What Affect Perceived Ease of ICT Usage: the Case of Village Development and Security Committee Members in Malaysia

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Abstract: Rural development and ICT cannot be separated in this modern days. Malaysia is well known with its effort to strengthen its ICT development and interestingly the rural community is one of the main targets of such developments. Rural community must be encouraged to continuously use ICT in their daily life. However, before the community is encouraged to use the ICT, are their leaders Village Development and Security Committee Members use ICT? How they perceive the ease of ICT usage? What are the factors that influence Village Development and Security Committee members perception towards ease of use in using ICT? This paper attempts to answer the above question which will uncover factors that determining Village Development and Security Committee members perceived ease of ICT usage. This is a quantitative study where a set of questionnaire was employed for the data collection process. A total of 240 respondents among Village Development and Security Committee members were selected. The respondents were selected from four states in Malaysia namely Kedah, Terengganu, Perak and Johor. Results from data analyses revealed that job relevance, self efficacy, compatibility and attitude recorded a high and significant relationship with perceived ease of ICT usage. Further insight into the analysis unveiled job relevance as the most significant factor towards perceived ease of ICT usage. In order to create a positive perceive ease of ICT usage among the Village Development and Security Committee, it is recommended that ICT learning session with the assistance of related agencies officers should be established within all the Village Development and Security Committee Members. On top of it, language is among the top matters that should be stressed in order to enhance Village Development and Security Members perceived ease of ICT usage.

Key words: Information and Communication Technology, perceived ease of use, village administrator, rural development, community development,

INTRODUCTION

Malaysia is well known with its efforts to develop the rural community with a number of high impact programs. Agriculture project is one of the instruments used by the government to develop the rural areas (Hayrol et al., 2010). Nevertheless, Information Communication Technology (ICT) has emerged as one of the tools used all over the world including Malaysia to develop the rural areas. The ICT development has been the main focus of the Malaysian government since the 6th Malaysia Plan. However the focus by that time was ICT in the manufacturing sector. Then, realizing its importance, the Malaysian government has started to transfer the ICT focus to the community. The establishment of National Information Technology Congress (NITC) was entrusted to strengthen the socio-economic of the Malaysian community through the use of ICT. The development of the ICT was further strengthened through the establishment of a number of ICT projects within the 7th Malaysia Plan, 8th Malaysia Plan and the 9th Malaysia Plan. Within these developments periods, projects such as National Information Technology Agenda (NITA), Multimedia Super Corridor (MSC), Multimedia University (MMU), Rural Internet Center (PID), Rural Info Center (MID) and Malaysian Information and Communication Services (MyICMS) were established. While in the recent 10th Malaysia Plan, the importance of ICT in the development of this country is highly empasized. In this period, ICT was selected as one of the NKEAs (one of the 12 identified National Key Economic Areas designed to build the foundation of 10th Malaysian Plan). Besides these great ICT projects and initiatives undertaken by the government, are the rural community especially their leaders who are Village Development and Security Committee (VDSC) members use ICT? One of the pertinent questions is how do these VDSC members

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perceive on the ease of ICT usage?

VDSC is a very important institution mobilized by the government to develop the rural communities. It was established almost 50 years ago and now still continue its significant roles in assisting the government to develop the rural community. The establishment of Village Development and Security Committee security is in accordance to Order No 3, Plan on Country and Rural Development 1962. Whatever the development programs that are needed by the rural community will be channeled through VDSC which responsible to plan and evaluate the community needs. In addition, VDSC is also responsible to unite the rural community, develops the rural community as a successful community, keep the living areas clean and attractive, develops the community social aspects, develops the economic aspects and drives the rural community towards the concept of Village Vision Movement (VVM). A number of transformations have been implemented in order to strengthen the functions and roles of VDSC to ensure that the attainment of its targeted goal. Encouraging ICT usage among the rural community is also one of the important roles of VDSC. Before exposing ICT to the rural community, they must first be equipped with the ICT knowledge and skills. One of the important keys to have a good ICT knowledge and skills is to have a positive percept ease of ICT usage.

