use and interaction between the user and the system can show the ease of use. System that more often adopted showed that the system better known and more easily adopted by users (Fahmi, 2004).

Behavioral Intention to Use (BIU)

Behavioral intention to use the orientation behavior to keep using a. The level of use of computer technology on a predictable one attention from the attitude toward technology, such as the desire to add peripherals support, the motivation to continue to use, and the desire to motivate others (Malhotra & Galleta,1999). Researchers further stated that his concern is to use a good prediction to determine actual usage.

Research Model and Hypotheses

According to literature review in order to determine the applicability of the Technology Acceptance Model a series of hypotheses were developed. The model and factors explored include the original factors of the Davis (1989) work, PU and PEOU and include factors from later work BIU (Malhotra & Galleta, 1999). Figure 2 show the research model which use in building hypotheses.

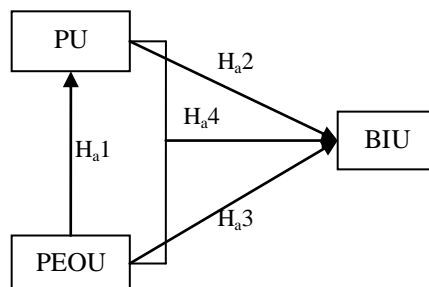


Figure 1. Research Model

According to Figure 1, four alternative hypotheses were developed based on the findings of previous research on this subject.

- Ha1 : PEOU will have a positive effect on PU
- Ha2 : PU will have a positive effect on BIU
- Ha3 : PEOU will have a positive effect on BIU
- Ha4 : PU and PEOU together will have a positive effect on BIU

RESEARCH METHODOLOGY

This research was done by instrument which consists of a three-part questionnaire that was modified from TAM (Davis, 1989) in order to gather information regarding demographics, PU, PEOU, and BIU.

This research was done in South Borneo Indonesia on 17 of State of Senior High School which has 170 teachers as committee member of NSP as the population of this research. The sample of this research are 126 respondents which taken by random sampling. Data in this research was analyzed using SPSS 15.

The demographics profile of respondents is given in table 1. From Table 1, it can be seen that 81% of respondents are male whereas only 19% of them are Female. Majority of respondents are 36-40 years age group which is 33.3% followed 31-35 years which is 29.4% and > 40 year which is 22.2%. Another 12.7% and 2.4% of respondents fall in the categories ≤ 25 year and 26-30 year. The education levels of respondents are 73% from undergraduate, 17.5% from diploma, and 9.5% from graduate.

Table 1. Demographic Profile

		Frequency	Percent (%)
Gender	Male	102	81,0
	Female	24	19,0
Age	<= 25 year	16	12,7
	26-30 year	3	2,4
	31-35 year	37	29,4
	36-40 year	42	33,3
	> 40 year	28	22,2
Education	Diploma	22	17,5
	Undergraduate	92	73,0
	Graduate	12	9,5

RESULT AND DISCUSSIONS

Factor analysis with Varimax rotation was performed to analysis the data for validating the instrument. As showed in table 2, the results show three factors for PEOU, PU, and BIU. The total of variance explained was 68.141% with factor loading for each item of PEOU, PU, and BIU greater than 0.5 (Igbaria, 1995; Hair et al., 2007). The Cronbach alpha for each PEOU, PU, and BIU were 0.880, 0.914, and 0.887 providing strong support for its three dimensions.

Table 2. Factor and reliability analysis of research variables

Variables		Factors		
		1	2	3
PEOU	PEOU1	0.778	0.109	0.198
	PEOU2	0.844	0.085	0.095
	PEOU3	0.892	0.137	0.182
	PEOU4	0.829	0.079	0.189
	PEOU5	0.815	0.081	0.093
	PEOU6	0.726	0.242	0.156
PU	PU1	0.248	0.511	0.095
	PU2	0.286	0.646	0.176
	PU3	0.008	0.869	0.207
	PU4	0.079	0.855	0.146
	PU5	0.029	0.857	0.192
	PU6	0.113	0.848	0.133
BIU	BIU1	0.187	0.418	0.736
	BIU2	0.133	0.144	0.872
	BIU3	0.167	0.167	0.780
	BIU4	0.106	-0.060	0.670
	BIU5	0.246	0.373	0.677
	BIU6	0.176	0.416	0.731
Variance (68.141%)		16.506	10.686	40.949
Eigenvalue		2.971	1.924	7.371
Cronbach's Alpha		0.880	0.914	0.887

H_{a1}: PEOU will have a positive effect on PU

PEOU have a positive effect on PU, to test this hypothesis, a linear regression was used whereby PU was taken as the dependent variable and PEOU as the independent variable. Table 3 and Table 4 shows summary of the regression that was performed. From Table 3, it can be seen that R² value of 0.107 suggests that 10.7% of the variance in PU is explained by PEOU. Moreover, from Table 4 the Standard coefficients beta value of 0.327 with sig less than 0.05 suggest that PEOU directly influences PU significantly. Thus, hypothesis H_{a1} is fully supported.

