The Antecedents of Knowledge Sharing Behavior in an Internet Environment

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ABSTRACT

Knowledge, nowadays, is seen to be important not only in an organization but also in an academic institution. It remains of no value if it is not made visible and ready to be used by everyone who needs it. Numerous studies have been conducted by previous researchers to investigate the antecedents that lead to knowledge sharing behavior of students especially in an Internet environment. However, local studies pertaining to this topic are still very rare in the context of universities in Malaysia. Based on a survey involving 265 respondents, this paper reports the findings of a study that investigated factors influencing knowledge sharing behavior of students using the Internet. Four variables, namely fairness, identification, openness and relevancy, were found to be significant antecedents to knowledge sharing behavior. Based on the identified factors, appropriate steps or procedures can be put in place to enhance knowledge sharing behavior among students.
KEYWORD: knowledge sharing, Internet, university students, Malaysia

1 INTRODUCTION

The rapid growth of the Internet has facilitated an advanced way for exchanges of knowledge among people regardless of their geographical boundaries so that opportunities to share knowledge are easier than ever before. The continuous development of applications that make use of the Internet supports the ability for individuals to share and to collaborate in tasks and it offers them an opportunity to maintain contact with each other. The utilization of Internet as a channel for sharing is not only useful for organizations; academic institutions, too, are also becoming more aware of the importance of the Internet to assist knowledge sharing.

With the realization that people have become with using the Internet to share knowledge, a number of studies have been carried out to investigate the factors that lead people to share (Aulawi, 2009; Chen and Hung, 2010; Chen, et al. 2009; Fang and Chiu, 2010; Hsu, et al. 2007; Ma and Yuen, 2011; Teh, et al. 2010; Yu, et al. 2010). Most findings showed that individual behavior plays an important role in driving people to share knowledge successfully. However, it is unclear whether the findings can be applied in the context of universities in Malaysia. Thus, this study will report the findings of a study carried out to investigate knowledge sharing behavior among students, focusing on students from the Faculty of Information Management of Universiti Teknologi MARA, Shah Alam.

2 LITERATURE REVIEW
2.1   Some Key Concepts
2.1.1   Knowledge
Davenport and Prusak (1998) defined knowledge as "a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information". It originates and is applied in human's mind where it can be made useful for human to take action. In addition, knowledge is dynamic in nature due to constant changes. For this study, knowledge is viewed as an object that can be accessed and retrieved by students from the Internet.

2.1.2   Internet
The Federal Networking Council (FNC, 1995) defined the Internet as a global information system linked together which enables support for communication and provides accessibility, either publicly or privately, to high level services layered on that communication. Since there are many channels through which students can connect and communicate, this study investigates some of the channels used in order to perform the online knowledge sharing. Moreover, the study also identifies the factors influencing knowledge sharing behavior performed by students using the Internet.

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2.1.3   Knowledge Sharing Behavior

According to Bock and Kim (2002), knowledge sharing behavior is defined as the levels to which a person performs a knowledge sharing activity. It relates to a person's willingness to share knowledge that they have created with another person, especially in an Internet environment (Aulawi, 2009; Yu, et al. 2010). According to Ramos and Yudko (2008), knowledge sharing behavior happens when learning understanding and absorption take place in an online learning context. This study specifically investigates students' sharing behavior when the Internet is the medium for knowledge sharing with peers.

