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Exploring Factors That Influence Knowledge Sharing Behavior via Computer

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ABSTRACT

This research was conducted at the International Business School (IBS) University Technology Malaysia (UTM) to examine the factors that influence knowledge sharing behaviour via computer. While, among these factors is perceived usefulness, students are willing to share knowledge when they feel that it is useful for them to do so. Moreover, perceived usefulness proposed as system characteristic and the only independent variable in this research. A conceptual model was developed to test the reliability and correlation of the measure. The research adopted a cross-sectional survey approach to a sample of sixty-eight (68) Master of Business Administration (MBA) students from three courses participated in the survey. The researcher used the MYIBS electronic learning (e-learning) open source software platform based on Claroline (<http://www.ibs.utm.my/myibs>) to gauge students' response on intention to share knowledge through the forum. The results indicated that perceived usefulness is positively correlates to the students' intention to share knowledge in computer.

Keywords: *Knowledge sharing, knowledge management, Computer-Supported Collaborative Learning*

1. INTRODUCTION

Technology and globalization make available new chances for network members to share their possessed experience and knowledge across national boundaries. Owing increasing global competition, organizations require suitable technologies to make easier and expedite communication among group members and exploit of shared knowledge in this way (Friedman, 2005). Inasmuch communication among distributed members and may be culturally diverse faced with some restrictions hence, organizations need advanced technologies to facilitate knowledge sharing throughout the organization. This online communication is going to enable users to solve their problems more adequately, get richer information, and take advantages of "the strength of weak ties" (Haythornthwaite, 2002; Granovetter, 1973) and fill the "structural holes" in networks (Ardichvili *et al.*, 2003; Burt, 1992).

New technologies have commenced to revolutionize the framework of education systems and still providing supportive environments for students' communication is tickling educational institutes. In this regard, Computer Supported Collaborative Learning (CSCL) introduced as more popular and useful system (Guzdial *et al.*, 1997; Jermann and Dillenbourg, 1999; Scardamalia and Bereiter, 1994; Singley *et al.*, 1999; Suthers *et al.*, 2001). As highlighted by Amy (1996) CSCL systems offer "software replicas of many of the classic classroom resources and activities". More specifically, it can provide communication environment, shared workspaces, lecture notes, on-line presentations, reference material, student evaluation scores, quizzes and make easy virtual collaboration.

Rapid exchange and progress of technologies and knowledge have intensely changed lifestyles. The emergence of professional CSCL environment has delivered new mechanism and insight into knowledge sharing in academic environments. The growing use of CSCL has led to benefit the overall team performance by increasing productivity and quality in individual levels. The most widely recognized advantage of this system is that it permits users to disseminate and share knowledge (Lin *et al.*, 2009). Prior researchers have indicated that students can learn more efficiently in group, explain and justify their opinions, ask questions, reflect and elaborate upon their knowledge and articulate their reasoning when they are supported by computer technologies (Amy, 1996; Hoadley, 2010).

2. THEORETICAL FRAMEWORK

Through the years, large number of researches struggled to expose positive aspects and features of CSCL as supportive and beneficial instrument in educational system (Koschmann, 1996; Kreijns and Kirschner, 2004; Stahl, 2006, Hoadley, 2010). CSCL is an emerging international, interdisciplinary and dynamic field of research that concentrates its attention on how computer technologies simplifies knowledge creation and sharing and expertise discovery through group learning process and peer interaction. This field of inquiry contains a series of circumstances in which communications occur among group members who desire to improve their learning quality by means of computer networks. It comprises applying computer technologies to uphold synchronous and

asynchronous communication among students specially those who are geographically distributed.

This study drives along former papers and believes that through the computer, users now have a variety of functions and they can use in mediating communication (such as e-mail, chat and, video conferencing). Further, it thinks to be true that students' actions can be applied in developing strategies for problem-solving through computers and also computers facilitate making the real process of thinking more concrete, making visible invisibles and making learning environments more functional where students can obtain knowledge and when tracking their objectives is more meaningful to them.

Additionally, this paper strongly agrees that System characteristics like Perceived Usefulness (PU) can enhance students' intention to share knowledge. Therefore, this study was conducted to gain insight into the relationship between these two measures.

a. Theoretical Model

Current study was built on the basis of the Unified Theories that is known as Theory of Reasoned Action (TRA) and Technology Acceptance Model (TAM). Ajzen and Fishbein (1980) proposed the Theory of Reasoned Action (TRA) as theory that is concerned about voluntary behaviours. The TRA advocates that people's behaviour is formed by their intention to do the behaviour and this intention is a consequence of their attitude toward behaviour and also their subjective norms. Intention is the best forecaster and an immediate antecedent of behaviour. This intention embraces three elements: attitude toward a particular behaviour, perceived behavioural norm and subjective norm.

