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A Study of the Success of E-classroom System on the Higher Education Expansion

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Abstract: Virtual Classroom (VC) not only has the function to replace a traditional classroom but also has less expense related to transportation, building new facilities, or the maintenance or repair of existing facilities. This study proposes some factors which influence the success of E-teaching. The subjects include students who have experience of attending related e-teaching system. Data were collected on May 2010. Subjects were in age from 18-24 years old. SPSS Amos 18 is used for data analysis and it shows that government policy, school regulation, student experience are important roles in guiding a successful e-teaching activity. This study also confirms that User Experience is the most significant determinant that directly affects the effect of user interaction and knowledge exchange in e-teaching practice. When users get greater experience of IT operation skill, their feelings about E-teaching practice will be more successful. The adoption of E-teaching would be more successful when users gain greater skills at IT operation. Fulfilled E-classroom application is able to help the elite or mass stage of higher education system moving to the universal stage because per student cost of VC is quite lower. The suggestion of E-classroom implementation is also helpful for the expansion of higher education in some countries, such as Asian countries (China, Mongolia, Thailand, the Philippines and Indonesia) or other elite stage countries.

Key words: E-Classroom, E-learning, TAM, higher education expansion, info tech

INTRODUCTION

Virtual class will be a solution to save money and can also resolve the problem of higher education expansion. Trow (1973) had proposed three stages theory which divides the higher education development into three shapes, namely the elite, the mass and universal. All the undeveloped countries are in elite stage because only low percentages of school-age students have the chance to receive higher education. Moving faster from elite stage to mass or universal stage is an important issue for these countries (They need more investment in the transition from elite stage to mass or higher education stage). For example, an under development country as China also concerns this topic. Its gross enrollment ratio of higher education only achieved 23.3% in 2008 (Taiwan is 100%). The students' number of higher education recruitment and the enrolled students scale increase continuously. The total recruited students were 6,076,600 which increased by 417,400 compared to the last year but there are 19,820,669 school-age students having no chance to receive higher education in 2008. The higher education expansion should become the key problem for China government. For a government, Virtual classroom is one

of solutions to save money and can also resolve the problem of higher education expansion. By thoroughly understanding the performance of Virtual classroom, governments can make the positive decisions in its school system reform.

Several scholars have been researched on the influence factors which affecting the higher education development. Burton (2002) believed that the market, the university and the academic authority are the primary factors influencing higher education development. Therefore, government policy has also formed the characteristic and the pattern of various countries' different higher education development. After the inspection of the modern Western higher education development with the ecology principle. Ashby (1983) believed that the market (scholar request), the request of high professional person and university's intrinsic logic (tradition) has controlled the higher education development. It means more big investment is needed to develop higher education. Previous research has provided the important reference to the influence factor of higher education development. A credible E-classroom system is one of the factors to build a successful Virtual Classroom. E-classroom continues to grow as teacher/students

interactive system, the trust of online teaches and study is already built. In using learning device, there is no gap between traditional teaching method and teaching by using e-learning system (Jayanthi *et al.*, 2007a). This study hopes that E-classroom will provide a solution with less investment for the need of higher education expansion for a country education in an elite or mass stage because the pc and internet is affordable for a family.

Online learning is becoming an important education tool for teachers, students and schools. A growing number of e-learning systems and online courses are being applied by teachers in needs of teaching or students' self-study. (Davis and Venkatesh, 1996; Venkatesh *et al.*, 2003).

Due to the rapid development of new networking technology, E-teaching has been widely used in most institutions since the growth of the Internet availability. Many classes are adapting to the computerized internet environment. Some systems such as, Elluminate, Centra, Webex, JoinNet, Live Meeting, Co-Life, Gogrok and Team Viewer, have become an alternative teaching system. Most of them provide real-time online teaching environment that creates a Virtual Classroom. With the multimedia and chat function, students and instructors can easily communicate each other. For example, Elluminate System offers whiteboard, presentation, function sharing and pooling function for teaching and activity with wealthy content. In addition, the breakout room function allows the teacher to break the class into small groups for discussions and group projects (Elluminate, 2010). It is one of the good tools for distance education and collaboration in academic institutions. In order to test the performance of e-teaching system, this study collects the data from students who have the experience of using related E-teaching/learning system.