2.2   Theoretical Framework

Figure 1 shows the theoretical framework used for this study. This model is constructed based on studies carried by Yu, et al. 2010). This study develops knowledge sharing behavior theory based on Yu, et al. 2010) model. Other studies include those by Chen and Hung, 2010), Chen, et al. 2009), Hsu, et al. 2007), Ma and Yuen, 2011), and Teh, et al. 2010). The main focus of this model is the factors or antecedents that contribute to knowledge sharing behavior among students in an Internet environment. Below, the hypotheses that relate to the antecedents for knowledge sharing behavior in the context of Internet environment are stated. These will be linked with the factors leading to knowledge sharing behavior.
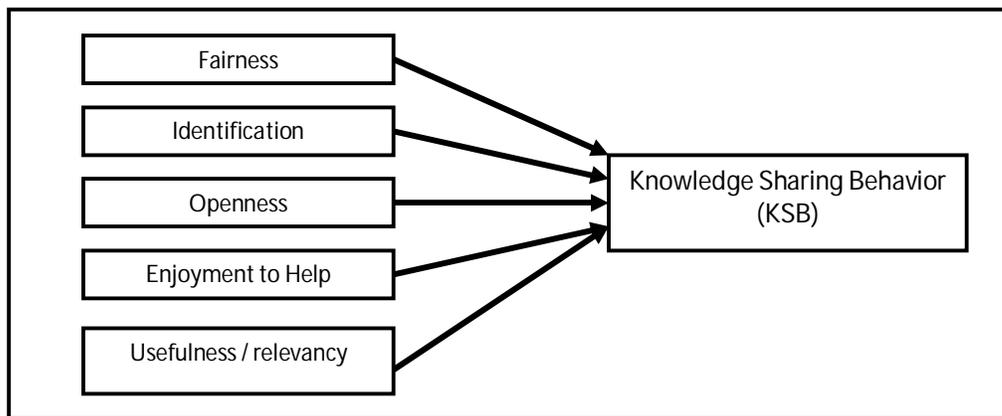

Figure 1: Theoretical Framework

2.2.1 Individual Fairness and Knowledge Sharing Behavior

Fairness occurs when climate of trust exists that encourages individuals to share their knowledge. Trust is constituted from a collection of characteristics, one of which is fairness. In an online knowledge sharing context, trust offers valuable meaning if individuals maintain good relationships and interaction with other members. (Yu, et al. 2010; Hsu, et al. 2007). Davenport and Prusak (1998) argued that knowledge sharing can only work when members are brought together physically, but lack of trust to share tacit knowledge will hinder this practice. In addition, Ardichvili et al., (2006) pointed out that online knowledge sharing would prefer face-to-face interaction through which trust can be established. However, Fang and Chiu, 2010) noted that the continuance of relationships and interaction among members strengthens knowledge sharing and increases members' desire to perform knowledge exchange. Furthermore, a study conducted by Teh, et al. 2010) suggested that good and continuous social ties in the social environment enabled knowledge sharing and facilitated the building of mutual relationships. Based on the above discussion the following hypothesis is posited:

H1: Individual fairness positively affects knowledge sharing behavior in an Internet environment.

2.2.3   Individual Identification and Knowledge Sharing Behavior

In this context, identification refers to a climate that is characterized by pro-social norms. With the advancement of technology, scholars have suggested that it can enhance social values and norms. According to Chen, et al. 2009) positive norms practiced by an individual are related to a knowledge sharing culture. With social norms practiced in knowledge sharing, mutual gratitude will be achieved whereby a group member will respond to the friendly actions shown by other members (Chen and Hung, 2010). Positive social norms encourage identification in that the individual feels a sense of belonging within the online community. Additionally, group members will represent themselves as a group and not as individuals in the group. With the need to belong, the individual will seek contacts from members that later affects learning (Chen, et al. 2009; Ma and Yuen, 2011). Chen, et al. 2009) discovered that there is positive relationship between knowledge sharing behavior and social norms. Additionally, it is suggested that norms facilitate an environment where teachers and students can participate earnestly in knowledge sharing through the Internet. On the other hand, some studies found that group identification (norms) had little affect on knowledge sharing behavior (Yu, et al. 2010; Chen and Hung, 2010). In the present study, it is hypothesized that:

H2: Individual identification positively affects knowledge sharing behavior in an Internet environment.