According to Meso et al. (2005), perceived ease of use and perceived usefulness, greater reliability of the technology and easier access to ICT are among the contributor for greater confidence thus create greater usage of ICT. As rural communities level of ICT usage depends largely on how frequent they use ICT, providing easier access should contribute to the high level of ICT usage among rural community especially among VDSC members. Furthermore, the available literatures related to ICT usage provide evidence on the influence of perceived ease of use on intention to use ICT (Argawal and Prasad, 1999; Hu et al. 1999 and Venkatesh and Morris, 2000). This is not surprising as a number of past studies also found perceived ease of use effects on intention to use ICT (Venkatesh and Davis, 1996). When community perceived that ICT is easy to use, it will drive towards a consistent usage of ICT. Based on the literatures, it proves that perceived ease of use is an important factor for ICT usage, but on the other side, what are the factors that influence perceived ease of ICT usage? Are perceived usefulness, job relevance, compatibility, self-efficacy, attitude and subjective norm do have an influence on perceived ease of ICT usage? The answer for this question will fulfill the main objective of this paper which is to discover the factors that affect perceived ease of ICT usage.

MATERIALS AND METHOD

A stratified random sampling was employed to select the respondents in this study. Four zones in Malaysia have been included in this study namely northern, east coast, central and southern. Each of the zone was represented by the state with the highest number of VDSC members which were Kedah (northern), Terengganu (east coast), Perak (central) and Johor (southern). Then, the state was represented by a district with the highest number of VDSC members which comprised Kota Star (Kedah), Kuala Terengganu (Terengganu), Kinta (Perak) and Batu Pahat (Johor). Each of these four districts was represented by 6 randomly selected VVM villages (2 grade A villages, 2 grade B villages and 2 grade C villages). Each of the village was represented by 10 VDSC members. So, the overall respondents selected were 240.

The instrument designed was first pre tested for its reliability. The reliability of measuring instruments is the degree of consistency with which it measures whatever is measuring. The pre test of this study was conducted in 2 VVM villages at the district of Kuala Selangor. A total of 30 VDSC members were involved in the pre test. Result of the pre test revealed a Cronbach Alpha value of .994, indicating that the instrument used result a good level in term of reliability.

Face to face interview conducted by trained and experienced enumerators was employed for the data collection. The respondents were given a 10 point Likert-like scale for each of the questions asked to them. Data were analyzed using the SPSS. Descriptive statistics such as frequency, percentage, mean and standard deviation were employed to reveal the general data of the study while inferential statistics such Pearson product moment correlation and Multiple Linear Regression were performed to determine the relationship that might occur between the independent variables and dependent variable.

The dependent variable for this study is the perceived ease of ICT usage while there were six independent variables included in this study namely self-efficacy, attitude, compatibility, job relevance, subjective norm and perceived usefulness.
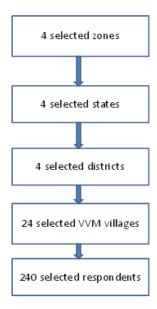
Fig. 1: Tthe way the respondents being selected.

Results:

Table 1 displays the background data of the respondents. The results revealed that the majority of the respondents were male (82.1%). The mean score for age was 50.0 years. About one third of the respondents (34.2%) were categorized as those whose age range between 41-50 years while another 19.6% were in the >60 years age group. Slightly more than one fifth of the respondents (20.4%) were identified to posses university and pre university level of education. More than one third of the respondents (35.5%) were self-employed. The mean score recorded for income per month was RM1507.90 while majority of the respondents were detected to earn >RM1,501 per month. A total of 42.1% of the respondents have held the position in VDSC for <5 years while 61.2% of the respondents studied were among the committee members. It is good to know that every six of ten respondents have computer at their home while majority of the respondents (53.5%) possessed the computer for >6 years. The mean score recorded for computer usage in a week was 11.07 hours. More than one third of the respondents (37.9%) had their computer connected to the internet while majority of them used internet for >8 hours in a week. The mean score recorded for internet usage in a week was 9.05 hours.

