

Exploring Knowledge Sharing Behaviors on the e-Learning Platform by Using Theory of Planned Behavior Integrated with Psychological Safety

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Abstract

Web-based learning provides the educational environment where learners can implement cooperative learning, knowledge sharing, and problem solving. Each student has his/her different knowledge or advantages, their mutual knowledge sharing behaviors can not merely give them opportunities to absorb the community members' knowledge on the e-learning platform, but make them much closer. Although web-based instruction has been promoted and implemented in every university for years in Taiwan. Nevertheless, the discussion of students' knowledge sharing behaviors with the employments of e-learning platforms is rare. Recent studies regarding the shaping of behaviors and behavioral intention, Theory of Planned Behavior is the most widely adopted. It is used in this paper to research on the causes for which students exercise knowledge sharing through e-learning platform. Furthermore, the discussion of psychological process appeared to lack in the earlier studies, so the influence of psychological safety will also be discussed. So, the purpose of this paper is to discuss: (1) the essential elements to form knowledge sharing intention; (2) knowledge sharing intention influences the generation of knowledge sharing behavior or not; (3) the influence of psychological safety on knowledge sharing intention. In order to test and verify the theoretical model used in this paper, questionnaire survey was used. Five hundred and eighty-four students of NCUE involved in the survey study, and four hundred and fifty-seven valid questionnaires were returned. The rate of return was 78%. Structural Equation Models were used to test research hypotheses, the result is partially different in related research. We found that except the relationship between attitude and behavioral intention isn't significant, both subjective norm and perceived behavioral control could affect the students' behavioral intention toward knowledge sharing on the e-learning platform. We also found that psychological safety would help to form the knowledge sharing intention, and knowledge sharing intention is the predictor of knowledge sharing behavior. Based on these results, we gave our conclusions and concrete recommendations for higher education management and future research.

Keywords: knowledge sharing Behavior, Theory of Planned Behavior, psychological safety

1. Introduction

Since the Internet was widely utilized, not only have people's daily lives changed greatly, but it has also provided school education with various kinds of application tools. Govindasamy(2002) indicates that web-based learning provided us with the access where learning and education outcomes can be elevated. Gal-Ezer & Lupo (2002) believed that the students who perform better in learning are more willing to use web-based instructional tools to learn. Web-based learning provides a educational environment where learners can execute cooperative learning and knowledge sharing. Each student has different knowledge, knowledge sharing behaviors can not merely give them opportunities to absorb the community members' knowledge on the same platform, but make their relationships between each other much closer(Wei & Chen, 2006). Although there were many studies discussing the causes and benefits of knowledge sharing in the online communities (Chiu, Hsu & Wang, 2006; Stampel & Webster, 2008), literature which focused on students themselves is relatively less. The discussion of learners' knowledge sharing behaviors with the employments of e-learning platforms is rarely seen. Based on these reasons, this paper will focus on students' knowledge sharing behavior on e-learning platform. Individual's intention could predict if he would be engaged in a certain behavior, so knowledge sharing behaviors among students were affected by degree of students' own behavioral intention toward knowledge sharing. Ajzen(1985) proposed Theory of Planned Behavior, which provided the following studies with a systematic model to comprehend human behaviors. It is the most widely adopted theory for predicting human behaviors (Gagné, 2009). In Theory of Planned Behavior, attitude, subjective norm, and perceived behavioral control all belong to personal knowledge, and few researchers had discussed factors that affect intention from the aspect of perception. Researchers has proposed that effective mechanism for learning and sharing requires psychological safety (Edmonson, 1999). When lack of psychological safety, individual will have less willing to express thoughts and propose effective knowledge (Hofmann & Stetzer, 1998). So in this paper, we'll take the point of view to discuss if psychological safety will influence students' personal knowledge sharing intention.

2. Literature Review

(1) Knowledge Sharing

Hendriks(1999) pointed out that knowledge sharing is a kind of communication. Earlier studies pointed out that the most important activity in online learning communities is knowledge sharing. But sharing knowledge may be contradictory and incompatible to human nature (Davenport & Prusak, 1998; Faraj & Wasko, 2005). If online learning environment can provide the a condition which urge personal knowledge sharing, that will make knowledge flow and accumulate among members, effects of web-based learning can thus be brought out. Because a individual's intention can predict if he is about to take such an action (Ajzen & Fishbein,1975), individual's knowledge sharing will be affected by his intention toward knowledge sharing, this paper cuts from intention model, next we discuss the formation of students' knowledge sharing behavior in school by Theory of Planned Behavior.