2.2.4   Individual Openness and Knowledge Sharing Behavior

In the present context, openness refers to a person's positive belief in sharing knowledge. It is suggested that openness forms the knowledge sharing culture that may affect an individual's knowledge sharing behavior. Yu, et al. 2010) expressed a view that with openness, more individual commitment toward knowledge sharing behavior will be achieved and later will shape it to influence a person's knowledge sharing behavior. Furthermore, possessing positive beliefs encourages better social network ties. Strong bonds between two individuals ensure good relations in a social network environment which then might enhance individuals' intentions to perform online knowledge sharing (Tsai and Ghoshal, 1998). However, some people may prefer to withhold what they know rather than to share it with other members. Therefore, it is suggested that with the openness of the online environment, an individual is more willing to share knowledge and maintain interactions with a partner, which in turn invites other opinions and points of view. From the perspective of students' knowledge sharing in an Internet environment, openness provides students with an environment where they can give and receive from one another in the group. Hence, it is hypothesized that:

H3: Individual openness positively affects knowledge sharing behavior in an Internet environment.

2.2.5   Enjoyment to Help

From previous studies it has been found that knowledge sharing is performed in order to achieve different goals. It may affect an organization's outcome or, conversely, an individual's outcome satisfaction. With reference to individual-outcome satisfaction, in the context of students' knowledge sharing, it can be assumed that some students share knowledge as a means of enhancing their self-reputation. Furthermore, students perform helping behavior in order to gain a sense of belonging in a team, to improve performance and to retain membership in the online community. Frequent interaction with members virtually increases the enjoyment they obtain from helping others to solve problems and in turn, it motivates the students to get engaged in the online discussion. Additionally, they will be willing to sacrifice to help other members if it is worth contributing and thereby gaining a reputation. Furthermore, students will show a tendency to seek out interpersonal contact and continue doing so until they have reached the level of close social bonds (Alrushiedat et al., 2010; Fang & Chiu, 2010 ; Yu, et al. 2010; Ma and Yuen, 2011). To further study the relationship between enjoyment from helping and knowledge sharing behavior, it is hypothesized that:

H4: Enjoyment to help positively affects knowledge sharing behavior in an Internet environment.

2.2.6   Usefulness/Relevancy and Knowledge Sharing Behavior

Yu, et al. 2010) pointed out that the extent to which an individual shares knowledge is dependent on the benefits and purposes. For an organization, knowledge is shared for the purpose of improving work efficiency and financial benefits. However, knowledge sharing among students, especially in an Internet environment, is to establish active interaction as well as to increase interaction in learning (Alrushiedat et al., 2010). Furthermore, established Internet interaction by students not only develops social bond but also maintains an environment for good relationship and builds mutual respect among one another (Teh, et al. 2010: Ma and Yuen, 2011). Accordingly, the following hypothesis is established:

H5: Usefulness positively affects knowledge sharing behavior in an Internet environment.

3   RESEARCH METHOD

This study used survey research methodology, based on random sampling, to collect the data. Sekaran (2003) stated that the use of sample random sampling in research will give least bias and offers the most generalization. The sampling population for this study was drawn from undergraduate and postgraduate students at the Faculty of Information Management. distributed total of 350 questionnaires were distributed to students of this faculty. The questionnaire for this study drew upon the work of earlier studies. Questions relevant to the present study were selected and modified to suit with the objectives and context of this study. The sources of questionnaires were taken from Fang and Chiu (2010), Hsu, et.al. (2007), Chen and Hung (2010), Ma and Yuen (2011), and Yu, et.al. (2010). All measures for the variables shown in Table 1 used the Likert Scale anchored with two extremes, with 1 for "Strongly Disagree" and 5 for "Strongly Agree". Of 350 questionnaires distributed, eighty-five questionnaires were found to be unusable, thereby yielding a total of 265 completed questionnaires for data analysis.