According the report of The Florida TaxWatch Center for Educational Performance and Accountability, it undertook a comprehensive analysis of Florida Virtual School (VS) data in order to answer fundamental questions about its efficiency. It answers the two overarching queries which were how does student achievement by Florida VS students compare with that of students in traditional brick-and-mortar schools? and Is instruction via Florida VS a cost-effective approach?. That research findings to both queries were positive. Florida VS students outperformed their statewide counterparts on two independent assessments, both the Florida Comprehensive Assessment Test and Advanced Placement examinations. They earned higher grades in parallel courses. And this was accomplished with less money than was typically spent for instruction in

traditional schools (Florida TaxWatch Center for Educational Performance and Accountability, 2009). The total cost of e-learning and traditional blended education is also less than it in traditional system (Mahdavi *et al.*, 2008).

- **Question:** If the environment of virtual class is efficient, what factors will influence student's satisfaction with the performance of E-classroom? By using a virtual classroom system, will it have any relationship with school policy, teacher and student acceptance and class scale? What factors will be positively correlated with users' satisfaction in using E-classroom system?

RESEARCH MODEL

Info Tech Performance Evaluation Model (ITPEM): Technology Acceptance Model (TAM) is one of the most well-known and important models in IS acceptance studies (Chau, 1996; Liaw and Huang, 2003; Lin and Wu, 2004). With the convenience and cost savings benefits of Internet usage, a growing number of e-learning systems are functional by schools for students' learning assistance. For the examination of students' willingness to accept e-learning systems, TAM is used in recent research study (Lee *et al.*, 2005; Zhang *et al.*, 2008; Liu *et al.*, 2010; Sánchez and Hueros, 2010). Overall, the researches of e-learning systems are plentiful with diverse contents. However, few studies examine the concept of e-teaching society.

This study proposes an Info Tech Performance Evaluation Model (ITPEM) from the extension of User Acceptance Models (Venkatesh *et al.*, 2003) and TAM to investigate the performance of Information Technology (IT) on e-teaching. From Fig. 1, it adds policy variable (law, security) and modifies External variable (user experience, system design), Effect variables (presentation, interaction, knowledge Exchange) and performance outcome variable (satisfaction). As Fig. 2, this study proposes that policy variable will affects External variables and external variables will separately affect Effect variables. The model focuses on the process of IT performance on e-teaching, where effect of info presentation, effect of user interaction and effect of knowledge exchange are the three key factors that are proposed will affect an individual's satisfaction to use an IT on e-teaching. Effect of info presentation means the information will be clearly and completely presented for user's understanding. Effect of user interaction means the interactive functions of delivering and receiving information for user communication. Effect of knowledge