(2) Theory of Planned Behavior

Theory of Planned Behavior is originated from Theory of Reasoned Action. Because Theory of Reasoned Action did explain the situation when the behavioral intention an individual cannot decide on at free will or cannot execute his action fully according to his intention. When the performer cannot make a strategic decision at his own free will, Theory of Reasoned Action will be limited. To increase the precision of prediction of Theory of Reasoned Action, Ajzen(1985) proposed a revision under the original structure. Besides the two original variables- attitude and subjective norm, he added the third one- perceived behavioral control, which took the hindrance against the formation of intention and the limits of the execution of action in he daily life into consideration. Theory of Planned Behavior believed that an action includes 3 phases: personal behavior is decided by personal behavioral intention, and the behavioral intention is affected by the attitude, subjective norm, and perceived behavioral control toward it. And these 3 variables will be different by the exogenous variables such as demographic variables or the environment. Many recent studies have also adopted Theory of Planned Behavior to discuss the reason to account for the formation of the behavioral intention of the knowledge sharer(Beck, Czerniak, Haney, & Lumpe, 1999; Chambers & Lumpe, 2001), which also found out that Theory of Planned Behavior is a fine tool to use under a topic like this (Crawley, Fine, & Sugar, 2004; Gagné, 2009) .

If intention is able to predict the behavior, the behavior has to be controlled by personal will. The basic hypothesis of our theory believes the most direct determinant for one to take a particular behavior is behavioral intention, and any other factor that affects this behavior is to indirectly affect the performance of behavior through this behavioral strategy. To conclude above literature review above, this paper proposes several hypotheses specifically to the constructs under the structure of Theory of Planned Behavior :

H₁: Students' attitude positively influence knowledge sharing intention.

H₂: Students' subjective norm positively influence knowledge sharing intention.

H₃: Students' perceived behavioral control positively affect knowledge sharing intention.

H₄: Students' knowledge sharing intention positively influence knowledge sharing behavior.

(3) Psychological Safety

Edmonson(1999) believes that psychological safety is the subjective psychological feelings toward the environment he is in and how he will react to it. Nembhard & Edmondson(2006) believes that psychological safety enables an individual to express his own thoughts at free will without the deprivation of others or any influence from negative factors, which is built on the mutual trust between people. When individual perceives that the interpersonal relationships are mutually reliable, psychological safety he can perceive can be stronger. Robinson(1996) believes that psychological safety would influence the individual's performance, behavior, and intention. Edmonson(1999) pointed out that there is a positive relevance between psychological safety and learning behavior inside the organization. Because knowledge sharing behavior involved in mutual communication among members in organization, positive psychological safety will generate a

influence that is favorable for interpersonal communication(Hofmann & Stetzer, 1998). Zhang, Fang Wei &Chen(2010) also pointed out that psychological safety will urge the individual to perform knowledge sharing behavior in virtual community. As a result, when individual feels that in the environment of e-learning platform supports the mutual knowledge sharing behavior. Based on the statements above, this paper proposed a hypothesis as follow.

H₅: Students' psychological safety positively influence knowledge sharing behavior.

3. Research Method

This paper took current of students of NCUE who had used the e-learning platform as the study object. 584 copies of questionnaires were given out, and 457 valid questionnaires were returned. Rate of return was 78%. We used questionnaires for survey and adopt researchers' scales to measure each variable of our research structure. One of the scales is Theory of Planned Behavior questionnaire constructed by Ajzen(2002), which included 20 items. Due to this scale has not include measured the actual behavior,we use a 5 items scale of knowledge sharing behavior developed by Bock&Kim(2000) to measure knowledge sharing behavior. To measure psychological safety,7 items developed by Edmonson(1999) was employed to measure it. Meanwhile, we further examine if the questionnaires adopted by this paper were equipped with reliability.We measure reliability of each scale. Theory of Planned Behavior scale's Cronbach's α is 0.89 ; Psychological safety's Cronbach's α is 0.64; knowledge sharing behavior scale's Cronbach's α is 0.86. Each scale had intermediate or high reliability. After returning the questionnaires, we use Structural Equation Models to execute data analysis, and employed AMOS 16 to testify the fit indices between the empirical data and research model and each variable of the research model.

4. Results

On the side of model fit index, fit indices were all in an acceptable range, such as $\chi^2/df=3$ 、NFI was near 0.9、NNFI was near 0.9、CFI>0.9、IFI>0.9、GFI>0.8、RMR was near 0.08 (Hair et al.,1998). This means each item of the measure model could all be explained by factors overtly. In our study, all the fit indices of the research model had reached the ideal standards proposed by the specialists. The results are as follow:

Table 1. Model Fit Index

X²/df	NNFI	IFI	CFI	GFI	RMSEA
1.407	0.971	0.991	0.991	0.961	0.026

After confirming the research model reached the fit indices, we execute confirmatory factor analysis to examine the validity and reliability of each constructs. After analysis, factor loadings are between .33 to .94. Most of factor loadings are larger than .5. Composite Reliability are between .68 ~ .95. On the side of Average Variance Extracted, it's between .28~ .81. All the results appeared that the reliability and validity of the scales have reached the intermediate or high standards. And we also presented the results of path analysis based on structural equation models, The relationships are presented as Figure1:

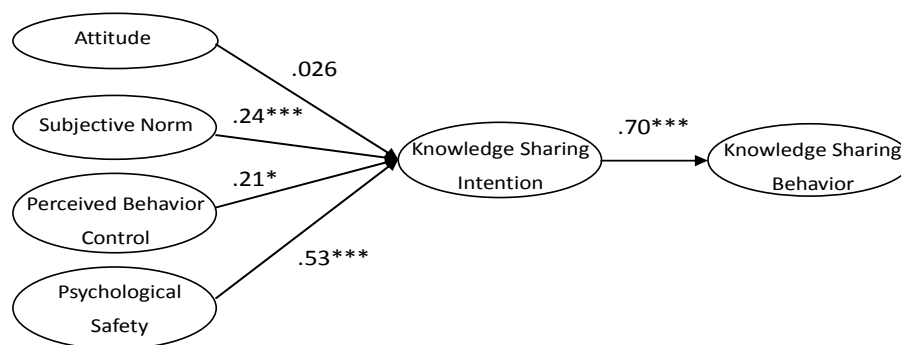


Figure 1. SEM result of research model

The results gave us the fact that all the path relationships have reached the overt standard except for the relationship of attitude to intention, and the relationship of psychological safety and intention can be explained more ($R^2=.526$), which mean that psychological safety had a quite great influence on the formation of intention. Besides, this paper further discussed the relationship between the intention and actual behavior, and the findings said that the relationship between intention and behavior had reached the overt standard, which can be explained as $R^2=.696$.

5. Conclusion

First, through this study, we once again took a look at the relationships among the attitude, subjective norm, perceived behavioral control and behavioral intention, which were all under the structure of Theory of Planned Behavior. In spite that attitude did not affected behavioral intention to the degree of reaching the overt standard, both the factors subjective norm and perceived behavioral control could affect the students' behavioral intention toward knowledge sharing on the e-learning platform. That is, when students feel the social pressure from the significant others and their control over the knowledge sharing behavior become stronger. Some previous studies had obtained the consistent results (Crawley, Fine, & Sugar, 2004). Our results also indicate that subjective can high explain the formation of behavioral intention, which means in student groups, the social pressure from their peers or teacher has a relatively significant influence on their formation of knowledge sharing intention. When the school attempts to urge the knowledge sharing in online learning communities, it's properly use the influence of "important others" to students can be taken into consideration. It makes students a sense that other people expect them to do so, and their intention of taking knowledge sharing can be elevated.

Different from the finding of most previous studies would be the fact that students' positive or negative evaluations to knowledge sharing, attitude toward knowledge sharing did not have an overt influence on intention. This result was consistent to the earlier study of Ajzen & Fishbein(1973). Although researchers generally believed that there was a strong correlation between attitude and behavior, there was another series of researches who had doubts for this theory(Festinger, 1964; McGuire, 1969; DeFleur & Warner, 1969; Wicker, 1969). They believes that attitude is a multi-dimensional construct, including different components such as cognition and emotion. As a

result, a so-called “grade of attitude scale” could not represent these components fully. Therefore, it was hard to predict behavior (Rosenberg & Hovland, 1960). As earlier studies had pointed out that attitude should be a multi-dimensional construct, the scale which this paper used only presented “grade for attitude scale” cannot fully represent these components and hard to predict a behavior (Hovland & Rosenberg, 1960). As a result, we suggests that the future studies can clarify the relationships between attitude and behavioral intention by using such scale in student groups. Although the results we have obtained from the paper of the relationship between the intention and actual behavior are consistent with Bock & Kim(2002), some recent studies still have doubts(Kim & Malhotra,2005; Burton-Jones & Straub,2006; Kuo & Young, 2008). Future studies may look into this issue.

In addition, based on the basic hypothesis of Theory of Planned Behavior, this paper believed the most direct determinant for an individual to take a certain action is behavioral intention, and measured the relationship between it and actual behavior. Results showed that the relationship between them were overtly positive in student groups. This result consist with Bock & Kim(2002).

Lastly, in the research field of knowledge sharing in the university, this paper held the same viewpoint with Edmonson(1999), and added psychological safety and supportive organizational climate to the structure of Theory of Planned Behavior. The results showed that psychological safety could highly explain behavioral intention. That is, it is more easily for students who have the higher degree of psychological safety to form the knowledge sharing intention. As a result, this paper believes that psychological safety is an influential factor on students’ knowledge sharing intention. Future studies can further discuss the formation of knowledge sharing intention from another group (i.e. teachers), which can make an analogy of the results in this paper. Besides, this paper specifically discussed students’ knowledge sharing behavior, which is something that lacked in the field of educational studies. Although we may have draw a clearer picture of what would affect the formation of knowledge sharing, we still do not have a clear understanding if it will bring any actual benefit to the school or student. Future studies may discuss the following results, such as what benefit it will bring to school if students take knowledge sharing behavior.

6. Reference

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