

EVALUATION OF THE IMPLEMENTATION, USE AND EFFECT OF A COMPUTERIZED MANAGEMENT INFORMATION SYSTEM IN COLLEGE OF BUSINESS

Case Study of Universiti Utara Malaysia

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ABSTRACT

Computerized management information system in COB user behavior was found in terms of the internet technology employed but also in terms of the likely behavioral and performance changes expected to occur through technology applications to academic, business functions and level of organization. These changes include the exploration of perceived ease of use and perceived usefulness of information system in COB. Developing competitive advantage for computerized management information system is a complex issue. Information system through internet is a product that is both highly intangible and has characteristics, which create special user requirements. This research has identified critical success factor that appear important to performance in IT implementation in college. The regression analysis undertaken suggests that perceived ease of use and perceived usefulness of system associated with user behavior. As the conclusion, the present study confirmed that perceived ease of use and perceived usefulness in computerized management information system has a direct positive influence to user behavior. Lecturer, COB staff and student are in the right position to run every movement related to the improvement of the system. Academic and management system are main items in the performance of COB. The acceptance level of user will influence the success of the system. The present study confirmed that through the survey to user directly has an effect to their knowledge improvement. Overall, each level in college has an active interaction with system and this is shows a dynamic performance of COB.

Keywords: *Management, information system, Evaluation of the Implementation.*

1. INTRODUCTION

Information and Communications Technologies (ICT) are radically changing the competitiveness of organizations. The Internet is revolution the way business is done due to technological developments in the area of ICT. The use of the Internet along with a range of other (ICT) is transforming how business is done locally and globally. The internet is linked with network of computer; it is valuable, powerful, and fast growing business tool because it is flexible, economical, and easy to use. The emergence and the popularity of the internet allow business to get more effective and efficient. The advent of the personal computer and the Internet has inevitably changed the way we live. These technologies, as well as others, have altered the method in which people work, communicate, shop, and even learn. Distance education, a form of education traditionally associated with correspondence courses, has benefited greatly from the new technological devices of the 21st century. Today, communication tools such as e-mail, satellite connections, and video conferencing software have provided educators with the tools to provide synchronous as well as asynchronous communication with their students. The reach of the underlying ICT making electronic management possible is also causing unprecedented globalization of business. Business management in developing countries will soon be affected as significantly as that elsewhere. Policymakers and advocates around the world are working to address this growing "digital divide". The use of ICT that range from mainframe to personal computers, from word processing to sophisticated application and system have made considerable inroads into large, medium and even small organizations. By the mid-1990s most college of business had significant IT provision, largely as a result of government funding through a variety of grants made available Local Education Authorities (LEAs). Wider availability of computer in college provided the opportunity for in-house software development by individual lecturer who possessed a growing knowledge of computer programming and some foresight in its potential application in college. Many colleges started to implement computer-based student record keeping system that provided analysis tools and information on routine matters as examination results and finance. In time, the need for data transfer between colleges. Acceptance behavior is posited to be influenced by a variety of factors, including individual differences, social influences, beliefs and attitudes, situational influences, and managerial interventions. Managerial interventions and individual differences, in turn, are hypothesized to have an effect on beliefs and attitudes. Several competing theoretical approaches have been used to investigate the determinants of acceptance

and use of new information technology. Several competing theoretical approaches have been used to investigate the determinants of acceptance and use of new information technology. One of the most important lines of study in this area focuses on the determinants of individual acceptance of new technologies by using behavioral intention (intention to adopt a new technology) or behavior itself (actual adoption of a new technology) as dependent variables. This model is based on Theory of Planned Behavior (TPB), and the adoption determinants are based on beliefs, attitudes, subjective norm, and perceptions of behavioral control. Therefore, investigation focuses on two theoretical constructs, perceived usefulness and perceived ease of use, which are theorized to be fundamental determinants of system use. Definitions for these constructs are formulated and the theoretical rationale for their hypothesized influence on system of use.

2. LITERATURE REVIEW

The general purpose of this study was to find out whether a relationship between perceived usefulness, perceived ease of use and implementation computerized management information system. The concept of technology acceptance model as underpinning theory in this study would discuss in detail.

Technology Acceptance Model (TAM)

Among the many variables that may influence system use, previous research suggests two determinants that are especially important. First, people tend to use or not use an application to extent they believe it will help them perform their job better. This research refers to this first variable as perceived usefulness. Second, even if potential users believe that a given application is useful, they may, at the same time, believe that the system is too hard to use and that the performance benefits of usage are outweighed by the effort of using the application. That is, in addition to usefulness, usage is theorized to be influenced by perceived ease of use.

