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# What Motivates a Student to Participate in the Electronic Discussion Forum: A Survey Study of Students' Participation Intention

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## Abstract

*Electronic discussion forum has increasingly being utilized to complement the conventional ways of teaching by encouraging the students to take a more proactive approach towards learning. Despite the widespread application, antecedent evidence indicates that the forum may not be utilized to its full potential due to lower than expected student participation. Furthermore, little research has been conducted to understand the determinants of learners' intention towards active participation from the behavioral perspective. With reference to the Theory of Planned Behavior (TPB), this research, seeks to identify and examine the factors influencing the student's intention to participate in electronic discussion forum. A conceptual model depicts the causal relationships of outcome expectancy, subjective norms and perceived behavioral control on intention formation. Moderating variables of perceived importance of learning and conformity motivation are also studied. A survey is conducted. Results and implications are discussed.*

**Keywords:** electronic learning, electronic discussion forum, Theory of Planned Behavior, Survey research

## 1. Introduction

Electronic discussion forum has increasingly being utilized to complement the conventional ways of teaching by encouraging the students to take a more proactive approach towards learning. It is touted to be an effective media of communication and learning (Yuan 2003) for it is able to facilitate participants to conduct constructive debate and discussion without temporal and geographical constraints (Heng and Aldo 2003). As an effective tool to facilitate electronic learning, electronic discussion forum can successfully capture and go beyond the boundaries of regular conventional classroom discussion by creating an on-line student-centered learning community (Brower 2003). However, the effectiveness of the forum depends on the level of participation which in turn depends on the intention to participate (Roschelle et al. 2000). Despite the recognition of the importance of students' participation in the electronic discussion forum, few researches have been conducted to understand the determinants of learners' intention towards active participation from the behavioral perspective. This study, hence, aims to answer the question of what factors influence the students' behavioral intention to participate by analyzing the electronic discussion forum implemented in a public university.

The electronic discussion forum studied is embedded into the university's award-winning virtual learning system. Among many of the functionalities, electronic discussion forum is one of the most important; however the utilization rate remained at a relatively lower than expected level. This study, hence, further motivated by practical needs, examines the antecedents of the intention towards participation in context of this system. Rooted in the Theory of Planned Behavior (TPB), we hope to propose a more comprehensive model of intention by considering the outcome expectancy, subjective norms and the perceived behavioral control on intention formation.

The rest of the paper is organized as follows: first we briefly discuss the referenced theory – TPB – and review the constructs relevant to the study. Based on this discussion, we establish our conceptual model and develop our hypotheses. Next, we discuss the research method and this is followed by the data analysis and discussion. We conclude the paper by highlighting the key findings and implications of the study.

## **2. Theoretical foundation and research model**

Intention models or behavioral decision theories from Social Psychology have been referenced by Information Systems (IS) researchers for studies of the Information Technology (IT) adoption by individuals (see e.g., Christie 1981). Among many of these theories, we have chosen to focus on the TPB. According to Harrison et al. (1997), TPB “is a well-researched intention model by the IS researchers for its ability to incorporate grounded concepts and principles”. More specifically, it is a general theory of social psychology designed to predict and explain human intention and behavior in a wide variety of contexts (Venkatesh and Brown 2001).

Empirically, TPB has been successfully applied to increase the understanding of individual intention to accept a technology (Harrison et al. 1997) by considering the influence of social and psychological factors on behavior (Taylor and Todd 1995). This field of thought is in accordance with our present research focus on social and behavioral factors. For this reason, we adopt TPB as the theoretical backbone of our present study.

Following TPB we construct the research model (see Figure 1 below). One important point to note is that according to TPB, a person's behavior is a positive function of the intention to perform the behavior when the behavior is under individual's volitional control (Harrison et al. 1997). And previous research has established the strong relationship that “intention towards behavior” will lead to “actual behavior” and it is assumed that “intention” is the immediate antecedent of actual behavior (Ajzen 1991). Although TPB uses the construct of actual behavior as its dependent variable, we, in this study, mainly focus on students' intention towards participation in electronic discussion forum believing that strong intention to participate will lead to actual participation later. And the construct of intention towards participation will be the dependent variable in our conceptual model.

### ***2.1. Intention towards Participation***

Individual's intention to perform a given behavior is defined as the strength of conscious plans to perform the target behavior (Harrison et al. 1997). It is assumed to capture the motivational factors that influence a behavior (See Ajzen 1991). TPB postulates that a person's intention to adopt a technology is determined by three factors, namely (1) the attitude a person has towards the target behavior (positive or negative evaluation of target behavior); (2) a person's subjective norms regarding the target behavior (perceived social pressure to perform the behavior or not); and (3) the perception of a person that he/she has

the ability and resources to perform the behavior (perceived control over behavior). The construct of attitude has been found problematic in technology adoption study because the antecedents of attitude can directly influence the intention towards behavior and dropping attitude from the original TPB model is consistent with most technology adoption research (e.g., Gefen et al. 2003). In the present study, we posit that the intention towards participation will be directly influenced by outcome expectancy of participating in electronic discussion forum and thus the construct of attitude towards participation is not included in the conceptual model.

