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ABSTRACT

In this document we examine the effects of knowledge sharing motivations in terms of reputation and expected relationships, perceived enjoyment, and anchoring on perceived usefulness of asynchronous online discussions. Our main aim for conducting this study is to develop a deeper understanding of the dynamics of students' interactions in online discussions. This study provides added insights to help explain students' motivations for their participation in the online discussions. A more effective implementation and use of asynchronous online discussions can aid our efforts towards making improvements in a problematic process related to students' poor performance. In previous years, students exhibited low interest, effort, enthusiasm, and engagement, which contributed to their poor performance in a business statistics course. We employed asynchronous online discussions to increase the interaction and engagement of the student. We also examined the effect of anchoring in the online discussion on students' exam performance. We propose two research models that help explain the dynamics and effects on perceived usefulness and exam performance. We found sufficient evidence to support the research hypotheses.

Keywords (Required)

Anchored online discussions, knowledge sharing motivation, constructivism, technology acceptance, exam performance, collaboration.

INTRODUCTION

For more than a decade, educators and researchers have increasingly recognized the usefulness of students' social interaction in online environments (Richardson & Swan, 2003; Wu & Hiltz, 2004; Dennen 2008). The Internet and the digitization of content have been driving changes in the gathering, storing, creating, disseminating, sharing, and presenting of information. Today's students are "prosumers," an indication that they are both producers and consumers of information. In a networked economy, changes are being created on a regular basis, so faculty members may have to adjust and adapt to the new desires of the students. New teaching approaches include added means for discussions and collaboration, beyond the in class-only paradigm are needed. For distance education, online forums are increasingly adopted to provide the main means of interactions for instructor-to-student and student-to-student (Guzdial & Turns, 2000).

This study builds on the notion that knowledge building and sharing occurs according to the constructivist principle. The constructivist principle postulates that through problem solving, students would be more engaged in a learning environment (Conrad & Donaldson 2004). The foci of the constructivist paradigm are the cognitive development and the deep understanding (Fosnot & Perry 2005). Du et al. (2007) used online discussion in the context of distance education and found that "students associated the quality of online discussions with successful project completion and knowledge construction…students also indicated their critical thinking skills were enhanced when working collaboratively and found the achievement of course goals easier and more efficient" (p. 8). As instructors need to engage students beyond the classroom environment, discussion forums can provide a catalyst for change (Guzdial & Turns, 2000), which can serve as a kind of "Trojan Mouse" (Guzdial and Turns 2000). A "Trojan Mouse" is an analogy that describes the effective delivery of information, sharing, and learning that can spread from student-to-student. It is a bottom-up approach to enable effective discourse that could lead to desired learning outcomes.

We selected an undergraduate business statistics course for this study because the rate of failure in this course has been high. This has been a concern to faculty and to the College of Business and Economics at a California State University campus. In previous years, students taking this course have exhibited lack of interest, effort, enthusiasm, and engagement. As a result, many performed poorly in the course. It is not uncommon to find students retaking this course for the third or fourth time. To this end, we started this study as a research *in* action to increase the students' interaction and engagement in the course. We employed online discussions as a means to increase the engagement and interaction in the course, specifically we employed Blackboard's discussion forums and anchored asynchronous online discussion tool that was developed by Catalonia's Open University Dr. Jakko Van Der Pol. We started this research *in* action as a disciplined inquiry to examine the role of knowledge sharing motivation in terms of expected relationships and reputation, perceived enjoyment, and whether the type of online discussion would affect the perceived usefulness of the online discussions.

We conducted this study to extend existing research on collaborative and peer-learning. We found the lack of students' effort to be a problem worth tackling. It was disheartening to see students retaking the Business Statistics course for the fourth time. We wanted to move beyond the traditional course environment, and found that learning theories (i.e., constructivist and interactive learning) support use of blended courses (part face to face (F2F), part asynchronous) to provide a flexible approach to course design. We used action research to revise the traditional teaching approach used for this course. Stringer et al. (2008) noted, "Action research provides the means to assist people to develop the capacity to formulate appropriate, effective and sustainable solutions to the complex issues and problems they face" (p. 123). Mills (2000) recommended that a teacher-researcher should perform case study methodology as an extended and fitting example of action research. Dube and Pare (2003) argued for the appropriate use of positivist case research methodology and found it to be well-suited for IS research because it builds on real-life experience with Information Technology (IT). Case research allows researchers to stay on top of their research with regards to the frequent changes in IT and gives a holistic view of the complex nature of interactions with regards to people and technology, so that understandings can be improved.