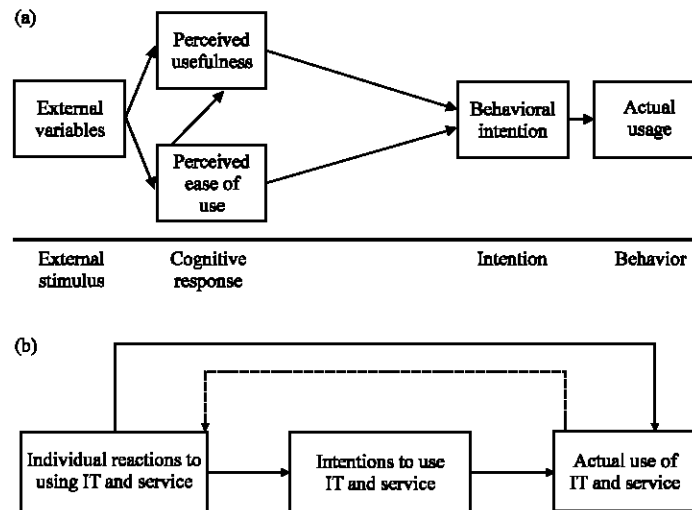


Fig. 1: Technology acceptance model and user acceptance model. (a) Technology Acceptance Model (TAM) (Davis and Venkatesh, 1996) and (b) user acceptance model (Venkatesh *et al.*, 2003)

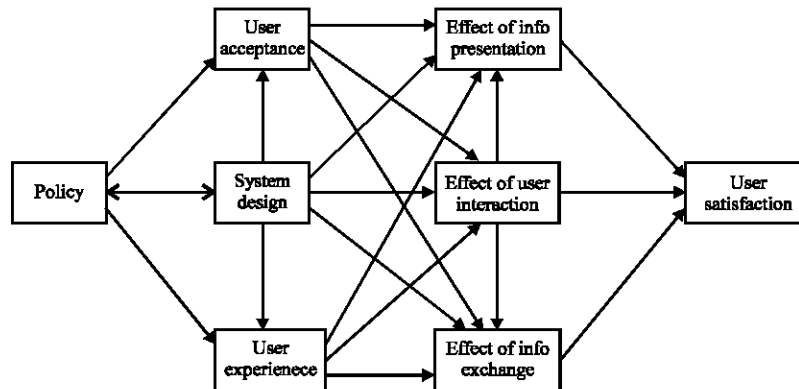


Fig. 2: Model of E-teaching systems

exchange means users receive clear and understanding information exchanged from teacher or other users. Satisfaction of info tech means user is satisfied by the use of this Info Tech. The theoretical model is shown in Fig. 2 and tested in Fig. 3.

Policy and system design: User studies can be conducted by academic or industrial researchers for a variety of reasons include the request of government or policymakers. Social science researchers also conduct user oriented studies of info tech; their work is often underutilized by federal policymakers and others who make important decisions about the goals, design and support of networked systems (McClure, 1994). Government has enacted codetermination legislation, which specifically mandates user participation in workplace decisions. The design of e-learning system is

important for e-Learning performance (Jayanthi *et al.*, 2007a) because e-learning system is a tool for practically implementing how students and instructors use learning stuff. Policymakers and system designers can sometimes be so influenced of the benefits of info tech that they are sure users will collect to their field of dreams no matter how many obstacles are set in their way and no matter how little is known about what users wanted in the first place (McClure, 1994; Bishop and Bishop, 1995).

User experience and acceptance: Computing technologies enable learners to combine traditional learning with online experiences (Jayanthi *et al.*, 2007a). Taking into consideration of users' previous IT experience with information communication, students may feel comfortable with computer assisted learning if they have experience in using a computer. Some researches