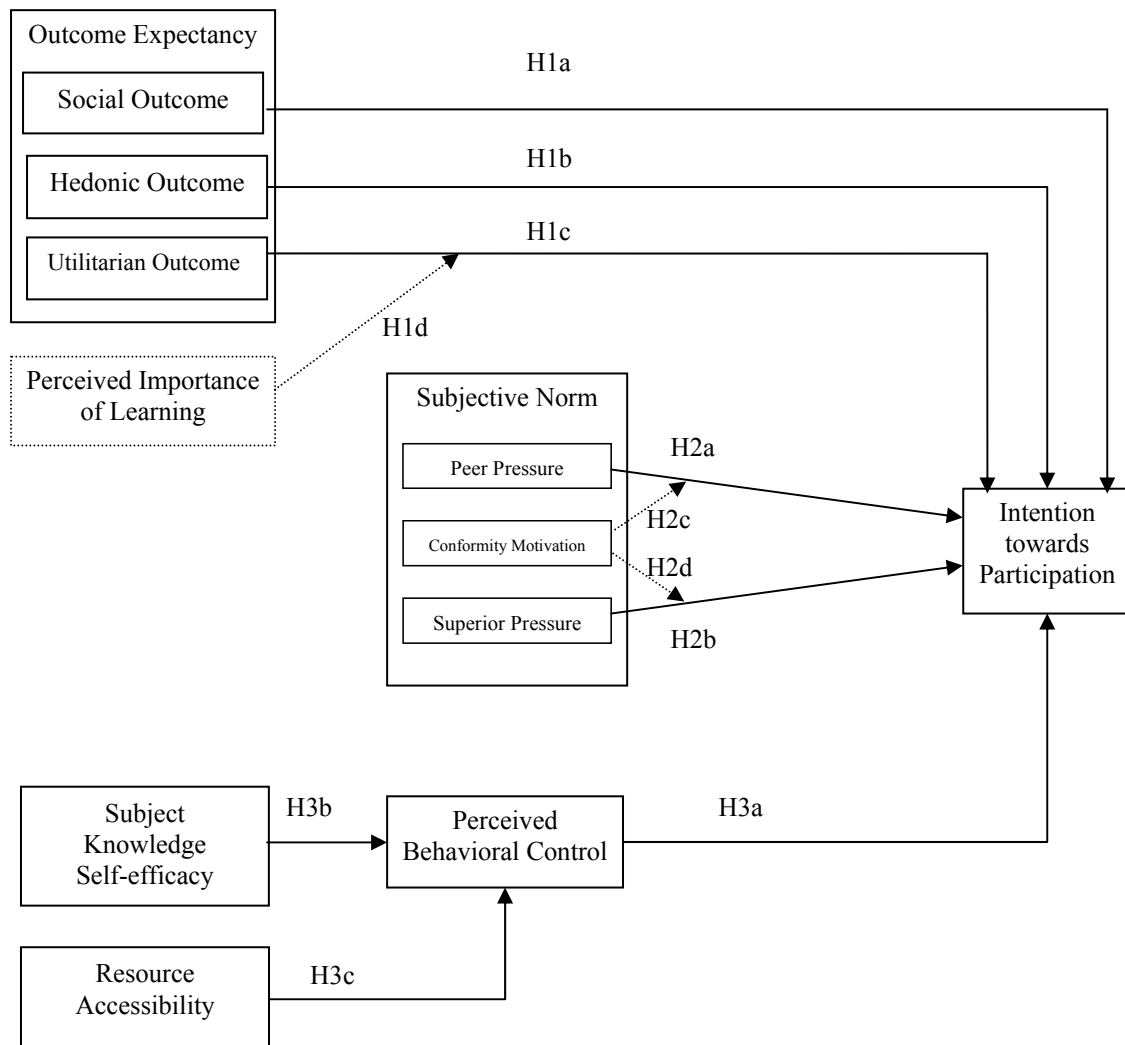


Figure1. The Model of Intention towards Participation in Electronic Discussion Forum

## 2.2. Outcome Expectancy

Outcome Expectancy refers to an individual's belief that completing a task would lead to desirable outcome (Bandura 1986). This behavioral belief is weighted by the evaluation of favorable outcomes that result from performing the behavior (Venkatesh and Brown 2001). Individuals are more likely to undertake behaviors they believe will result in valued outcomes than those which they do not see as having favorable consequences (Compeau and Higgins 1995). The underlying behavioral belief structure is formed by the expectancies of social outcome, hedonic outcome and utilitarian outcome in electronic discussion forum participation (see Venkatesh and Brown 2001).