As a case study, studying the complex nature of motivation and the dynamics of interaction is vital and justified for learning (Mansfield, 2007). The importance of understanding the dynamics of knowledge sharing is well accepted among researchers who have studied their effects in terms of intrinsic and extrinsic motivations. For example, people participate in an activity to satisfy either an external demand such as being compliant or an internal one such as reputation. Students are motivated to participate in the online discussions to improve their grade and the degree of their participation may depend on their level of need with regards to their grade. In addition, their acceptance of the online discussions is important to ensure successful and effective use. Igbaria et al. (1994) found that system usage is affected by both perceived usefulness and perceived fun (enjoyment). Perceived usefulness is established as a fundamental determinant of affect and behavioral intentions toward innovations (Venkatesh and Davis, 2000). Hence, an important focus for this study is to examine the perceived usefulness of online discussions.

ONLINE DISCUSSIONS

Chickering and Ehrmann (1996) listed seven principles of good practice in teaching that: (1) stimulate student-teacher contact; (2) stimulate cooperation among students; (3) stimulate active learning; (4) offer a fast feedback to students; (5) highlight the time invested in the assignment; (6) transmit high expectation; and (7) respect different talents, abilities, and ways of learning. Online discussions are suggested because of their potential to increase interaction and stimulate cooperation, collaboration, and contacts among students and with the instructor. Jonassen (1997) suggested using instructional design interventions to scaffold problem solving and support learners' efforts. Furthermore, both asynchronous online discussions were implemented for this study to obtain a clearer understanding of the effects on perceived usefulness and exam performance. In this study, exam performance is used as a surrogate measure for learning. Zhang (2007) found that students were interested in learning from each other in an online environment. Niemi (2002) gave examples for collaborative actions, some of which are "participation in discussions, dialogues and mutually shared reflections, and working in a responsible cooperation with other learners" (p. 764). Asynchronous online discussions are utilized for this purpose to mainly increase students' efforts given that effort has been found to predict success (McKenzie & Staaf, 1974).

Asynchronous Online Discussions

Dennen (2008) suggested that "the discussion is an artifact of learning" (p. 209), and that online discussions require students to read (articles, others posts), write (own thoughts and ideas), and engage (by asking questions and posting replies). Asynchronous Online discussions (AODs) are both highly interactive and social (Gunwardena et al., 1997; Gunwardena & Zittle, 1997). Richardson and Swan (2003) found that the students' overall perception of social presence served as a predictor of their perceived learning in the course. Guzdial and Turns (2000) suggested that adding a discussion forum is one of "the simplest ways to start integrating information technology into the class" (p. 438), since it does not require a change in

the curriculum. Disanctes et al. (2003) added that asynchronous online discussions are "pre-established," "private" (access is not public), and can be "used to supplement other learning venues…such as face-to-face (F2F) meetings" (p. 567). It is important to acknowledge, "Learning is more than simply accessing information" (Garrison, 2003, p. 2). Althaus (1997) found that supplementing the in-class F2F discussions with asynchronous online interaction provides students with a learning environment superior to the traditional classroom.

Van der Pol (2007) suggested that anchoring improves the quality of the discussion. Van der Pol developed an annotation tool that allows for anchoring in the asynchronous online discussions. Anchoring in online discussions allows for the selection of any piece of a document (word, sentence, paragraph, or page) to be the focus of the discussion thread.