Respondents should be encouraged to attend more ICT courses as only 30.0% of them have attended ICT course. For the construct of perceived ease of ICT usage, more than half of the respondents (55.0%) were found to have a high level of perceived ease of ICT usage while a total of 31.2% of the respondents were found to have a moderate level of perceived ease of ICT usage. Only 13.8% of the respondent were found to have a low level of perceived ease of ICT usage. Based on the overall mean score of 6.50 recorded, it can be concluded that the respondents studied had a moderate to high level of perceived ease of ICT usage (Table 2).

For the purpose of measuring perceived ease of ICT usage, a total of eight items were used. The statements items focused on whether the ICT is easy or not to be used by the respondents. Three items that recorded the highest mean score were "Typing and editing using computer is easy" (M = 6.97), followed by the statement of "Updating my tasks by using computer software is easy" (M = 6.72) while the third highest mean score was recorded by the statement of "Administering financial matters using computer software is easy" (M = 6.63). Respondents should be informed and taught on any modification made on the current ICT tools since the statement of "It is easy for me to use the current ICT tools even though there are some new functions included in the ICT tools" recorded the lowest mean score (M = 6.08) (Table 3).

Table 4 displays the distribution of results on the level of independent variables. Results revealed that the factor perceived usefulness recorded the highest mean score (M = 6.88). Based on the mean score, this factor (perceived usefulness) recorded a moderate level. Interestingly the other five factors which were attitude (M = 5.91), attitude (M = 5.91), job relevance (M = 5.83), self efficacy (M = 5.38), subjective norm (M = 5.32) and compatibility (M = 4.82) also recorded a moderate level.

In order to fulfill the main objective of this paper, Pearson product-moment correlation was performed. Based on the results presented in Table 5, it can be concluded that all of the factors studied have a positive and significant relationship with perceived ease of ICT usage. Based on the Guilford Rules of Thumb, the magnitude of job relevance (r = .777), self-efficacy (r = .759) compatibility (r = .735) and attitude (r = .708) were found to have a high and significant relationship with perceived ease of ICT usage. Comparatively the other two factors namely perceived usefulness (r = .682) and subjective norm (r = .565) were found to record a moderate and significant relationship with perceived ease of ICT usage.

Multiple Linear Regression (stepwise method) was used to determine most significant variables that contribute towards perceived ease of ICT usage. Based on the results presented in Table 6, it can be concluded that the most significant contributors towards perceived of ICT usage was job relevance which accounted 60.3% of variance in perceived ease of ICT usage (R^2 = .603). Perceived usefulness was another factor that contributed an additional 9.2% variance in perceived ease of ICT usage (R^2 = .092). The last factor that was identified to be one of the significant contributor towards perceived ease of ICT usage was self efficacy. This factor contributed an additional 2.7% variance in perceived ease of ICT usage (R^2 = .027). The analysis also revealed that these three factors explained 71.9% variance in perceived ease of ICT usage.