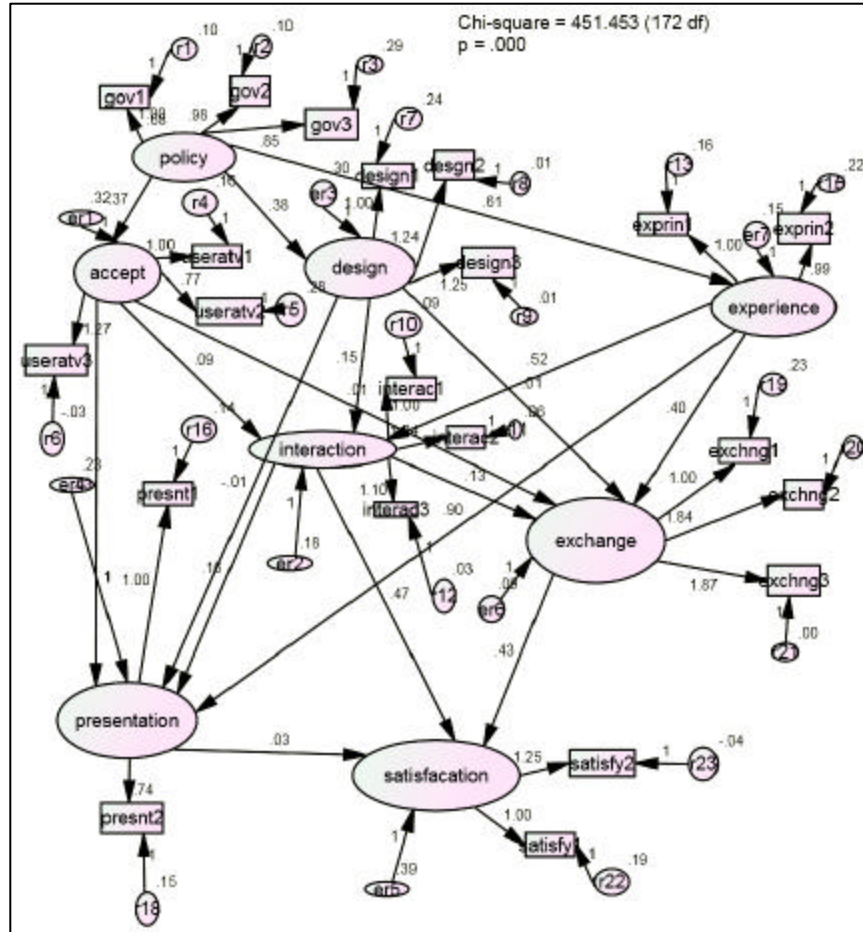


Fig. 3: Information technology performance evaluation model

have shown that earlier online learning experience can affect learners' perceptions of a new online curriculum (Song *et al.*, 2004), extra enjoyable experiences sometimes lead to improved learning performance in the future (Shih *et al.*, 2006). Students feel more satisfied with related online learning activities and are willing to use them again if they have had earlier online learning experience (Arbaugh and Duray, 2002). The student's previous learning experience with computers and networks has a tremendous persuade on participation in an online learning curriculum (Reed *et al.*, 2000; Liu *et al.*, 2010).

The achievement of Info Tech Systems will depend largely on their acceptance and usage by the students themselves. The Technology Acceptance Model (TAM) clearly explains the relationship between user acceptance and usage of new technologies extensively on the past researchers (Davis and Venkatesh, 1996; Venkatesh *et al.*, 2003). TAM also presents a stable and complete method for predicting user's acceptance of info tech system

(Sánchez and Hueros, 2010). In this research, we discuss the relationship between policy, user acceptance, user experience and IT design. It leads to the following hypotheses:

- **H_{1,1}:** Organization or school policy will positively affect user acceptance in an online teaching development
- **H_{1,2}:** Organization or school policy will positively affect user experience in an online teaching development
- **H_{1,3}:** Organization or school policy will positively affect system design in an online teaching development

Effect of presentation: The presentation for user and machine is used to identify Interface information for user's understanding. A users communicating others with a computer environment, receiving information from the

Info System, usually by hearing or reading what is coming up from the computer, responding to the computer by typing information on the keyboard, positioning a pointing device, or pressing a function key (Holdaway and Bevan, 1989). In current multimedia system, users can respond with any type of multimedia messages (sound, picture, video, files).

At any stage of system development cycle: design, testing, implementation, or assessment, it may focus the system usability on the effects of system implementation. The Presentation is a critical factor when developing information system. The use and effect of information presentation vary according to interrelated factors (Bertram *et al.*, 1993). Then, the quality of IT system will be examined by the following hypotheses with respect to user acceptance, user experience and IT design.