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.327(a)	0.107	0.100	0.77024

a Predictors: (Constant), PEOU

Table 4. Regression Analysis Coefficients(a)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	B	Std. Error
1 (Constant)	2.940	0.330		8.916	0.000
PEOU	0.305	0.079	0.327	3.855	0.000

a Dependent Variable: PU

H_{a2}: PU will have a positive effect on BIU

PU have a positive effect on BIU, similarly to previous hypothesis, a linear regression was used whereby BIU was taken as the dependent variable and PU as the independent variable. Table 5 and Table 6 shows summary of the regression that was performed. From Table 5, it can be seen that R² value of 0.266 suggests that 26.6% of the variance in BIU is explained by PU. Moreover, from Table 6 the Standard coefficients beta value of 0.515 with sig less than 0.05 suggest that PU directly influences BIU significantly. Thus, hypothesis H_{a2} is fully supported.

Table 5. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.515(a)	0.266	0.260	0.62367

a Predictors: (Constant), PU

Table 6. Regression Analysis Coefficients (a)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	B	Std. Error
1 (Constant)	2.353	0.293		8.036	0.000
PU	0.460	0.069	0.515	6.695	0.000

a Dependent Variable: BIU

H_{a3}: PEOU will have a positive effect on BIU

Moreover, to test whether PEOU have a positive effect on BIU, a linear regression was also used whereby BIU was taken as the dependent variable and PEOU as the independent variable. Table 7 and Table 8 shows summary of the regression that was performed. From Table 7, it can be seen that R² value of 0.178 suggests that 17.8% of the variance in BIU is explained by PEOU. Moreover, from Table 8 the Standard coefficients beta value of 0.422 with sig less than 0.05 suggest that PEOU directly influences BIU significantly. Thus, hypothesis H_{a3} is fully supported.

Table 7. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.422(a)	0.178	0.171	0.65987

a Predictors: (Constant), PEOU

Table 8. Regression Analysis Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	2.847	0.283		10.076	0.000
	PEOU	0.351	0.068	0.422	5.178	0.000

a Dependent Variable: BIU

H_{a4}: PU and PEOU together will have a positive effect on BIU

Last hypothesis whether PU and PEOU have a positive effect on BIU, a linear regression was used whereby BIU was taken as the dependent variable and PU and PEOU as the independent variable. Table 9 and Table 10 shows summary of the regression that was performed. From Table 9, it can be seen that R² value of 0.337 suggests that 33.7% of the variance in BIU is explained by PU and PEOU. Moreover, from Table 10 the Standard coefficients beta value of 0.423 with sig less than 0.05 suggest that PU directly influences BIU significantly and also the Standard coefficients beta value of 0.283 with sig less than 0.05 suggest that PEOU directly influences BIU significantly. Thus, hypothesis H_{a4} is fully supported.

Table 9. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.581(a)	0.337	0.326	0.59484

a Predictors: (Constant), PEOU, PU

Table 10. Regression Analysis Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	1.738	0.326		5.325	0.000
	PU	0.377	0.069	0.423	5.440	0.000
	PEOU	0.236	0.065	0.283	3.649	0.000

a Dependent Variable: BIU

According to the result of hypothesis testing, as predicted, the relationship between PU and PEOU is found positive which explicitly states that view PU of NSP System, either basic or advance, through the lens how easily the NSP System could be learnt. PU and PEOU found to have significant influence on BIU when performing task in new student registration at SHS.

CONCLUSION

Results factor analysis showed that the measurement instrument used is valid to measure PU, PEOU, and BIU. In addition, test results showed that the reliability of the three variable PU, PEOU, and BIU showed a high reliability.

Use NSP System among the committee showed PU influenced by PEOU. In addition, the PU and PEOU influence BIU. Therefore, factors in the TAM indeed show the test results with appropriate studies before.

REFERENCES

- Abdul Manaf, B. (2006). *Isu-isu kontemporer koridor raya multimedia: Aplikasi teknologi pengurusan*. Petaling Jaya, Selangor: Prentice Hall, Pearson Malaysia.
- Adams, D., Nelson, R., & Todd, P. (1992). Perceived usefulness, ease of use, and usage of information: A replication. *MIS Quarterly*, 16 (2), 227-247.
- Adi, S. (2007). *PSB-online di Bojonegoro membingungkan*. Retrieved July 18, 2007, from Kompas: <http://www.kompas.com>
- Albaum, G. (1997). The Likert scale revisited: An alternate version. *Journal of the Market Research Society*, 39, 331-349.
- Chau, P. K. (1996). An empirical assessment of a modified technology acceptance model. *Journal of Management Information Systems*, 13 (2), 185-204.
- Dalle, J. (2006, September 3). *Memahami PSB online*. Retrieved September 7, 2007, from Banjarmasin Post: www.indonesia.com
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13 (3), 319-340.
- Fahmi N. N. (2004). Teknologi informasi berdasarkan aspek perilaku (behavior aspect). *USU Digital Library* .
- Faulkner, C. (1998). *The essence of Human-computer interaction*. Prentice Hall.