Table 1: Respondents background

Variables	Frequency	Percentage	Mean	SD
		Gender		
Male	197	82.1		
Female	43	17.9		
		Age		
<40 years	51	21.2	50.0	11.0
41-50 years	82	34.2		
51-60 years	60	25.0		
>61 years	47	19.6		
		Level of Education		
PMR and primary school*	65	27.1		
SPM/SPMV**	126	52.5		
University and Pre University	69	20.4		
		Type of Job		
Self-employed	85	35.5		
Retiree/housewives	62	25.8		
Government	56	23.3		
Private	37	15.4		
Income per month			1507.90	990.56
<RM750	70	29.1		
RM751-RM1500	81	33.8		
>RM1501				
Value in Ringgit Malaysia (RM)	89	37.1		
		Experience of holding a position in VDSC		
<5 years	101	42.1	8.44	1.80
6-10 years	85	35.4		
>11 years	54	22.5		
		Position		
Top management	93	38.8		
Committee	147	61.2		
		Possession of computer		
Yes	144	60.0		
No	96	40.0		
Period of computer possession (n=144)			7.59	4.78
<5 years	68	46.5		
>6 years	77	53.5		
Period of computer usage a week			11.07	9.67
0 hours	31	12.9		
1-9 hours	109	45.4		
>10 hours	100	41.7		
		Computer connected to internet		
Yes	91	37.9		
No	149	62.1		
Period of internet possession (n= 91)			4.34	3.18
<5 years	69	75.8		
>6 years	22	24.2		

Table 1: Continue.

Period of internet usage a week			9.05	8.68
0 hours	62	25.8		
1-3 hours	48	20.0		
4-7 hours	61	25.4		
>8 hours	69	28.8		
	Have attended any ICT course			
Yes	72	30.0		
No	168	70.0		

Table 2: Overall level of perceived ease of ICT usage.

Level	Frequency	Percentage	Mean	SD
			6.50	2.45
Low (1.00-4.00)	40	16.7		
Moderate (4.01-7.00)	82	34.2		
High (7.01-10.0)	118	49.2		

Table 3: Perceived ease of ICT usage.

Statement	Scale										Mean	SD
	1	2	3	4	5	6	7	8	9	10		
Typing and editing using computer is easy	6.7	3.3	4.6	4.2	7.1	8.8	12.1	16.2	20.4	16.7	6.97	2.69
Updating my tasks by using computer software is easy	7.1	3.3	5.4	5.4	6.7	10.0	13.3	18.3	17.1	13.3	6.72	2.67
Administering financial matters using computer software is easy	7.1	5.0	4.6	3.8	9.2	10.8	12.9	16.7	17.1	12.9	6.63	2.69
The computer software can minimize grammar error when producing letter, report, statistic, works schedule or activities schedule	7.1	7.1	5.4	2.5	9.2	9.2	12.9	17.1	17.9	11.7	6.53	2.76
Using internet search engine such as Yahoo, Google and MSN is easy	7.5	5.4	3.8	5.0	10.8	11.7	12.1	17.9	10.8	15.0	6.49	2.72
Using applications such as Yahoo Messenger, Gmail, Yahoo Mail, Skype, Facebook, Twitter and other online applications for the purpose of communication, informing and sharing information is easy	8.3	5.0	3.8	5.4	13.3	7.5	16.7	15.4	11.7	12.9	6.37	2.71
Using online services provided by agencies such as KKLW, KEMAS and INFRA is easy	6.7	6.2	8.3	4.6	11.2	11.7	12.1	15.4	13.8	10.0	6.20	2.70
It is easy for me to use the current ICT tools even though there are some new functions included in the ICT tools	7.1	5.8	7.9	5.8	11.2	13.8	12.1	17.5	8.3	10.4	6.08	2.65

Table 4: Factors studied

Level	Frequency	Percentage	Mean	SD
Perceived usefulness			6.88	2.43
Low (1.00-4.00)	31	12.9		
Moderate (4.01-7.00)	69	28.8		
High (7.01-10.0)	40	58.3		
Attitude			5.91	2.48
Low (1.00-4.00)	57	23.8		
Moderate (4.01-7.00)	90	37.5		
High (7.01-10.0)	93	38.7		
Job Relevance			5.83	2.74
Low (1.00-4.00)	67	27.9		
Moderate (4.01-7.00)	68	28.3		
High (7.01-10.0)	105	43.8		
Self-efficacy			5.38	2.78
Low (1.00-4.00)	76	31.7		
Moderate (4.01-7.00)	91	37.9		
High (7.01-10.0)	73	30.9		
Subjective Norm			5.32	2.12
Low (1.00-4.00)	61	25.4		
Moderate (4.01-7.00)	125	52.1		
High (7.01-10.0)	54	22.5		
Compatibility			4.82	2.76
Low (1.00-4.00)	96	40.0		
Moderate (4.01-7.00)	84	35.0		
High (7.01-10.0)	60	25.0		