- **H_{2,1}**: Effect of presentation will be positively affected by user acceptance in an online teaching development
- **H_{2,2}**: Effect of presentation will be positively affected by system design in an online teaching development
- **H_{2,3}**: Effect of presentation will be positively affected by user experience in an online teaching development

Effect of interaction: Similar to interactions in actual human living, Users interactions with computer are the same as personal communication. In e-learning design, Completed and incorporated functions for learning interactions are essential (Jayanthi *et al.*, 2007b). Students-teacher interaction is an important factor which includes online cooperation, virtual school society and immediate appearance of course content or message. The interactions among students, faculty and teacher are the keys to learning development effectiveness (Graham, 2006; Wu *et al.*, 2010). Characteristics of Human-Computer Interaction (HCI) includes learning ability (the user acceptance), efficiency (the user attains a good system design), memorability (user experience), low error rate (system design) and satisfaction (fulfillment of the system use) (Holzinger, 2005; Dominikus *et al.*, 2009). Then, the hypothesis of Interaction with acceptance, system design and experience are listed as the following:

- **H_{2,4}**: Effect of interaction will be positively affected by user acceptance in an online teaching curriculum development
- **H_{2,5}**: Effect of interaction will be positively affected by system design in an online teaching development
- **H_{2,6}**: Effect of interaction will be positively affected by user experience in an online teaching development

Knowledge exchange: As one of electronic education, Internet-based teaching system has begun to support knowledge transfer between students and teachers labeled as Knowledge Exchanges (KEs). KE also allows teachers to share this knowledge through relatively multimedia technology platforms with power interactivity and access to students. The emergence of KEs represents an example of the general trend towards organization activity disaggregation (Gosain, 2007). Intelligent E-Tutoring Systems is able to help students gaining knowledge more quickly and effectively than students using traditional methods of teaching (Abu-Naser, 2008). In school, it called school revolution. Knowledge could be created and shared under e-teaching interaction. E-teaching system features such as mutual screen interfaces and joint multimedia that assist knowledge Exchange. It also supports for coordination mechanisms helps to increase knowledge transformation (Gosain, 2007). In order to explore the relationships between knowledge exchange and its antecedent factors (acceptance, design, experience and interaction) as Fig. 2. This study proposes those factors will influence the effect of knowledge exchange.

- **H_{2,7}**: Effect of Knowledge exchange will be positively affected by user acceptance in an online teaching development
- **H_{2,8}**: Effect of knowledge exchange will be positively affected by system design in an online teaching development
- **H_{2,9}**: Effect of knowledge exchange will be positively affected by user experience in an online teaching development
- **H_{2,a}**: Effect of info presentation will be affected by effect of user interaction in an online teaching implementation
- **H_{2,b}**: Effect of knowledge exchange will be affected by effect of info interaction in an online teaching implementation

Effectiveness and satisfaction: Satisfaction is an important factor in evaluating the effectiveness of an IT system (Ramasubbu *et al.*, 2008). E-business as a managerial tool, it influences on institute activities, as well as customer satisfaction practice (Salawu and Salawu, 2007). Satisfaction is the customer's realization of a product or service feature, including levels of fulfillment. Fulfillment can only be judged with reference to a standard that forms the basis for comparison. In other words, a satisfaction includes outcome or performance (Oliver and Swan, 1989). E-teaching success or effectiveness may be achieved when an education system

is perceived to be successful by students' satisfaction which is the most widely used measurement of IS success. Students' satisfaction is an important factor in evaluating the effectiveness of an e-teaching systems because it is related to other important variables in systems analysis and design (Ramasubbu *et al.*, 2008).