Technology Acceptance Model (TAM) introduced by Davis *et al.*, (1989) and is applying widely in information systems researches as appropriate model. TAM is famed broadly as prominent model for predicting and elucidating technology acceptance model that concern more about computer usage behaviour (Davis *et al.*, 1989). Indeed, elucidation of determining factors of computer acceptance, providing a basis for tracing how attitudes, internal beliefs and intentions are affected by external factors take into account as paramount purposes of TAM. The effectiveness of this model in forecasting usage behaviour of new technologies is the main reason that practitioners and researchers in recent years use TAM theory in Internet context (Becker *et al.*, 1995; Davis, 1986; Davis *et al.*, 1989).

Aforementioned theories were applied to uphold the goal of this study that draws attention on how perceived computer usefulness could augment students' intention to share knowledge.

b. Conceptual Model

This research builds on the aforesaid theories. Perceived Usefulness (PU) is presented as System characteristic that makes the only independent variable. The dependent variable in this study is Intention to Share Knowledge (ISK) in a computer supported collaborative learning environment.

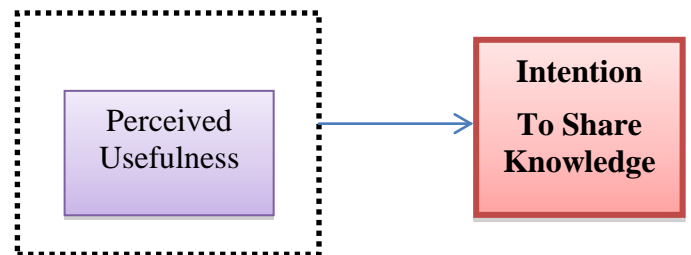


Fig 1: knowledge Sharing

3. STATEMENT OF THE PROBLEM

The literature provides ample samples of knowledge sharing methods and helpful tools in academic institutions (Barak and Rafaeli, 2004; Heydari *et al.*, 2011; Ma and Yuen, 2011; Santoro *et al.*, 2006; Yoo and Kimb, 2002; Soon and Fraser, 2011). It also made available extensive evidences to support knowledge sharing process by means of computer supported collaborative learning environments (Ada, 2008; Strijbos *et al.*, 2004; Suthers, 2005). Further, Large number of scholars underlined the importance of knowledge sharing and its chief determinants (James *et al.*, 2009; Chen and Cheng, 2011; Magnini, 2008; Sowe *et al.*, 2008; Chen and Hung, 2010). For instance, Lisl Zach and Denise (2009) investigated how can develop the real-life collaboration and knowledge sharing-skills by using the online learning environment.

Nevertheless, occasionally some problems will rise on knowledge sharing process in practice. For example, some students would like to obtain knowledge and information and hoard them merely for themselves and they are reluctant to share with others under any circumstances. They have adequate reasons not to be transferred as expect, as the university would like them to. Perhaps their main reason would be shortage and scarcity of needed knowledge, which make a value for them. Accordingly, propensity to individualistic and keep its benefits do not allow them to share their knowledge generously.

This study attempts to investigate how computer characteristics such as perceived usefulness influence students' intention to share knowledge. Introducing and exploiting suitable technology to persuade students bring their amassed knowledge out is the ultimate aim of this study. Likewise, it tries to take advantages exist for study

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about knowledge sharing in Malaysian higher education system and fills up related gap.

4. RESEARCH DESIGN

This study evaluated the efficiency and helpfulness of computer in students' intention to share knowledge. It illustrated in quantitative and descriptive expressions and demonstrated the relationship between independent and dependent variables and their extents as well.

5. METHOD AND PROCEDURE

a. Hypothesis

H1. Perceived usefulness has a positive effect on the intention to share knowledge.

b. Population

Cooper and Schindler (2008) and Creswell (2005) refer to population as study the group or target class studied. 350 active students - either full time or part time - who were studying in International Business School (IBS) at University Technology Malaysia in year 2011 made up the total population of active students in this study.

c. Sample

"The term sample referred to an item or items that are believed to represent a population" (Cooper and Schindler, 2008; Moore and Parker, 2009). Cooper and Schindler (2008) stated, "the basic idea of sampling is that by selecting some of the elements in a population, we may draw conclusions about the entire population" (p. 179). The target sample in this study includes 68 male and female students of three IBS classes (IT Strategy, IT Project Management and Finance Management courses). They were selected based on convenient sampling.

d. The Questionnaire

The questionnaire was divided into two main sections. Section one contains personal profile such as age, gender, marital status and nationality. The second section contains 8 questions and embrace questions about the dependent and independent variables in two subdivisions. In the first subdivision, there are four (4) questions related to intention to share knowledge. The second subdivision also consists of four (4) questions for perceived usefulness. Table 1 shows the measures and sources. The measures were adapted accordingly for the research.