Anchored Asynchronous Online Discussions

Anchoring creates a bias towards the anchor (Tversky and Kahneman, 1974). When an anchor is formed, it directs the focus as a bias towards the anchor, which in turn forms the basis of the discussion thread. Van der Pol (2007) has shown anchored discussion to be a versatile tool with many possible uses that concern the discussion of online materials, if the aim of the discussion is text based (Van der Pol, 2007). Van der Pol, Admiraal, and Simons (2006) concluded that anchored asynchronous online discussions (AAODs) produced: (1) more meaningful discussions; (2) "less room for miscommunication" (p. 17); and (3) the discussions were "more straightforward and to the point" (p. 17). Brush et al. (2002) concluded that "anchored online discussions allowed the less vocal students to contribute equally and made in-class discussions more interesting" (p. 9). Guzdial and Turns (2000) used anchoring in the discussion and found it "to motivate a discussion and to provide a focus for the discussion" (p. 443). Guzdial and Turns (2000) found that anchored forums had longer threads than unanchored forums. Abowd et al. (1999) suggested that anchoring discussions in lectures makes a good approach to extending the classroom digital media. Brush et al. (2002) added that anchored discussions could be a viable tool to complement classroom face-to-face education. But it is unclear whether these findings would translate into a more objective measure of learning effects such as exam performance. It is also unclear whether students perceive AAODs to be more useful.

Knowledge Sharing Motivation

The importance of understanding the dynamics of knowledge sharing is well accepted among researchers who have studied their effects in terms of intrinsic and extrinsic motivations. For example, people participate in an activity to satisfy either an external demand such as being compliant or an internal one such as reputation. Students are motivated to participate in the online discussions to improve their grade and the degree of their participation may depend on their level of need with regards to their grade. However, students may also have other motivations to share their knowledge in the ODs. Previous studies have emphasized the importance of egoistic motivations. A deeper understanding these knowledge sharing motivation is a worthy cause.

From our perspective as faculty, students are implicitly motivated because they chose to pursue their education voluntarily. Improving the students' educational experience has been a higher education goal. We needed to develop a deeper understanding of the interactions and collaborations of student peers participating in ODs. Bock et al. (2005) suggested that the individual benefits (i.e., self interest and reputation) and group benefits (i.e., relationships) are two salient motivational factors. Individual and group benefits lead to enhancements which in turn can motivate students to participate in discussions (Johnson & Johnson 1989). Garrett et al. (2009) noted, "When students know that peers will see their work, it gives it value and persistence" (p. 202). As supported by prior research, when students are motivated and engaged, some learning is certain to occur (e.g., Dennen 2008, Rovai, 2007; Wu & Hiltz, 2004). Making some aspects of online discussions social encourages collaboration and motivation among peers. We decided to examine knowledge sharing motivations in terms of expected relationships and reputation. These knowledge-sharing constructs could have a motivational effect on the students' perceptions to share their knowledge openly.

Reputation is defined as the extent to which a student's participation in ODs would enhance his/her reputation (Taylor & Murthy, 2009; Hsu & Lin, 2008; and Wasko & Faraj, 2005). Abraham Maslow (1943) concluded, "All people in our society have a need or desire for a stable, firmly based, high evaluation of themselves, for self-respect, or self-esteem, and for the esteem of others." (p. 382). Maslow (1943) viewed reputation as a respect from others, giving the person recognition or appreciation. For people participating in blogs, Hsu and Lin (2008) found, "people were eager to share their thoughts and experiences with others, thereby obtaining an online reputation" (p. 72). Wasko and Faraj (2005) also found that individuals contributed knowledge to enhance their reputation in organizational networks. The social exchange theory proposes that people engage in social behavior as a means to gain both tangible goods and intangible benefits, such as approval or prestige. Wasko and Faraj (2005) found that reputation provided a strong motivation for increased participation.

Expected relationships are the extent to which a student participating in knowledge sharing could establish a mutual relationship with others in the online discussions (Hsu & Lin, 2008). There is a direct correlation between success in online learning and the social connection of the learners (Molinari, 2004). Brown (2004) noted, "The capability of extending learning beyond the classroom and creating relationships allows students to construct their learning through their environment and at their individual learning rates" (p. 36).