Social outcome refers to the public recognition that would be achieved as a result of performing a certain behavior (Fisher and Price 1992). Specifically, it has been suggested by IS researchers that the desire for social outcomes is driven by the influence from others who belong to the same social group (Venkatesh and Davis 2000). Since participating in electronic discussion forum provides an alternative channel for students to practice and present their knowledge and skills to the rest of the class, students' participation to the discussion forum will be recognized by others whom one perceives to be important. Such recognition may influence participant's status within the group and may also affect his intention towards participation. In other words, high level of social outcome expectancy can lead to positive intention towards participation in electronic discussion forum.

Hedonic outcome is described as the pleasure derived from the use of a technology (Babin et al. 1994; Hirshman and Holbrook 1982). Compared with the conventional way of learning, such as attending a lecture, where communication is usually one-way from lecturer to student, electronic discussion forum facilitates two-way communication. This form of two way interaction makes learning become more student-centered. Students would enjoy more through such an interactive learning process by promptly exchanging opinions on topics of interest. Such enjoyment will be an important influential factor of intention towards participation in electronic discussion forum.

Utilitarian outcome refers to the extent to which participating in electronic discussion forum enhances the effectiveness of learning activities (Venkatesh and Brown 2001). Research shows that participation in electronic discussion forum can deepen learners' understanding by facilitating greater interaction on a timelier basis (Mutula 2002). Moreover, some researchers found that the quality of discussions and learning is enhanced in the presence of electronic discussion forum (Ahern and Hindi 2000; Arbaugh 2000; Poole 2000). We believe that the participants' interaction and communication via the forum can foster more effective learning outcomes by enabling students to find answers to their queries and benefiting from the contributions of the others (Piccoli et al. 2001). Therefore, electronic discussion forum is considered to be a powerful tool facilitating learning. Empirically, in a study conducted by Alavi (1994), students engaged in the collaborative learning, which could be facilitated by electronic discussion forum, earned higher grades than those who did not. Holding the belief that electronic discussion forum can improve the effectiveness of learning, students will exhibit higher intention to participate.

In a nutshell, individuals with higher perceived social outcome, utilitarian outcome and hedonic outcome will have greater intentions to participate (e.g., Davis et al. 1992). Thus, we hypothesize:

**H1a:** Social outcome expectancy would positively influence the intention towards participation in electronic discussion forum.

**H1b:** Hedonic outcome expectancy would positively influence the intention towards participation in electronic discussion forum.

**H1c:** Utilitarian outcome expectancy would positively influence the intention towards participation in electronic discussion forum.

Among the three outcome expectancies, the most immediate and tangible outcome is the utilitarian outcome expectancy. According to Taylor and Todd (1995), this outcome expectancy might be moderated by the evaluation of outcome desirability. In this learning context, the evaluation of the outcome desirability is represented by the perceived importance of learning, which is defined as one's perception about the significance of learning. In other

words, the higher the perceived importance of learning, the stronger the relationship between utilitarian outcome expectancy and intention towards electronic discussion forum participation will be. Hence, we hypothesize:

**H1d:** Perceived importance of learning would positively moderate the relationship between utilitarian outcome expectancy and the intention towards electronic discussion forum participation.

### **2.3. Subjective Norm**

Subjective norms are a person's perceptions of those people who are important to him think he should or should not perform the behavior in question (Fishbein and Ajzen 1975). In our context, subjective norms are formed by a student's normative beliefs (Harrison et al. 1997) of what others think whether he should participate in the electronic discussion forum or not. Then who are the people that one perceives to be important in the current context? Intuitively, the potential candidates include friends, classmates, and instructors (such as lecturers and tutors). For friends and classmates, there is no difference in the social status. But instructors are perceived to possess certain formal authority. Hence, to study subjective norms, such distinction is necessary. For this reason, subjective norms are categorized into two types: peer pressure and superior pressure.

Peer pressure is formed when a student's perception of his peers' effort on participation in electronic discussion forum exceeds the standard of effort set by himself (e.g., Barron and Gjerde 1997). To illustrate, when encountered a peer pressure to participate (not to participate), a student may have to concur with the peers' move, by modifying one's own effort to participate (not to participate) in electronic discussion forums. On the other hand, instructors are the principle actors in any learning environment (Webster and Hackley 1997) and instructor behavior, as surfaced through attitudes and actions, can have an important influence (perceived as formal authority) on students' own reactions to the learning environment (Piccoli et al. 2001). Instructor's positive (or negative) attitude towards electronic discussion forum participation can affect the intention to participate (Piccoli et al. 2001). Hence, it is argued that the level of superior pressure is positively related to the intention of a student to participate.