One university conducted study by Selim (2003) used the course website acceptance model (CWAM), which is the TAM model applied to course website technology. The CWAM uses the TAM constructs of usage, usefulness, and ease of use to investigate course website acceptance by university students. In this model, three constructs, course website usefulness (CWU), course website ease of use (CWEOU), and course website usage (CWUSE) are used. CWU is the “belief that using course websites will increase their learning performance, efficiency, and effectiveness” (Selim, 2003). CWEOU is the degree to which the user expects the use of the course website to “be free of effort” (Davis et al., 1989). CWUSE is the intention to use the course website.

Technology acceptance model was created by Davis, 1989 and Davis et al 1989. Its was adapted from the theory of reasoned action (TRA) (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975). Furthermore to strengthen this model theory of planned Behavior (Ajzen, 1985 and Venkatesh, 1999) is also included whereby the behavior of an individual can be controlled according to this model.

3. METODOLOGY

Questionnaires were distributed to university staff, lecturer and students of COB who involved in UUM in Sintok, Kedah, Malaysia. The subjects were 65 (76%) male and 20 (23%) female respondents. Based on total ethnic origin information, of our respondents, where 15.3% respondent belongs to Malay origin however 21.2% were Chinese respondents, 4.7% Indians and 58.8 were followed by other race. Based on educational level there were 22.4% Diploma, 5.9% First Degree, 62.4% Master Degree, and 9.4% PhD. We believe that the in term of gender, race and education represent sample pool for this research. Table 1.1 summarizes the profiles of respondents, for more details, see Table 1.1.

Table 1.1: Profiles of Respondents (N=85)

Variable	Frequency	Percent
Gender:		
Male	65	76.5
Female	20	23.5
Race:		
Malay	13	15.3
Chinese	18	21.2
Indian	4	4.7
Others	50	58.8
Education:		
Diploma	19	22.4
Bachelor Degree	5	5.9
Master Degree	53	62.4
PhD Degree	8	9.4

Descriptive Frequency of Variable

Descriptive statistics such as mean and percentage will be used to measure the percentage of variables and also be used to describe the mean of dependent and independent variables. Table 1.2 will show the mean of perceived ease of use (1.84, 0.89), perceived usefulness (1.96, 0.94) and behavior (1.84, 0.97).

Table 1.2: Descriptive Statistics of Variables

	Variable Name	No of Items	Mean	Std. Dev
Y	Behavior	3	1.84	0.97
X1	Perceived Ease of Use	6	1.84	0.89
X2	Perceived Usefulness	6	1.96	0.94
	Total	15		

Reliability of Variables and Measurements

All measures obtained from 85 individuals (N=85) were subjected to reliability analysis to assess the dimensionality of the measurement scale. Only items with a high factor loading and no cross loading greater than a 0.70 were retained. Scale reliability was assessed in term of items-to-total correlation and Cronbach's alpha to determine the internal consistency of the measurement scale.

Reliability, which is a type of association used to correlate a variable with itself, usually in assessing inter-rater similarity on a variable, is also discussed. Reliability is the correlation of an item, scale, or instrument with a hypothetical one which truly measures what it is supposed to.

Table 1.3: Reliability Statistic of Behavior (N=85)

	Items	Cronbach's Alpha
B1	Assuming I had access to the system, I intend to use it.	0.790
B2	Given that I had access to the system, I predict that I would use it.	0.845
B3	I will use the system.	0.828
	Behavior	0.873

Cronbach's alpha is a measure of the intercorrelation of items. If alpha is greater than or equal to .6, then the items are considered unidimensional and may be combined in an index or scale. Researcher uses the more stringent cutoff of .70. . Cronbach's alpha is the most common form of internal consistency reliability coefficient. Alpha equals zero when the true score is not measured at all and there is only an error component. Table 1.3, will shows the reliability results of behavior. Overall, the output confirmed the reliable of the measurements.

Table 1.4: Reliability Statistic of Perceived Ease of Use (N=85)

	Items	Cronbach's Alpha
A1	Using the system improves my task.	0.909
A2	Using the system in my task as student increases my productivity.	0.889
A3	Using the system enhances my effectiveness in my task.	0.900
A4	Using the system improves my performance in my task.	0.897
A5	I find the system to be useful in my task.	0.890
A6	I find the system enables me to accomplish my task more quickly.	0.903
	Perceived Ease of Use	0.914

In this study, a measurement test using Cronbach's alpha will be conducted with a sample of respondents with a view to review and to measure reliability of the questionnaire. Cronbach's alpha is an adequate test of reliability. Generally, an alpha coefficient of 0.7 or higher is accepted, although some suggest 0.6 and above is acceptable. The Cronbach's alpha will be obtained through computer analysis. Table 1.4, will shows the reliability results of perceived ease of use.