Table 1: Sources of measurement for research variables

Variables	Sources of measurement
Fairness	Fang and Chiu, 2010); Hsu, et al. 2007); Chen and Hung, 2010); Ma and Yuen, 2011); Yu, et al. 2010)
Identification	Fang and Chiu, 2010); Hsu, et al. 2007)
Openness	Chen and Hung, 2010)
Enjoyment to help	Hsu, et al. 2007)
Relevancy/usefulness	Fang and Chiu, 2010); Hsu, et al. 2007)

4 FINDINGS

4.1 Respondents' Profile

Table 2 depicts the demographic profile of the respondents. Of the 265 respondents, 20% were male while the remaining 80% were female. In terms of mode of study, the highest percentage of respondents were full time students (93.2%) while the lowest percentage were students studying through a Flexible Learning Program (FLP) (4%). This study also indicated that majority of respondents (31.7%) were Part 3 (i.e. Semester 3) students, while Part 5 (1.1%) made up the smallest group.

Table 2: Demographic profile of respondents

Characteristics	Items	Frequency	Percentage
Gender	Male	53	20
	Female	212	80
Mode of study	Full Time	247	93.2
	Part Time	17	6.4
	FLP	1	4
Semester of study	Part 1	69	26.0
	Part 2	43	16.2
	Part 3	84	31.7
	Part 4	39	14.7
	Part 5	3	1.1
	Part 6	27	10.2

4.2 reliability analysis

Reliability analyses were performed in order to indicate the scale's internal consistency strength. Table 3 shows that all variables reached the recommended cut-off value, which is 0.7. Therefore, the scale used in this present study was highly reliable. Prior to the actual data collection, the questionnaire went through thorough face validity and pre-testing in order to produce reliable results.

Table 3: Reliability analysis of research variables

Variables	No. of items	Cronbach's Alpha
Knowledge Sharing Behavior	5	0.731
Fairness	6	0.788
Identification	5	0.777
Openness	5	0.733
Enjoyment to help	4	0.754
Usefulness/revelancy	5	0.700

4.3 Correlation Analysis

Correlation analyses were carried out to test the degree and significance of the relationship between two continuous variables from one interval or ratio scales. In this study, analyses were performed to study the relationship between fairness, identification, openness, enjoyment to help, and relevancy/usefulness with the dependent variable, knowledge sharing behavior. The bivariate correlations were separately executed between each of the mentioned antecedents and knowledge sharing behavior. Table 4 depicts the result of correlation analyses showing that fairness and identification were significantly related to knowledge sharing behavior. Openness and relevancy were found to be significant but with weak relationship. Meanwhile, enjoyment to help was found to have no significant relationship with knowledge sharing behavior.

Table 4: Correlation analysis amongst research variables

Variables	KSB	F	I	O	E	U
KSB	1					
Fairness (F)	0.416**	1				
Identification (I)	0.316**	0.572**	1			
Openness (O)	0.177**	0.519**	0.601**	1		
Enjoyment (E)	0.102	0.433**	0.449**	0.604**	1	
Usefulness (U)	0.282**	0.417**	0.464**	0.487**	0.422**	1

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

4.4   Regression Analysis

To measure the degree and direction of influence of the independent variables towards the dependent variable, multiple regression analysis was also performed. Tables 5 and 6 present the results of the multiple regression analysis. As shown in Table 5, R square recorded the value of 0.217, thereby implying that 21.7% variance in knowledge sharing behavior can be explained by a combination of the independent variables which are fairness, identification, openness, enjoyment to help, and usefulness.

Table 5: Model summary of regression analysis between independent variables and dependent variable.

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.466[a]	0.217	0.202	0.69104

a. Predictors: (Constant), Usefulness, Fairness, Enjoyment, Identification, Openness

From the results of the regression analysis, it can be seen that out of the five independent variables investigated, only two – fairness and usefulness – were shown to be influential in determining knowledge sharing behavior. Table 6 shows the tolerance values of the variables that were indicated through multiple regression. The closer to zero the tolerance value for a variable, the stronger the relationship between the variable and the other predictor variables. Hence, multicollinearity was achieved in which two of the variables were found to have a high correlation. The variables were fairness (t=5.313, $p < 0.05$) and usefulness (t=2.490, $p < 0.05$). Meanwhile, the other three variables were found to be not significant predictors, having p-values greater than 0.05. Based on these results, H1 and H5 were supported, while H2, H3, and H4 were not supported.