Table 5: Relationship between perceived ease of use in using ICT and selected independent variables

Variables	r	p
Job relevance	.777	.0001
Self-efficacy	.759	.0001
Compatibility	.735	.0001
Attitude	.708	.0001
Perceived usefulness	.682	.0001
Subjective norm	.565	.0001

Table 6: Factors that contribute to perceived ease of use in ICT usage using Multiple Linear Regression (Stepwise method)

Independent variables	B	beta	R	R^2	ΔR^2
Constant	1.179				
Job relevance	.402	.450	.777	.603	-
Perceived usefulness	.246	.244	.834	.693	.92
Self-efficacy	.239	.271	.850	.719	.27

Conclusion:

Based on the above results, it can be concluded that the respondents studied had a moderate level of perceived ease of ICT usage. For this study, a total of six independent variables have been selected and it is interesting to know that perceived usefulness recorded the highest mean score. Comparatively compatibility was found to record the lowest mean score. Pearson product moment correlation unveiled four of the factors namely job relevance, self-efficacy, compatibility and attitude posted a high and significant relationship with perceived ease of ICT usage while the other two factors - perceived usefulness and subjective norm were found to have a moderate and significant relationship with perceived ease of ICT usage. Multiple Linear Regression employed using stepwise method uncovered three factors that significantly contribute towards perceived ease of ICT usage.

Discussion:

Based on the results, all the six factors studied showed a positive and significant relationship with perceived ease of ICT usage. The significant and positive relationship between perceived ease of use and perceived usefulness has been discussed in a number of studies (Davis, 1989; Henderson and Divert, 2003 and Yusliza et al., 2009). Henderson and Divert (2003) for example also posted similar results in which there was the positive and significant relationship between perceived ease of use and perceived usefulness while indicating that these two factors are also important in predicting people actual behavior to use ICT. Results also indicated that compatibility had an influence on perceived ease of use and this is in tandem with results from past study by Lee (2009). Self-efficacy also was detected to have positive and significant relationship with perceived ease of ICT usage and this is consistent with studies done by Brown (2002), Huai (2008) and Lee (2009). Brown (2002) through his study has concluded that people should be encouraged to practice and use the ICT on their own, with positive feedback being given when this has been done, and this according to Brown (2002) will enhance their self-efficacy, thus directly will also have an impact on their perceived ease of ICT usage. Teo (2010) has clarified that subjective norm has a direct effect on perceived ease of ICT usage. Teo (2010) furthermore emphasized that this effect will have an influence on behavioral intention to use ICT. There is a possibility that groups of people around VDSC members such as family members, VDSC colleague and related agencies officers and facilitating conditions such as ICT center/cyber café existence can influence VDSC members perceived ease of ICT usage. In this study, attitude was found to have a positive and significant relationship with perceived ease of ICT usage and this is consistent with what have been found by Masrom (2007) who stressed that positive attitude will result in positive perceived ease of ICT usage. The most significant contributor for perceived ease of ICT usage was job relevance. This result was consistent to what has been found by Huai (2008) and Kim (2008) who stressed that people who found ICT is relevance to their work will easily perceive it as easy to be used.