Furthermore, the pressure to participate may depend on the level of individual's conformity. Indeed, extant studies have shown that the strength of normative belief is moderated by the person's motivation to comply (i.e. conformity motivation) with the referents (Taylor and Todd 1995; Mathieson 1991). Essentially, the higher the level of conformity motivation (i.e. the extent to which the person wants to comply with the wishes of those one perceived to be important), the stronger the relationship between the peer/superior pressure and intention towards electronic discussion forum participation will be.

Succinctly, individuals faced with greater level of peer pressure and superior pressure would have greater intentions to participate, and the effects would be moderated by the conformity motivation. Therefore, we hypothesize:

**H2a:** Peer pressure would positively influence the intention to participate in electronic discussion forum.

**H2b:** Superior pressure would positively influence the intention to participate in electronic discussion forum.

**H2c:** Conformity motivation would positively moderate the relationship between peer pressure and intention to participate in electronic discussion forum.

**H2d:** Conformity motivation would positively moderate the relationship between superior pressure and intention to participate in electronic discussion forum.

#### ***2.4. Perceived Behavioral Control***

Perceived Behavioral Control (PBC) refers to either the perceived ease or difficulty of performing the behavior or the perception that one has the ability and resources to perform the behavior (Ajzen 1991). A student's perception of control over electronic discussion forum participation indicates the belief that one possesses the capability and resources to participate. This is crucial to form positive intention towards participation. In other words, a person with a high level of perceived behavior control has confidence in his/her ability to participate. Such high level of perceived behavior control results from one's self-efficacy and resource accessibility.

Self-efficacy represents one's judgment of his capability to organize and execute courses of action required to attain desired level of performance (Bandura 1986). Such self-efficacy beliefs can influence choice of activities, preparation for an activity, effort expended during performance (Bandura 1982, 1991). In the context of this study, we consider the student's self-efficacy of the knowledge about a specific subject because one may need to have certain level of subject knowledge in order to participate and contribute in the forum. For example, if a student does not possess sufficient knowledge on computer algorithm, he would be less likely to understand the discussions in the algorithm forum. Hence, without confidence of his subject knowledge, he is likely to have less intention towards participation.

Resource accessibility represents facilitating conditions (Triandis 1979), which reflects the availability of resources needed to engage in a behavior, like the availability of computer and network resources. Since participation in electronic discussion forum requires all participants to interact extensively through internet, the accessibility to computer and internet will be a very important determinant on whether the participation is possible or not.

Consequently, individuals with higher level of subject knowledge self-efficacy and resource accessibility will have higher perceived behavior control, which in turn affects the intention to participate. For this reason, we hypothesize:

**H3a:** Perceived behavior control would positively influence intention to participate in electronic discussion forum.

**H3b:** Subject knowledge self-efficacy would positively influence perceived behavior control.

**H3c:** Resource Accessibility would positively influence perceived behavior control.

### **3. Method**

To test the research model, we conducted a cross-sectional survey study at a public university where an electronic discussion forum, as an important function of a virtual learning system, is used. A questionnaire was developed, pre-tested and then administered to full-time third year undergraduate students enrolled in an Information Systems Strategy course. As an incentive to participate, respondents were informed of monetary benefits. To avoid selection bias, we provided questionnaires to all participants in the course. Out of 254 sets of questionnaires distributed, 206 responses (81%) were received. 183 entries were recorded as 23 returned questionnaires were incomplete and hence, were removed.

### 3.1. Measures

In order to ensure measurement reliability in the operationalization of the constructs, we only adapted items which had been validated in prior studies. To ensure face and discriminant validity, we used the card sorting procedure proposed by Moore and Benbasat (1991). We then pre-tested the questionnaire with 25 students. After examining the Cronbach's alphas and conducting factor analysis, four items were removed or rephrased. We had 28 items for the 11 constructs.

### 3.2. Data Analysis

After the data was collected, we conducted Cronbach's alpha and factor analysis test (see table 1). To analyze the data, we used partial least square (PLS), a structural equation modeling (SEM) technique. We chose PLS for two reasons. First, PLS allows researchers to integrate the measurements and structural models. By doing so, PLS permits tests of how the independent variables vary, interact, and influence the dependent variable (i.e. intention to participate). Second, when compared with covariance-based methods, PLS imposes lower demands on sample data distribution or size as it does not assume multivariate normality among sample distribution.