Table 6: Coefficient table for variables predicting KSB

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.248	0.377		3.308	0.001
Fairness	0.576	0.108	0.376	5.313	0.000
Identification	0.206	0.105	0.148	1.954	0.052
Openness	-0.162	0.121	-0.107	-1.336	0.183
Enjoyment	-0.181	0.097	-0.132	-1.861	0.064
Usefulness	0.209	0.084	0.165	2.490	0.013

Dependent variable: KSB

5   DISCUSSION

The findings have shown that four variables namely fairness, identification, openness, and usefulness were found to be of some significance in influencing student's behavior towards knowledge sharing and thus supporting the findings of Hsu, et al. 2007), Yu, et al. 2010), Fang and Chiu, 2010) and Ma and Yuen, 2011). On the other hand, enjoyment to help was found to be an insignificant antecedent to knowledge sharing behavior. In this context, it shows that individuals' motivation and willingness are important to ensure knowledge sharing is performed successfully. While the Internet is an enabler for knowledge sharing, use of the Internet does not ensure that the sharing activity can be achieved successfully. As this study focuses on students, fairness is seen to be an important determinant in nurturing the climate of trust in people, especially in a virtual environment. Furthermore, a continuous and active communication process will develop common ground and shared meaning within the group.

In fact, all the antecedents to knowledge sharing behavior are interrelated. When trust is achieved, it can progressively promote continuous interaction with friends, whereas a sense of belonging could form strong social bonds among students. Furthermore, trust encourages active involvement of students to seek help from their colleagues. Yu, et al. 2010) explained that openness shapes one's knowledge sharing behavior and thus students could participate in knowledge construction and encourage individuals to share whatever knowledge they possess. Moreover, openness will enrich their experience and expose them to issues that require them to make full use of their knowledge to solve problems or to give ideas.

The result of this study also suggested that relevancy of knowledge has a positively significant role in knowledge sharing behavior, but with a weak relationship. Some people contribute their knowledge because they want to gain more recognition and to strengthen their social ties. However, this might not guarantee that the knowledge transferred is really useful as they might simply transfer their knowledge without considering its relevancy to the subject studied in class. Meanwhile, some of the students might contribute in knowledge sharing to improve their own academic performance and, at the same time, contribute to their friends' knowledge. After all, knowledge sharing cannot take place if the sharers do not know why they should share their knowledge with their friends.

Another important finding of this study was enjoyment to help. It is a factor that is not easy to develop. This is because it is driven by an individual's self motivation to help, especially when such help offered is not rewarded in any tangible way. Furthermore, different individuals have different ways of thinking and acting towards knowledge contribution. Therefore, there is no specific solution for this issue since individuals may have different perceptions about the enjoyment they receive from helping. From the findings gathered in this study, it is helpful to improve the awareness of the importance of knowledge sharing behavior. Instead of simply emphasizing the value of the Internet as an important medium for knowledge sharing, it is first necessary to expose students to knowledge sharing activities on the Internet.

6   CONCLUSION

This study was conducted to investigate the factors that lead to knowledge sharing behavior among students. An empirical based framework consisting of five independent variables (fairness, identification, openness, usefulness, and enjoyment to help) and one dependent variable (knowledge sharing behavior) was developed to further clarify the objectives of the study. From the analyses carried out, fairness, identification, openness, and usefulness were found to contribute to knowledge sharing behavior. While this study has found only four antecedents for knowledge sharing behavior, the developed framework can be further tested for other antecedents. Despite the usefulness of the findings, the study has some limitations. The first limitation pertains to the scope of the study, which was limited to students in the Faculty of Information Management. Universiti Teknologi MARA has 25 other faculties which offer many courses. It is important to identify the status of factors that lead to knowledge sharing behavior among students from other faculties. An additional limitation of this study is that it uses a purely quantitative approach to achieve its objectives. Future research could adopt other methods for conducting the study such as a qualitative approach or a mixed method approach which may provide richer data.

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