The reliability is a matter of whether a particular technique, applied repeatedly to the same object, would yield the same result each time. The reliability of a measure is established by testing for both consistency and stability. Table 1.5, will shows the reliability results of perceived usefulness.

Table 1.5: Reliability Statistic of Perceived Usefulness (N=85)

	Items	Cronbach's Alpha
A7	My intention with the system is clear and understandable.	0.917
A8	Using the system is easy for me.	0.923
A9	Getting information from the system is easy.	0.918
A10	I find the system to be easy to use.	0.923
A11	I find it easy to get the system to do what I want it to do.	0.928
A12	It is easy for me to remember how to perform task using the system.	0.921
Perceived Usefulness		0.934

Tables 1.3, 1.4 and 1.5 indicates that the items in each construct collapse as a set in measuring the concept therefore the reliability of the measures used in this study can be considered as internally consistent. Furthermore, the present study confirmed all measurement exhibited high reliabilities with coefficient alphas ranging from 0.79 to 0.92, exceeding or approaching the acceptable level of 0.70 (Cohen, 1988) in all cases. Overall, the measures performed well and in conclusion, according to the findings from the pretest study, all measures were considered reliable for hypothesis testing among independent and dependent variables.

Correlations among Variables

Correlation test use for inferential statistics. The Pearson correlation will be used to measure the significance of linear bivariate between the independent and dependent variables thereby achieving the objective of this study. Variable association refers to a wide variety of coefficients which measure the strength of a relationship. Correlation is a bivariate measure of association (strength) of the relationship between two variables. It varies from 0 (random relationship) to 1 (perfect linear relationship) or -1 (perfect negative linear relationship). It is usually reported in terms of its square (r^2), interpreted as percent of variance explained.

Table 1.6: Correlations among Variables

Variables	(1)	(2)	(3)
Behavior	1.00		
Perceived Ease of Use	0.787	1.00	
Perceived Usefulness	0.794	0.812	1.00

**. Correlation is significant at the 0.01 level (2-tailed)

Table 1.6, is showing that perceived usefulness variables were significantly correlated in the strong positive correlation (0.79) and perceived ease of use was significantly correlated in the strong positive correlation (0.78) with behavior. Pearson's r^2 is the percent of variance in the dependent variable explained by the given independent when (unlike the beta weights) all other independents are allowed to vary. A rule of thumb is that multicollinearity may be a problem if a correlation is $> .90$ in the correlation matrix formed by all the independents.

Results of Hypothesis Testing

Regression between Perceived Ease of Use to Behavior (Hypothesis 1)

Linear regression analysis table 1.7 was employed to determine whether perceived ease of use has an effect to behavior intention, the result of regression analysis revealed that, there was a positive relationship between these two variables at the significance level 0.00. The correlation analysis for these variables showed a positive coefficient R^2 is 0.78, therefore 61% of the cases will be correctly predicted by the regression equation and 39% not. The results (table 1.7) are statistically significant $F(1, 83) = 135.415, p < 0.000$.

The identified equation in table 1.7 to understand the equation between perceived ease of use and behavior was: Behavior Intention = $0.245 + 0.867$ Perceived Usefulness + ϵ .

Table 1.7: Linear Regression between Perceived Ease of Use and Behavior

Variable	B	Se. B	β
Perceived Ease of Use	.867	.074	.787

Note: R^2 0.62; $F= 1.83$; $\text{Sig.}F= .00^{**}$; ($p < .000$)

B= Unstandardized coefficient beta;

Se.B= Standard error of regression coefficient;

β = Beta coefficient

Linear Regression between Perceived Usefulness to Behavior (Hypothesis 2)

Linear regression analysis was employed to determine whether perceived usefulness has an effect to behavior intention, the result of regression analysis revealed; there was a positive relationship between these two variables at the significance level 0.00. The correlation analysis for these variables showed a positive coefficient R² is 0.79, therefore 63% of the cases will be correctly predicted by the regression equation and 37% not. The results (table 1.8) are statistically significant $F(1, 83) = 142.038, p < 0.000$. The identified equation in table 1.10 to understand the relationship was: Behavior Intention = 0.223 + 0.823 Perceived Usefulness + ϵ .