Technology Acceptance

The Technology Acceptance Model (TAM) (Davis, 1989) is a very influential model that explains the factors influencing information systems users based on their beliefs/perceptions towards using the system. In TAM, perceived usefulness is a determinant of behavior intentions, which leads to actual system use. Perceived usefulness has a strong correlation with user acceptance and cannot be ignored when attempting to design or implement successful systems (Davis, 1989). Davis (1989) defined perceived usefulness, "the degree to which a person believes that using a particular system would enhance his or her job performance" (p. 320). Lee et al. (2005) found that perceived usefulness and perceived enjoyment to be key drivers for usage of Internet-based learning medium. Moreover, Teo et al. (1999) found that perceived enjoyment had a significant effect on Internet usage. In this study, our operational definition of perceived usefulness is the degree to which using ODs would enhance the student's understanding of the course material, increase interaction and productivity, and improve learning effectiveness. We define perceived enjoyment as the extent to which using ODs would be enjoyable and fun. Perceived usefulness and perceived enjoyment are two factors that reflect beliefs about the usage of the online discussions. Understanding the relationship between the perceived enjoyment and perceived usefulness of ODs in a blended course, can serve to improve course design and pedagogy.

RESEARCH MODELS AND HYPOTHESES

It is essential to understand what factors could have a positive effect on the perceived usefulness of the AODs, so that we can effectively implement and use AODs pedagogically. As an exploratory study, obtaining a roadmap of the dynamics would serve to optimize the use of AODs for the benefit of students and faculty. Perceived usefulness serves as a salient predictor to behavioral intentions, which in turn can predict participation (actual use). We hypothesize that perceived usefulness is affected by social and personal motivations. To identify potential motivations, we propose the research model in Figure 1. This model illustrates the antecedent factors for the perceived usefulness of AODs. In this model, we hypothesized:

H1a: Perceived enjoyment will have a positive affect on the perceived usefulness of the AODs.

H1b: Reputation will have a positive affect on the perceived usefulness of the AODs.

H1c: Expected relationships will have a positive affect on the perceived usefulness of the AODs.

H1d: Anchoring in the AODs will have a positive affect on the perceived usefulness of the AODs.

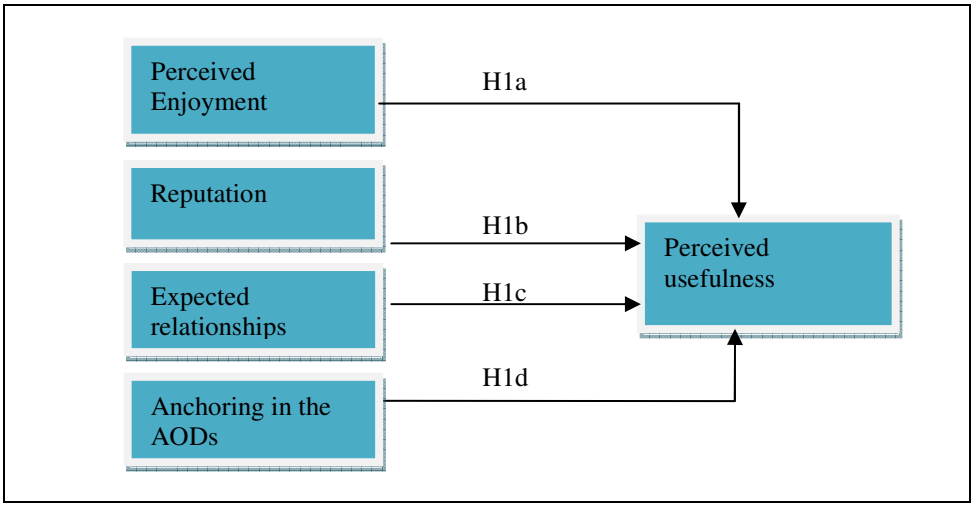

Figure 1. Research Model 1

We also wanted to determine the effect of anchoring in AODs on students' exam performance. As anchoring focuses the discussions on the subject matter, we expect that it would help students become more focused and successful. We used exam performance (score) as a surrogate measure for success. Moreover, we expect that exam performance would depend on students' standing in the course (A, B, C, D, or F). For example, an "A" student is expected to do well on his or her exam. In this regard, we propose the antecedent factors, anchoring in the AODs and standing in the course as predictors for exam performance, see Figure 2. Therefore, we hypothesized:

H2a: Anchoring in AODs will have a positive affect on exam performance.

H2b: A student's standing in the course will have a positive affect on exam performance.