| Item | Cronbach<br>$\alpha$ | Factor Analysis results |      |      |      |      |      |      |      |      |      |      |
|------|----------------------|-------------------------|------|------|------|------|------|------|------|------|------|------|
|      |                      | 1                       | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   |
| A1   | 0.89                 | 0.83                    |      |      |      |      |      |      |      |      |      |      |
| B1   |                      | 0.86                    |      |      |      |      |      |      |      |      |      |      |
| A2   | 0.90                 |                         | 0.88 |      |      |      |      |      |      |      |      |      |
| B2   |                      |                         | 0.82 |      |      |      |      |      |      |      |      |      |
| A3   | 0.88                 |                         |      | 0.86 |      |      |      |      |      |      |      |      |
| B3   |                      |                         |      | 0.88 |      |      |      |      |      |      |      |      |
| C3   |                      |                         |      | 0.84 |      |      |      |      |      |      |      |      |
| A4   | 0.88                 |                         |      |      | 0.82 |      |      |      |      |      |      |      |
| B4   |                      |                         |      |      | 0.90 |      |      |      |      |      |      |      |
| C4   |                      |                         |      |      | 0.85 |      |      |      |      |      |      |      |
| A5   | 0.94                 |                         |      |      |      | 0.89 |      |      |      |      |      |      |
| B5   |                      |                         |      |      |      | 0.90 |      |      |      |      |      |      |
| A6   | 0.80                 |                         |      |      |      |      | 0.82 |      |      |      |      |      |
| B6   |                      |                         |      |      |      |      | 0.89 |      |      |      |      |      |
| A7   | 0.72                 |                         |      |      |      |      |      | 0.84 |      |      |      |      |
| B7   |                      |                         |      |      |      |      |      | 0.79 |      |      |      |      |
| C7   |                      |                         |      |      |      |      |      | 0.72 |      |      |      |      |
| A8   | 0.90                 |                         |      |      |      |      |      |      | 0.85 |      |      |      |
| B8   |                      |                         |      |      |      |      |      |      | 0.85 |      |      |      |
| C8   |                      |                         |      |      |      |      |      |      | 0.82 |      |      |      |
| A9   | 0.78                 |                         |      |      |      |      |      |      |      | 0.88 |      |      |
| B9   |                      |                         |      |      |      |      |      |      |      | 0.83 |      |      |
| C9   |                      |                         |      |      |      |      |      |      |      | 0.62 |      |      |
| A10  | 0.88                 |                         |      |      |      |      |      |      |      |      | 0.86 |      |
| B10  |                      |                         |      |      |      |      |      |      |      |      | 0.83 |      |
| C10  |                      |                         |      |      |      |      |      |      |      |      | 0.82 |      |
| A11  | 0.83                 |                         |      |      |      |      |      |      |      |      |      | 0.82 |
| B11  |                      |                         |      |      |      |      |      |      |      |      |      | 0.81 |

Table 1. Construct Reliability and Discriminant validity tests.

PLS-Graph was used to perform the analysis. In evaluating the measurement model, items with path loading of 0.7 or higher were considered as acceptable. For the evaluation of the structural model (hypothesized links), the Bootstrap resampling procedure was applied to test the significance of the path coefficients. To further assess the internal consistency, we



measured the composite reliability ( $\rho$ ) developed by Werts et al. (1974). In formulating and testing the effects of moderating variables, we applied the procedure described by Chin et al. (1996). First, we standardized all indicators reflecting the predictor and moderator constructs to a mean of zero and variance of one. Then, using the standardized indicators of the predictor and moderator variables, product indicators were generated to reflect the latent interaction variable. The PLS procedure is then applied to estimate the latent variable.

#### **4. Results and Discussions**

The results of the PLS analysis are presented in Figure 2. The estimated path coefficient (standardized) and its associated significance level are specified next to each link. The  $R^2$  statistic is indicated next to each dependent construct. Significance level of 0.05 is used for all statistical tests.

The empirical results support the hypothesized influence of outcome evaluation on intention formation with 3 out of 4 hypotheses supported. Social outcome expectancy has an insignificant effect on intention with path coefficient of 0.09. Hence, H1a is not supported. This implies social recognition may not be an important outcome that is expected by the students who intend to participate in the electronic discussion forum. This may result in the fact that compared with utilitarian outcome and hedonic outcome which are experienced by the participant himself, social recognition is given by others and there is a level of uncertainty which may in turn influence the intention to participate.

On the other hand, hedonic outcome expectancy has a significant effect at the 0.01 level on intention with path coefficient of 0.30. H1b is supported. One likely explanation is that since the electronic discussion forum is designed to facilitate discussion and students participate outside their lesson schedule voluntarily, the students should perceive the forum to be sufficiently “interesting” to participate since it is not mandatory.