In our research, system performance includes effect of information presentation, effect of user interaction and effect of information exchange. Quantitative measures of users' system performance were positively associated with more qualitative measures of user satisfaction. This study discusses the relationship between system performance and satisfaction. It leads to the following hypotheses:

- **H_{3.1}**: User satisfaction of info tech will be positively affected by effect of presentation in an online teaching implementation
- **H_{3.2}**: User satisfaction of info tech will be positively affected by effect of interaction in an online teaching implementation
- **H_{3.3}**: User satisfaction of info tech will be positively affected by effect of knowledge exchange in an online teaching implementation

METHODOLOGY

Participants: For the data collection, this study adopts the maximum likelihood method to estimate the model's parameters. The subjects include students who have experience of attending related e-teaching system. Data were collected on May 2010. Subjects were in age from 18-24 years old. A total of 223 participants were surveyed at National Kinmen University of Taiwan, 216 were valid (a valid response rate of 96%). For the sample size, if the maximum likelihood method is used to estimate the parameters, the smallest sample size should be higher than 200 (Boomsma, 1987).

Data analysis: This study extends a model based on the user acceptance model (Venkatesh *et al.*, 2003). In order to examine this model, SPSS and Amos 18 are used for Data Analysis. The first process is to prove the construct validity that involves the verification of hypotheses made from this study. Factor analysis, principle components analysis, discriminate analysis, path analysis and multiple regressions are basic tools used to verify the construct validation for a model. Table 1 shows the results of Exploratory Factor Analysis (EFA). Items 3 in the construct effect of presentation and item 1 of online experience were deleted because we found that they were not designed appropriately. The loadings of the each

Table 1: The loadings of the each item in the eight factors

Item	Factor							
	1	2	3	4	5	6	7	8
Policy 1					0.920			
Policy 2					0.883			
Policy3					0.742			
Usr_acpt1		0.902						
Usr_acpt2		0.794						
Usr_acpt3		0.889						
Design1			0.848					
Design2			0.923					
Design3			0.926					
Exprin2								0.486
Exprin3								0.538
Presnt1							0.799	
Presnt2							0.910	
InterAc1						0.892		
InterAc2						0.877		
InterAc3						0.868		
Exchng1	0.551							
Exchng2	0.905							
Exchng3	0.895							
Satisfy1				0.949				
Satisfy2				0.869				

Table 2: Descriptive statistics of the constructs and items

Item	Mean	SD	Cronbach's alpha	Va. extracted
Policy 1	3.94	0.885	0.913	0.87
Policy 2	3.95	0.866		
Policy3	3.97	0.883		
Usr_acpt1	4.29	0.755	0.881	0.85
Usr_acpt2	4.35	0.725		
Usr_acpt3	4.30	0.794		
Design1	4.16	0.805	0.944	0.72
Design2	4.13	0.792		
Design3	4.14	0.796		
Exprin2	4.13	0.756	0.826	0.81
Exprin3	4.26	0.789		
Presnt1	4.03	0.893		
Presnt2	4.26	0.715	0.866	0.83
InterAc1	4.31	0.678		
InterAc2	4.31	0.677		
InterAc3	4.33	0.688	0.951	0.83
Exchng1	4.34	0.643		
Exchng2	4.10	0.802		
Exchng3	4.12	0.809	0.912	0.73
Satisfy1	3.90	0.884		
Satisfy2	3.96	0.941		

item in the eight factors are all above 0.48, as shown in Table 1. Additionally, KMO test is 0.88, which means the questionnaire was well designed. Initially, the questionnaire contained 23 items, but two items mentioned above were deleted during Exploratory Factor Analysis (EFA), so that the model would be more stable. Thus, the final version of the questionnaire contained 21 items.