Table 1.8 Linear Regression between Perceived Usefulness and Behavior

Variable	B	Se. B	β
Perceived Usefulness	.823	.069	.794

Note: R² 0.63; F= 1.83; Sig.F= .00**; (p<.000)

B= Unstandardized coefficient beta;

Se.B= Standard error of regression coefficient;

β = Beta coefficient

Multiple Regressions of Perceived Usefulness and Perceived Ease of Use to Behavior (Hypothesis 3)

Multiple regressions used to determine the relationship between independent, and dependent variables, the direction of the relationship, the degree of the relationship and strength of the relationship. Multiple regression analysis results in table 1.9 was employed to determine whether perceived usefulness and perceived ease of use has an effect to behavior intention, the result of regression analysis revealed that, there was a positive relationship between these two variables at the significance level 0.00.

Table 1.9: Multiple Regressions of Perceived Usefulness and Perceived Ease of Use to Behavior

Variables	B	Se.B	β
Perceived ease of use	.460	.116	.418
Perceived usefulness	.471	.109	.455

Note: R² 0.69; F= 2.82; Sig.F= .00**; p<.000

B= Unstandardized coefficient beta;

SEB= Standard error of regression coefficient

β = Beta coefficient

The correlation analysis for these variables showed a positive coefficient R² is 0.83, therefore 68% of the cases will be correctly predicted by the regression equation and 32% not. The results (table 1.9) are statistically significant $F(2, 82) = 91.498, p < 0.000$. The identified equation in table 1.11 to understand the relationship was: Behavior Intention = 0.067 + 0.460 Perceived Ease of Use+ 0.471Perceived Usefulness + ϵ .

Table 1.10 Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.223	.150		1.484	.142
	PU	.823	.069	.794	11.918	.000

a. Dependent Variable: BI

Furthermore Table 1.9 shows that multiple regressions were conducted to determine the multiple regression of perceived ease of use and perceived usefulness for predicting behavior. The independent variables were significantly predicted behavior.

Multiple regressions was employed as statistical technique for determining what proportion of the variance of a continuous, preferably normally distributed, variable is associated with, or explained by, two or more other variables, taking into account the associations between those other variables. For the third hypotheses testing, there

are two main ways in which multiple regressions is used. One way is to determine which variables explain the greatest and significant proportions of the variance in the variable of interest and what these proportions are. The beta weights suggest that the multiple regression of perceived ease of use and perceived usefulness contribute most predicting behavior. The adjusted r squared value was 0.69; this indicates that 69% of the variance in behavior was explained by the model. According to Cohen (1988), this is a large effect.

Table 1.11 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	.067	.144		.469	.640					
PEU	.460	.116	.418	3.967	.000	.787	.401	.244	.340	2.937
PU	.471	.109	.455	4.325	.000	.794	.431	.266	.340	2.937

a. Dependent Variable: BI

Based on the data of 85 respondents, the multi-items measures were subjected to a series of validity and reliability checks. For the multi-item scale, the set of items that correspond to each theoretical construct was initially subjected to an examination of Cronbach's alpha, item-to-total correlations and regression test. This part also provides a detailed discussion of the results of empirical testing of the hypothesized model. The result of the final relationship variables and the testing of the influence of the variables are presented.

DISCUSSIONS

The significant positive relationships between perceived ease of use, perceived usefulness and behavioral intention offer a clear indication of the importance of features to one feeling about the system and one's intention to use the system. The result of correlation, linear regression and multiple regressions in assessing the variables or the empirical relationship between perceived ease of use and perceived usefulness contribute were positively related to behavior as hypothesized. The positive association among all independent variables to dependent variable (adj. $r^2=69%$) was supported.

The main objectives of this study to investigate the relationship between perceived ease of use and perceived usefulness to behavior intention were achieved. Perceived ease of use (adj. $r^2=62%$) and perceived usefulness (adj. $r^2=63.1%$) has a significant positive direct influence to behavior. These changes include the independent variables as the predictors in the research framework. At the end, it found answer to all research questions and research objectives and found evident to all hypotheses formulated. This study confirmed the influence of between perceived ease of use and perceived usefulness to behavior.

CONTRIBUTIONS OF THE STUDY

Theoretical Contributions

From the perspective of theory development, we have posited and found empirical support for a theory of how individual difference drive the acceptance of new information technologies through their influence on beliefs about the new IT. We also find, as other have, support for the technology acceptance model as an and adequate and parsimonious conceptualization of acceptance behavior and the salience of usefulness and ease of use beliefs. In addition, we have demonstrated the feasibility of viewing the process of belief formation as essential one of learning; consequently, we show that learning theories provide a rich theoretical foundation for indentifying potential influences on beliefs.