- Fitzgerald, B., Russo, N., & Stolterman, E. (2002). *Information systems development - methods in action*. London: McGraw Hill.
- Flaaten, P., McCubbrey, D., O'Riordan, P., & Burgess, K. (1989). *Foundations of business system*. Chicago: Dryden Press.
- Fuhr, N., Tsakonas, G., Aalberg, T., Agosti, M., Hansen, P., Kapidakis, S. (2007). Evaluation of digital libraries. *International Journal on Digital Libraries*, 8 (1), 21 - 38.
- Glass, R. (1992). *Software sonflict: Essays on the art and science of Software engineering*. New Jersey: Yourdan Press, Prentice Hall, Engle Wood Cliffs.
- Goodwin, N. (1987). Functionality and usability. *Communications of the ACM*, 30 (3), 229-233.
- Hair, J. F., Money, A. H., Samouel, P., & Page, M. (2007). *Research methods for business*. West Sussex: John Wiley & Sons, Ltd.
- Hjetland, T. (1995). *Technology and special education classroom*. Retrieved Ogos 11, 2008, from <http://www.eric.ed.gov>
- Hubona, G., & Blanton, J. (1996). Evaluating system design features. *International Journal of Human-Computer Studies*, 44 (1), 93-118.
- Igbaria, M. (1990). End-user computing effectiveness: A structural equation model. *Journal of Management Science*, 18 (6), 637-652.
- Irfiandi. (2007). *Kebijakan desentralisasi pendidikan*. Padang: Diknas Kota Padang.
- King, R. C., & Gribbins, M. (2002). Internet technology adoption as an organizational event. *An Proceedings of the 35th Hawaii International Conference on System Sciences*.
- Kompas. (2006, July 8). *Penerimaan siswa baru di Jakarta kacau*. Retrieved Ogos 5, 2006, from Kompas: www.kompas.com
- Malhotra, Y., & Galletta., D. F., (1999). Extending the Technology Acceptance Model to Account for Social Influence: Theoretical Bases and Empirical Validation. *Proceedings of the 32nd Hawaii International Conference on System Sciences Proceedings of the 32nd Hawaii International Conference on System Sciences* (pp. 1-14). Hawaii, US: IEEE.
- Nielsen, J., & Mack, R. L. (1994). *Usability inspection methods*. New York: NY: John Wiley & Sons.
- Padangekpres. (2007). *Pendaftaran ulang 9-12 Juli 2007*. Retrieved July 15, 2007, from Padang Ekpres: <http://www.padangekpres.co.id>
- Preece, J., Rogers, Y., & Sharp, H. (2007). *Interaction Design: beyond human-computer interaction* (2nd ed.). USA: John Wiley & Sons, Inc
- Rahmad Sukor, A. S., & Mohd Subhi, M. (2001). Teknologi maklumat dan komunikasi. *Issues in Education*, 24, 109-123.
- Rogers, E. M. (1995). *Diffusion of innovations*. New York.
- Shackel, B., & Richardson, S. (1991). *Human factors for informatics usability*. Cambridge: Cambridge University Press.

- Silver, M. (1988). User perceptions of decision support system restrictiveness: an experiment. *Journal of Management Information Systems*, 51–65.
- Sukardika, K. (2001). Pendidikan dalam Rangka Otonomi Daerah. Pendidikan dalam Rangka Otonomi Daerah. Dalam: Rancangan Induk Pengembangan Sistem Informasi Pendidikan Luar Biasa. Jakarta: Diknas
- Tempointeraktif. (2006, July 7). *Sistem rusak, siswa gagal daftar SMA*. Retrieved August 9, 2006, from Tempointeraktif: www.tempointeraktif.com
- Thomas, C., & Fisher, G. (1996). *Using agents to improve the usability and usefulness of the World-Wide Web*. Retrieved September 19, 2007, from <http://www.um.org>
- Thompson, R. L., Higgins, C., & Howell, J. (1991). Personal computing: Toward a conceptual model of utilization. *MIS Quarterly*, 15 (1), 125-143.
- Thompson, R., Higgins, C., & Howell, J. (1994). Influence of experience on personal computer utilization: Testing a conceptual model. *Journal of Management Information Systems*, 11 (1), 167-187.
- TIMSS. (2007). *Highlights From TIMSS 2007: Mathematics and Science Achievement of U.S. Fourth-and Eighth-Grade Students in an International Context*. Institute of Education Sciences.
- Van der Heijden, H. (2004). User acceptance of hedonic information systems. *MIS Quarterly*, 28 (4), 695–704.
- Vitri, D. K. (2006). Evaluasi kelayakan program layanan penerimaan siswa baru (PSB) online tingkat SMUN/SMKN di Kotamadya Bandung. *STT Telkom Library*, 2-3.