Table 2 shows the value of Cronbach's alpha, the variance extracted from all the constructs and the descriptive statistics of the mean and standard deviations of all the items in the questionnaire. According to Nunnally and Bernstein (1994), Cronbach's alpha is reliable if its value is at least 0.7. The average variance

Table 3: Standardized regression weights

Dependent	Independent	Estimate	Estimate	p-value
User-accept	<-- policy	H ₁₋₁	0.37	***
Design	<-- policy	H ₁₋₂	0.38	***
Experience	<-- policy	H ₁₋₃	0.61	***
Presentation	<-- Accept	H ₂₋₁	0.05	0.404
Presentation	<-- Design	H ₂₋₂	0.01	0.861
Presentation	<-- Experience	H ₂₋₃	0.90	***
Interact	<-- Accept	H ₂₋₄	0.18	**
Interact	<-- Design	H ₂₋₅	0.15	**
Interact	<-- Experience	H ₂₋₆	0.52	***
Exchange	<-- Accept	H ₂₋₇	0.01	0.825
Exchange	<-- Design	H ₂₋₈	0.19	**
Exchange	<-- Experience	H ₂₋₉	0.40	***
presentation	<-- interaction	H _{2-a}	0.16	0.134
exchange	<-- interaction	H _{2-b}	0.13	**
Satisfaction	<-- Presentation	H ₃₋₁	0.04	0.650
Satisfaction	<-- Interaction	H ₃₋₂	0.47	***
Satisfaction	<-- Exchange	H ₃₋₃	0.43	***

p<0.01, *p<0.001

extracted, which is used to measure the discriminate validity of each construct, is only acceptable when it is more than 0.5 (Fornell and Larcker, 1981). The value of Cronbach’s alpha for the eight constructs in this research is more than 0.8. As the average variance extracted is generally more than 0.7, the reliability and validity of the questionnaire are both good.

Testing and data analysis: Structural Equation Modeling (SEM) is used in this study. It can estimate a measurement and structure model which is for decision whether study assumption is a good model fit after analysis and modification (Ngai *et al.*, 2007). To evaluate a model, many indices can be used to assess the fit of a model (Schumacker and Lomax, 1996).

This study takes on some indices suggested by Hoyle and Panter (1995) and Kelloway (1998). In general, the closer the observed data is to the theoretical model, the better the fit of the model and the easier it will be to satisfy the thresholds of index values. As the study of this research model on Fig. 3, X²/d.f. = 2.62 (<3.0), Goodness-of-Fit Index (GFI) = 0.86, which is close to recommended value 0.9, Normed Fit Index (NFI) = 0.92 (>0.8), Incremental Fit Index (IFI) = 0.95 (>0.9), Root mean square residual (RMR) = 0.06 recommended value is less than 0.05 (Liu *et al.*, 2010). Most index values are comply with recommended values and estimates of regression weights are significant at p<0.001 or p<0.01 as (Table 3).

Figure 3 shows the causal relationship between the constructs and the standardized path coefficients. We find that organization policy has a significant positive effect on user acceptance ($\beta = 0.37$, p<0.001), organization policy has a significant positive effect on system design ($\beta = 0.38$, p<0.001), organization policy has a significant positive effect on user experience ($\beta = 0.61$, p<0.001). Hypotheses H₁₋₁, H₁₋₂, H₁₋₃ are therefore supported. From

the Table 3, H₂₋₁ and H₂₋₂ show that User Acceptance and system design have no significant influence on the Effect of info presentation. H₂₋₇ shows that user experience has no significant influence on the effect of knowledge exchange. H_{2-a} shows the effect of info presentation is not affected by the effect of info interaction in an online teaching implementation. Beside these four assumptions, H₂₋₃, H₂₋₄, H₂₋₅, H₂₋₆, H₂₋₈, H₂₋₉, H_{2-b} are supported. H₃₋₁ shows that effect of info presentation has no significant influence on user satisfaction. H₃₋₂ confirms User satisfaction of info tech is positively affected by the effect of info interaction in an online teaching implementation. H₃₋₃ confirms user satisfaction of info tech is positively affected by the effect of knowledge exchange.