We focused on the technology acceptance model to illustrate the process by which individual differences influence technology acceptance. Most empirical studies of TAM have examined relatively simple end-user technologies. The present study supported Technology Acceptance Model (TAM) by Davis (1991) to explore the interaction between user and system in the context of computerized management information system in COB of UUM.

Practical Contributions

Perhaps the most significant implication of our findings, closely related to the research objective, is that we can now identify certain management action that can be instrumental in facilitating technology acceptance through their positive influence on usefulness and ease of use.

Recruitment and careful selection of individual to be targeted for new technologies represent important managerial actions that can promote technology acceptance. Our results point to a certain profile as being receptive to information technology innovations; individuals who have greater familiarity with technology in general, those with higher educational levels to have more positive beliefs about new technologies. These are kinds of individuals organizations might wish to recruit or target as they introduce new technologies. However, this class of individuals generally tends to learn information technologies well anyway, due perhaps to their education and general socialization with technology. The more pressing question facing is how to diffuse the technology to the rest of its workforce that does not match this profile. Training for user may be utilized as a mechanism to diffuse new technology by virtue of its influence on beliefs. Our results showed that training had a significant effect on perceived usefulness, and ease of use is important to enhance the value of training in technology acceptance.

This study could also be benchmark and use as a reference by other departments or college to monitor user perceptions of their information technology system and to investigate the IT performance of their organization with a view to improve the service delivery system of their respective organization.

LIMITATIONS OF THE STUDY

As with any study, the findings obtained in the study display some shortcomings; these limitations need to be recognized when interpreting the findings of this thesis while also recognizing the opportunities they present for further research. The sample that was employed in this study has limited generalizability because of the sampling plan used since the questionnaire distribution was conducted only in college of business of Universiti Utara Malaysia in Kedah, Malaysia.

Future studies could examine whether variables such as budget or organizational culture as influence the usage of user and IT performance. To support this research finding, future research may be conducted by modifying into some other characteristics. The possibility to include cultural factor may be also performed since this factor probably also influences the success of IT implementation.

RECOMMENDATIONS

For stakeholder to implement new information technologies in work groups where individuals' profile are not quite consistent with the type of profile indicative may be nothing inherent in individual differences that strongly determines acceptance and, because of the mediating role played by beliefs, it is possible to find alternative means of facilitating technology acceptance and increasing individual productivity. Although the alternative means will require the design of mechanisms that influence beliefs and are independent of individual differences, the fact that it is possible to be unconstrained by such differences is promising.

Manager often cannot pick and choose individuals to become users of IT. Indeed, as noted earlier, the pervasiveness of IT in organizational work renders such a strategy untenable, and often the true benefits of a new IT may be realized only when all intended users accept it. The use of appropriate interventions focused on influencing beliefs can be instrumental then in facilitating such acceptance, notwithstanding the profile of the work group.

A broader implication that emerges from our results is the importance of incorporating a learning culture in the organization. We argued for the similarity between learning processes and belief formation; consequently, learning is critical to technology acceptance. What can managers do to create such a culture? Perhaps the provision relevant work and support system such as a helpline can facilitate individual learning and experimentation without the presence of an instructor.

Given that learning by trial and error requires time that an individual might rather expend on more pressing work-related matters, the most crucial issue to be addressed here by management is the provision of appropriate incentives to engage in self-learning. The successful implementation of any IT strategy requires that organizations strike the right balance between tight and loose control mechanisms, and formal and informal modes of communication to maintain a degree of flexibility and responsiveness appropriate to the speed of change manifest within their served to any level of user.

CONCLUSIONS

Computerized management information system in COB user behavior was found in terms of the internet technology employed but also in terms of the likely behavioral and performance changes expected to occur through technology applications to academic, business functions and level of organization. These changes include the exploration of perceived ease of use and perceived usefulness of information system in COB.

Developing competitive advantage for computerized management information system is a complex issue. Information system through internet is a product that is both highly intangible and has characteristics, which create special user requirements. This research has identified critical success factor that appear important to performance in IT implementation in college. The regression analysis undertaken suggests that perceived ease of use and perceived usefulness of system associated with user behavior.

As the conclusion, the present study confirmed that perceived ease of use and perceived usefulness in computerized management information system has a direct positive influence to user behavior. Lecturer, COB staff and student are in the right position to run every movement related to the improvement of the system. Academic and management system are

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