In order to enhance VDSC members perceived ease of ICT usage it is recommended that ICT session can be conducted continuously and this may include sessions where they are introduced to computers and the internet. This should be conducted in a relaxed and fun-filled environment. They should also be encouraged to practice and utilize the ICT on their own with positive feedback being given to recognize their initiatives. Friendly and helpful support from the officers of the related agencies should be available in the session so that VDSC members could get help whenever they facing any difficulties. On top of it, to enhance VDSC members usage of ICT, language is among the top matters that should be considered. VDSC members can be provided with the ICT tools that are designed with their local language. Conversely, ICT tool also should use simple and consistent terms, have more detailed contents, visually pleasing and easy to comprehend.

REFERENCES

Argawal, R and J. Prasad, 1999. Are Individual Difference Germane to the Acceptance of New Information Technologies? *Journal of Decision Science,* 30(2): 361-391.

Brown, I.T.J., 2002. Individual and Technological Factors Affecting Perceive Ease of Use e of Web-Based Learning Technologies in Developing Countries. *The Electronic Journal of Information Systems in Developing Countries*, 9: 5-15.

Davis, F.D., 1989. Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology. *Journal of MIS Quarterly,* 13(3): 319-340

Hayrol Azril, M.S., A.N. Ahmad Faiz, I. Khairuddin, U. Jegak, D.S. Jeffrey Lawrence, 2010. Agriculture Project as An Economic Development Tool to Boost Socio-Economic Level of the Poor Community: The Case of Agropolitan Project in Malaysia. *African Journal of Business Management.* 4(11): 2354-2361.

Henderson, R. and M.J. Divet, 2003. Perceived Usefulness, Ease of Use and Electronic Supermarket Use. *International Journal of Human Computed Studies,* 59 (3): 383-395

Hu, P.J., T.H.K. Clark, and W.W. Ma, 2003. Examining Technology Acceptance by School Teachers: A Longitudinal Study. *Journal* of *Information and Management,* 41(2): 227-241

Huai, P.C., 2008. Computer Self-Efficacy and Job Relevance Analysis of Teacher Acceptance of Information Technology. Paper presented at International Workshop on Geoscience and Remote Sensing, Shanghai, 21-22 December 2008.

Kim, S.H., 2008. Moderating Effects of Job Relevance and Experience on Mobile Wireless Technology Acceptance Model : Adoption of A Smartphone by Individuals. *Journal of Information and Management*, 45(6): 387-393.

Lee, Y., 2009. Factors Influencing MOD Adoption. Paper presented at the Annual Meeting of of The International Communication Association, Dresden International Congress Centre, Dresden, Germany, 2009.

Masrom, M., 2007. Technology Acceptance Model and e-Learning. Paper presented at 12th International Conference on Education, Sultan Hassanal Bolkiah Institute of Education, Universiti Brunei Darul Salam, 21-24.

Meso, P., P. Musa and V. Mbarika, 2005. Towards A Model of Consumer Use of Mobile Information and Communication Technology in LDCs: The Case of Sub-Saharan. *Journal of African Information Systems,* 15: 119-146.

Teo, T., 2010. Examining the Influence of Subjective Norm and Facilitating Conditions on Intention to Use Technology among Pre Service Teacher: A Structural Equation Modeling of An Extended Technology Acceptance Model. *Journal of Asia Pacific Education Review*, 11: 253-262

Venkatesh, V. and F.D. Davis, 1996. A Theoretical Extension of Technology Acceptance Model: Four Longitudinal Filed Studies. *Journal of Management Science,* 46(2): 186-204.

Venkatesh, V. and M.G. Morris, 2000. Why Not Men Ever Stop to Ask For Directions? Gender, Social Influence and Their Role in Technology Acceptance And Usage Behavior. *Journal of MIS Quarterly*, 24(1): 115-139.

Yusliza, M.Y., M. Zikri, M.Z. Mohamed Salehuddin, S.P. Ermy and R. Emmaliana, 2009. Individual Differences, Perceived Ease of Use and Perceived Usefulness in the e-Library e-Usage. *Journal of Computer and Information Science,* 2(1): 76-83.