DISCUSSION

The goal of this research, which is based on the user acceptance model, is to add new variables to the model and explore whether students are satisfied with using an e-teaching system and hence provide some recommendations to some Governments or schools. According to the data analysis, hypotheses H₁₋₁, H₁₋₂, H₁₋₃ are supported. It confirms that federal policymakers make important decisions about the goals, design and support of networked systems (McClure, 1994). It also implies Government policy and School regulation is an important role in guiding a successful e-teaching activity (user acceptance, system design, user experience). For example, the requirement function of a school classroom will influence the design of any e-teaching system; the acknowledgement of e-class credits of a school will improve the acceptance of a student in using e-teaching system. Government’s promotion for IT skill training will improve user experience in using e-teaching system. Our empirical study validates the proposed research model and demonstrates that most hypotheses are supported. This study also identifies the implications that developed from the causal relationships. User experience is the most significant determinant that directly affects the effect of information presentation in e-teaching practice. When users get greater experience of information operation skill, the stronger their feelings about its effect of information presentation will be.

In terms of system design, our findings confirm those of other researchers (McGiven, 1994; Rovai, 2004; Jayanthi *et al.*, 2007b) that system design is the important determinant that affects the effect of user interaction and the effect of knowledge exchange. Completed and incorporated functions for learning interactions are essential (Jayanthi *et al.*, 2007b) when the system design is developed in a more user-friendly form. Users will feel more comfortable and find the system easier to

communicate with others. This conclusion corresponds with a number of prior studies (Jones *et al.*, 1995; Martin-Michiellot and Mendelsohn, 2000). Interaction is defined as the social interactions among students themselves, the interactions between instructors and students and stuffs. Johnston *et al.* (2005) argued that contact and interaction with instructors and learners is a valid predictor of performance.

A positive learning climate encourages and stimulates the exchange of ideas, opinion, information and knowledge in the organization that will lead to better learning satisfaction (Wu *et al.*, 2010). This study also confirms that effect of user Interaction and the effect of knowledge exchange are positively related (Abu-Naser, 2008; Gosain, 2007) and which are the important determinants that affect the user e-classroom satisfaction (Ramasubbu *et al.*, 2008). When users successfully interact with others and receive knowledge effectively, users will feel more satisfied in using e-class system.

The contribution of this research adds external variables to the original acceptance model and uses an extra effect variables to explore the use of an online teaching system. As it is a virtual classroom development, this study provides several implications of the research results as strategy for building up prospective e-classroom districts or schools.

- User experience is the most significant determinant that directly affects the effect of information presentation in e-teaching practice. Thus, when developing an e-classroom, we recommend that an Organization or School must improve user training before the implementation of e-teaching. Beside the support of Government Policy, Government's promotion for IT skill training will improve user experience in using e-teaching system. For example, School must guarantee that students and teachers are familiar with the functions of e-teaching system
- Effect of user interaction is the important determinant that affects the effect of knowledge exchange and user satisfaction in e-teaching. The interaction with clear design of course content, question and answer are important in e-teaching practice. By developing e-teaching course, teacher should be able to provide or organize the course content in easy understanding and interaction segments. Teachers must ensure that students understand what information or knowledge they want to transfer to them under e-classroom interaction. Good interaction improves teacher and students' satisfaction

- According to the data analysis and supported hypotheses, it implies that Government policy, school regulation, satisfied e-teaching implementation are important roles in guiding a successful e-teaching activity. These factors are able to help the elite or mass stage of higher education system moving to the universal stage because per student cost of Virtual Classrooms is quite lower compared with traditional Classrooms (Florida TaxWatch Center for Educational Performance and Accountability, 2009). The total cost of e-learning and traditional blended education is also less than traditional system (Mahdavi *et al.*, 2008). The suggestion is also helpful for the expansion of higher education in some countries, such as Asian countries (China, Mongolia, Thailand, the Philippines and Indonesia) or other elite stage countries

There are some limitations in this research. First, though e-teaching system is popular, most of students who answered the questionnaire were technology-oriented students. In other words, few students who are management major answered the questionnaire. In future studies, the survey should be based out on a larger student representation body from different countries.

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