The effect of utilitarian outcome expectancy on intention is significant at the 0.01 level with path coefficient of 0.19. H1c is supported. The moderating effect of perceived importance of learning on the relationship between utilitarian outcome expectancy and intention is found to be significant at 0.05 levels. We also tested for a possible direct link between perceived importance of learning and intention, but we did not find it to be significant. The result indicates that the perceived importance of learning is moderating the relationship between utilitarian outcome and intention but not directly affecting intention. Hence, H1d is supported. This result suggests that how an individual values the utilitarian returns of the forum participation also depends on how one perceived the importance of learning.

Result from the hypothesized relationship between subjective norms and intention formation is mixed. Significant effect of peer pressure on intention has been detected with path coefficient of 0.17. Hence, H2a is supported. The effect of conformity pressure on the relationship between peer pressure and intention formation is found not to be significant. There is insufficient evident indicating that conformity pressure moderates the relationship between utilitarian outcome and intention. Hence, H2c is not supported.

The PLS analysis indicates that neither the superior pressure affects intention formation nor the hypothesized moderating effect of conformity pressure on the relationship between superior pressure and intention formation is found to be significant. Hence, H2b and H2d are not supported. A possible explanation could be that while some students would respond positively to the “call” of the superior (i.e. the instructor) to participate in the discussion

forum, some would not do so. This is because this group of students who exhibit “rebellious” response to superior pressure would not like to follow what the superior instructs them to do. Further research on this behavior will be beneficial.