Table 1: Measures and Sources

Measures	Sources
Intention to Share Knowledge	Adoption of the Mobile Internet: An Empirical Study of Multimedia Message Service (MMS). (Hsu <i>et al.</i> , 2007)
Perceived Usefulness	E-learning Acceptance in a Developing Country: A case Study of the Indonesian Open University. (Hussein <i>et al.</i> , 2007)

All questions, except demographic ones, used a 5-point Likert Scale ranging from "Strongly Disagree" to "Strongly Agree" as an interval scale data for measuring the objectives of the study.

e. Statistical Analyses

Correlation analysis is proposed to demonstrate both the direction and the strength of the relationship between dependent and independent variables (Bryman and Cramer, 1994). A pair of variables is taken into account to be correlated, meaning that change in one variable is associated with the changes in others (Hair *et al.*, 1998). The Pearson correlation procedure was applied to identify the relationship between perceives usefulness and intention

to share knowledge. The data were analyzed by using the Statistical Package for Social Sciences (SPSS).

6. RESEARCH FINDINGS

To investigate developed research hypothesis, correlation analysis was applied. Results of the correlation between dependent variable (intention to share knowledge) and independent variable (perceived usefulness) are exhibited in Table 2.

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Table 2: Results of correlational analysis

	Hypothesis	Correlational Analysis (Pearson's r)	Supported not Supported
H1	Support for perceived usefulness with intention to share knowledge	Pearson's r is 0.559, $p < .01$ This is an evidence of positive and significant relationship	Supported

****Correlation is significant at the 0.01 level****

The above Table (2) reveals that perceived usefulness is moderately correlates to intention to share knowledge. The correlation between them is almost $r = 0.559$. According to Hair *et al.*, (1998) the value for the highly correlated factors is 0.5. Therefore, the correlation between Perceived Usefulness (PU) and Intention to Share Knowledge (ISK) is found to be significant with $r = 0.559$. As a result, we conclude that the independent variable in this research is moderately correlated to the dependent variable.

7. DISCUSSION AND CONCLUSION

The correlation findings show that perceived usefulness and intention to share knowledge are correlated to each other with Pearson product-moment correlation coefficient 0.559 and is considered moderately correlation. This finding about the relationship between perceived usefulness and intention to share knowledge is in line with Hung, Lai and Chou, (2010); Pavlou and Fygenson, (2006). In addition, proposed theoretical model succeed to support positive influence of perceived usefulness on students' intention to share knowledge favourably. Moreover, the positive outcomes of parallel study (He, 2009) can approve the suggested tool is reliable and eligible to apply in educational institutions.

In this research with exploiting MYIBS electronic learning (e-learning) open source software platform based on Claroline (<http://www.ibs.utm.my/myibs>) as a CSCL tool in IBS (International Business School) University Technology Malaysia researcher attempted to assess the nature of the relationship existing between perceived usefulness and students' intention to share knowledge. Therefore, this research in alignment and accordance with prior studies generated new insight into the importance of modern supportive technologies in knowledge sharing in academic environments.

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APPENDIX

Instruction:

Please rate how strongly you agree or disagree with each of the statements given by placing a check mark in the appropriate box. Please rate the suitable answer based on this response scale:

- 1 : Strongly disagree
- 2 : Disagree
- 3 : Neutral
- 4 : Agree

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5 : Strongly agree

	1 SD	2 D	3 N	4 A	5 SA
INTENTION TO SHARE KNOWLEDGE					
1- It is worth to share my knowledge through MYIBS E-learning Claroline forum.					
2- I will frequently share my knowledge through MYIBS E-learning Claroline forum in the future.					
3- I will strongly recommend other IBS students to share their knowledge through MYIBS E-learning Claroline forum.					
4- I plan to share my knowledge through MYIBS E-learning Claroline forum.					
PERCEIVED USEFULNESS					
5- Using MYIBS E-learning Claroline forum improves my knowledge sharing performance.					
6- Using MYIBS E-learning Claroline forum enhances my effectiveness in knowledge sharing.					
7- Using MYIBS E-learning Claroline forum improves the quality of knowledge sharing.					
8- Overall, I find using MYIBS E-learning Claroline forum useful in knowledge sharing.					

Factors influencing members' knowledge sharing and community promotion in professional virtual communities. *Info Manage* 47(4):226-236CrossRefGoogle Scholar. Cheng FH, Yeh CH, Tu CW (2008) Trust and knowledge sharing in green supply chains. Yu TK, Lu LC, Liu TF (2010) Exploring factors that influence knowledge sharing behavior via weblogs. *Comput Hum Behav* 26(1):32-41CrossRefGoogle Scholar. Zhang Y, Fang Y, Wei KK, Chen H (2010) Exploring the role of psychological safety in promoting the intention to continue sharing knowledge in virtual communities. *Int J Inform Manage* 30(5):425-436CrossRefGoogle Scholar. Zhou T (2011) Understanding online community user participation: a social influence perspective. While knowledge sharing has been found to be a motivation for using emergent virtual communities (VC) (Wasko & Faraj, 2000), a range of barriers has been found impeding online knowledge sharing. TPB posits that individuals' behavior is determined by behavioral intention and perceived behavioral control. Behavioral intention is determined by attitude toward behavior (ATT), subjective norm (SN), and perceived behavioral control (PBC) (Ajzen, 1985). Attitude toward behavior reflects one's favorable/unfavorable feelings of performing a behavior. Subjective norm reflects one's perception of relevant others' opinions on whether or not he or she should perform a particular behavior.