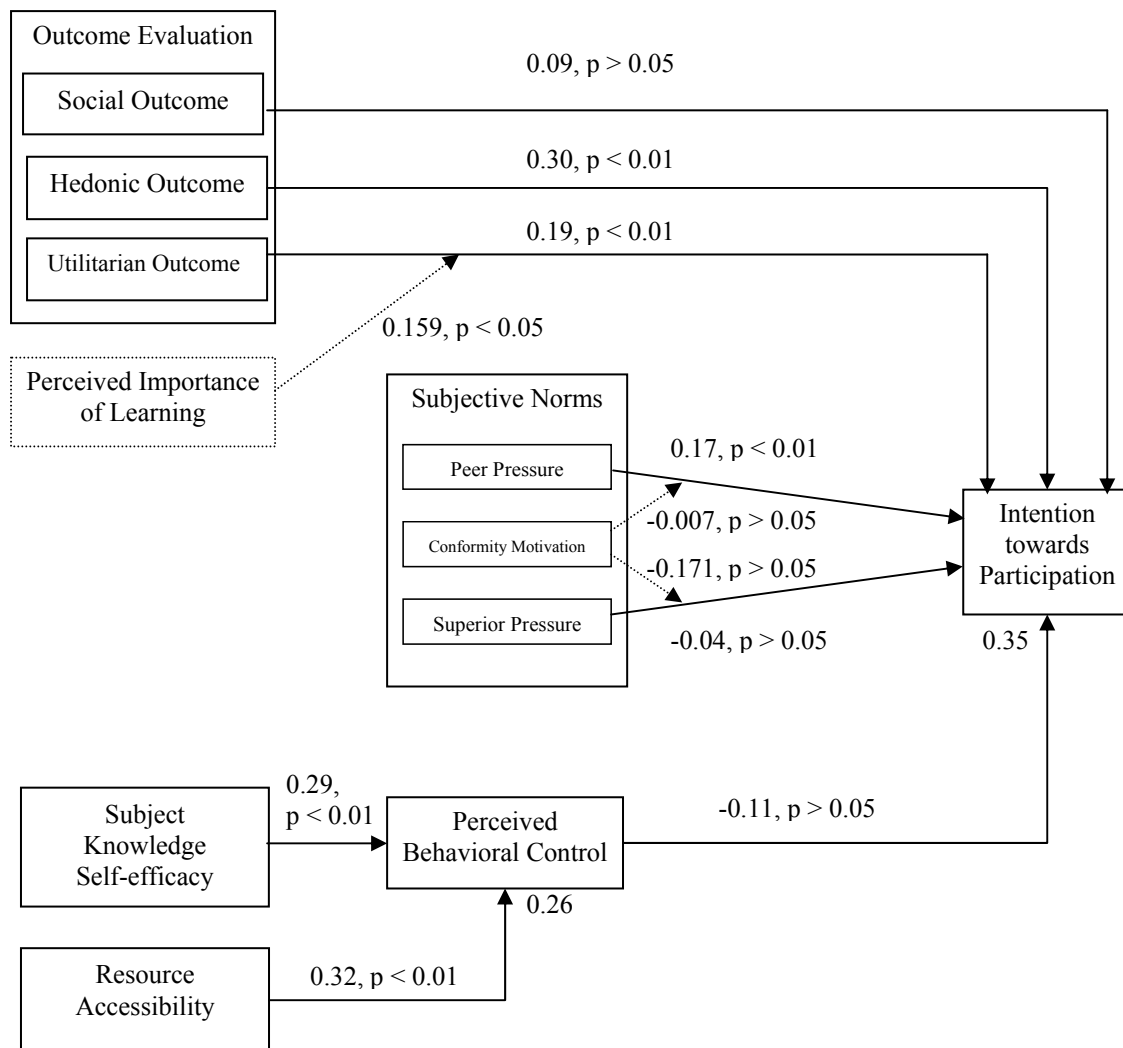


Figure 2. Results of PLS Analysis

The causal relationship between perceived behavioral control and intention formation is not significant. Thus, H3a is not supported. A likely cause of this could be that as the students are better equipped with the technical knowledge of using devices (e.g. personal computer) and increasing user-friendly interfaces, the consideration of the perceived behavior control on intention becomes secondary. The relationships between subject knowledge self-efficacy and perceived behavioral control, and between resource accessibility and perceived behavioral control are found to be significant. H3b and H3c are supported.

## 5. Conclusion

In this research we investigated the role of outcome expectancy, subjective norms and perceived behavior control in the intention formation in the context of electronic discussion forum participation. More specifically, we developed and empirically tested a model that integrates all three key constructs with various decompositions and the moderating variables. As opposed to most of the other studies, we examined possibility of moderating variable effects on the relationships between the key constructs (e.g. subjective norms with

decompositions of peer pressure and superior pressure). The study resulted in important theoretical and practical contributions.

Theoretically, this study is novelty in two ways. First, this study takes into consideration the multiple moderating effects, even though it is not easy to perform statistical testing using PLS-graph and have been “ignored” in many of the prior studies. Second, this study presents a more comprehensive and holistic examination of the outcome expectancy and subjective norms constructs by identifying the associated sub-constructs. The empirical results have indicated that the effects of each sub-construct have varying effects on the intention formation. Furthermore, this study has presented a more comprehensive model using TPB to explain the intention to participate in electronic discussion forum designed to encourage students to discuss. Notwithstanding the complexity of introducing moderating variables in many prior studies, this study will be of benefits to those researchers contemplating to further explore the importance of moderating variables on intention formation.

Empirically, the results confirmed the hypothetical moderating effect of perceived importance of learning on relationship between utilitarian outcome expectancy and the intention to participate. This implies that positive utilitarian outcome expectancy may not necessarily lead to higher level of intention. But rather, the level of perceived importance of learning will affect the cost and benefit computation and consequently strengthens or weakens the effect of the person’s outcome expectancy on the intention to participate.

Practically, a number of issues are worth mentioning. First, it seems that there still exhibits hope for students to participate in electronic discussion forum designed to complement the traditional teaching methods if we take into consideration the hedonic and utilitarian aspects of participation. Indeed, if the electronic discussion forum is designed and marketed as an “interesting yet beneficial” informal learning avenue, it may potentially lead to more favorable responses from the students. Second, from the results, it is unclear of the influence of the instructor on the electronic discussion forum participation intention. As reasoned, the presence of instructor influence could yield mixed effects on the participation intention. Practitioners have to be wary of this. Third, conventional wisdom dictates that perceived behavioral control is essential towards participation. However, given the level of IT competency among the students and increasing “standardization” of user interface, the perceived behavioral control becomes a prerequisite for electronic discussion forum rather than a determinant of intention formation.

Conclusively, electronic discussion forum is increasingly being adopted to complement the conventional ways of teaching and learning by encouraging students to take a more proactive approach towards learning. With a better understanding of the factors leading to the participation intention, the electronic discussion forum could be more readily accepted by the students and hence, a better cooperative learning environment for both the instructors and the students could be achieved.

## **6. References**

- Ahern, T. C., and El-Hindi, A. E. “Improving the Instructional Congruency of a Computer-Mediated Small-Group Discussion: A Case Study in Design and Delivery,” *Journal of Research on Computing in Education* (32:3), 2000, pp. 385-400.
- Ajzen, I. “The Theory of Planned Behavior,” *Organizational Behavior and Human Decision Processes* (50), 1991, pp. 179-211.

- Alavi, M. "Computer-Mediated Collaborative Learning: An Empirical Evaluation," *MIS Quarterly* (18:2), 1994, pp. 150-174.
- Arbaugh, J. B. "Virtual Classroom Versus Physical Classroom: An Exploratory Study of Class Discussion Patterns and Student Learning in an Asynchronous Internet-Based MBA Course," *Journal of Management Review* (24:2), 2000, pp. 213-234.
- Babin, B. J., Darden, W.R., and Griffin, M. "Work and/or Fun: Measuring Hedonic and Utilitarian Shopping Value," *Journal of Consumer Research* (20:4), 1994, pp. 644-656.
- Bandura, A. "Self-efficacy Mechanism in Human Agency," *American Psychologist* (37), 1982, pp. 122-147.
- Bandura, A. *Social Foundation for Thought and Action*, Prentice Hall, Englewood Cliffs, NJ, 1986.
- Bandura, A. "Social Cognitive Theory of Self-Regulation," *Organizational Behavior and Human Decision Processes* (50), 1991, pp. 248-287.
- Barron, J. M., and Gjerde, K.P. "Peer Pressure in an Agency Relationship," *Journal of Labor Economics* (15:2), 1997, pp. 234-254.
- Brower, H. H. "On Emulating Classroom Discussion in a Distance-Delivered BHR Course: Creating an On-Line Learning Community," *Academy of Management Learning and Education* (2:1), 2003, pp. 22-36.
- Chin, W. W., Marcolin, B. L., and Newsted, P. R. "A Partial Least Square Latent Variable Modeling Approach for Measuring Interaction Effects: Results from a Monte Carlo Simulation Study and Voice Mail Emotion/Adoption Study," *Proceedings of the 17<sup>th</sup> International Conference on Information Systems*, 1996, pp. 21-41.
- Christie, B. *Face to File Communication: A Psychological Approach to Information Systems*, Wiley, New York, 1981.
- Compeau, D. and Higgins, C. A. "Application of Social Cognitive Theory to Training for Computer Skills," *Information Systems Research* (6:2), 1995, pp. 118-143.
- Fisher, R. J., and Price, L. L. "An Investigation into the Social Context of Early Adoption Behavior," *Journal of Consumer Research* (19:3), 1992, pp. 477-486.
- Gefen, D., Karahanna, E., and Straub, D. W. "Trust and TAM in Online Shopping: An Integrated Model," *MIS Quarterly* (27:1), 2003, pp. 51-90.
- Harrison, D. A., Mykytyn, P. P. Jr., and Riemenschneider, C. K. "Executive Decisions About Adoption of Information Technology in Small Business: Theory and Empirical Tests," *Information Systems Research* (8:2), 1997, pp. 171-195.
- Heng, M. S. H., and Aldo, DeM., "From Habermas's Communicative Theory to Practice on the Internet," *Information Systems Journal* (13:4), 2003, pp. 331-352.
- Hirschman, E. C., and Hobrook, M. B. "Hedonic Consumption: Emerging Concepts, Methods and Propositions," *Journal of Marketing* (46:1), 1982, pp. 92-101.
- Moore, G. C. and Benbasat, I. "Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation," *Information Systems Research* (2:3), 1991, pp. 192-222.
- Mutula, S. M. "E-learning Initiative at the University of Botswana: Challenges and Opportunities," *Campus-Wide Information Systems* (19:3), 2002, pp. 99-109.
- Piccoli, G., Ahmad, R., and Ives, B. "Web-based Virtual Learning Environments: A Research Framework and A Preliminary Assessment of Effectiveness in Basic IT Skills Training," *MIS Quarterly* (25:4), 2001, pp.401-426.
- Poole, D. M. "Student Participation in a Discussion-Oriented Online Course: A Case Study," *Journal of Research on Computing Education* (33), 2000, pp. 162-177.
- Roschelle, J. M., Pea, R. D., Hoadley, C. M., Gordin, D. N., and Means, B. M. "Changing How and What Children Learn in School with Computer-Based Technologies," *The Future of Children* (10:2), 2000, pp. 76-101.

- Taylor, S. and Todd, P. A. "Understanding Information Technology Usage: A Test of Competing Models," *Information Systems Research* (6:2), 1995, pp. 144-176.
- Triandis, H. C. "Values, Attitudes, and Interpersonal Behavior," in *Nebraska Symposium on Motivation, Beliefs, Attitudes, and Values*, University of Nebraska press, Lincoln, NE, 1979, pp. 195-259.
- Venkatesh, V., and Brown, S. A. "A Longitudinal Investigation of Professional Computers in Homes: Adoption Determinants and Emerging Challenges," *MIS Quarterly* (25:1), 2001, pp. 71-102.
- Venkatesh, V., and Davis, F. D. "A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies," *Management Science* (46:2), 2000, pp. 186-204.
- Webster, J., and Hackley, P. "Teaching effectiveness in technology-mediated distance learning," *Academy of Management Journal* (40), 1997, pp. 1282-1309.
- Werts, C. E., Linn, R. L., and Joreskog, K. G. "IntraClass Reliability Estimates: Testing Structural Assumptions", *Educational and Psychological Measurement* (34), 1974, pp. 25-33.
- Yuen, A. H. K. "Building Learning Communities through Knowledge Forum: A Case Study of Six Primary Schools," *Proceedings on the International Conference on Computers in Education 2003 (ICCE 2003)*, Hong Kong, 2003.