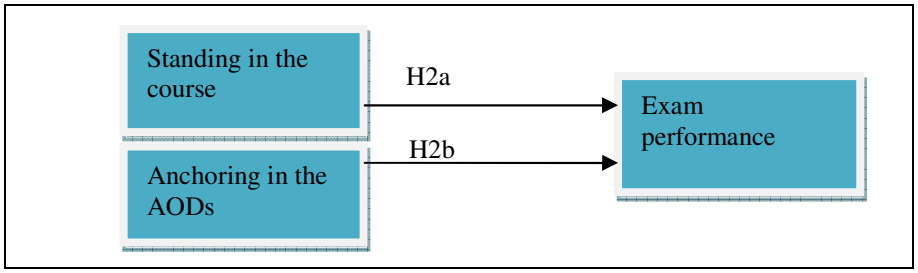

Figure 2. Research Model 2

Methodology and Procedure

To test the proposed models, we employed two asynchronous online discussions (anchored and standard) to supplements the F2F in-class discussions. The same instructor facilitated, encouraged participation, and monitored the online discussions to ensure respectful and appropriate posts. His role was that of a "guide on the side" and occasionally participated in the discussions based on a need to do so. Instructor effect is not a factor since the same instructor taught the courses. The instructor was cognizant of the responsibility to facilitate effectively in a variety of educational contexts (Garrison, 2003) as in the two ODs. Two groups of students participated in online discussions using AODs and AAODs based on random selections. The students engaged themselves and helped each other find solutions to problem sets from the subject matter. A total of 122 undergraduate business students participated in this study. 42 students used the AAODs and 80 students used the AODs. The students collaborated using both ODs to demonstrate their understanding of the concepts and their application and use. They engaged themselves through posts of messages and replies. At times, they attempted to identify the type of problems, method, and approach to take, in an effort to solve the assigned problems, which were selected based on course objectives. Other times they solved the problems and gave each other feedbacks.

In this study, we focused on problem solving, which arguably was viewed as one of the most meaningful kind of learning and thinking in prior research. Jonassen (1997) concluded that "Problem solving engages higher-order skills and is believed to be among the most authentic, relevant, and important skills that learners can develop" (p. 86). In a well-structured domain, as in this case, practicing problem solving can help learners form appropriate representations of concepts (Jonassen, 1997). Moreover, Jonassen (1997) recommended helping the learners in constructing meaningful representations and supporting them in finding and trying different solution. Furthermore, Jonassen (1997) suggested using instructional design interventions to scaffold problem solving and support learners' efforts. Both asynchronous online discussions were implemented for this study to obtain a clearer understanding of the effects of the ODs with regards to problem solving in terms of their effects on perceived usefulness and exam performance. At the end of the semester, students were asked to complete a post-use survey in which they were asked for their level of agreement or disagreement to items used to measure the factors of this study. The survey took about 15 minutes to complete.

Measurements

Table 1 provides a detailed summary of the factors we measured through a survey questionnaire. We measured *Perceived Usefulness, Perceived Enjoyment, Expected Relationships,* and *Reputation* based on 5-point Likert scale (Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree). Table 1 shows the factors, their operational definition, items used as measurements, and the factor loading for each item. We slightly modified the items used to measure the factors to fit the

context of ODs. For example, we replaced the word "system" with "online discussions." The items used to measure the constructs were based on validated instruments used in prior research. We were assured that the items are accurate measures to the corresponding factors. All of the factor loadings were above the 0.6 threshold, see Table 1.

The Student's exam performance was directly measured and obtained from the student's score on the exam. The exam contained 30 multiple-choice questions. Standing in the course was obtained from the grade book, which was based on prior performance measures that included homework assignments, an individual project, quizzes, and two midterm exams. For the anchoring factor, we coded it in binary terms, "1" when AAODs was used and "0" when the standard AODs was used.

Factor	Operational Definition	Item	Factor Loading
Perceived Usefulness (Lee et al., 2005; Hsu & Lin, 2008; Davis, 1989)	The degree of a students' belief that using the ODs would enhance his/her job performance (Davis, 1989)	PU4: Using the online discussion can increase my productivity when performing my work/learning.	0.753
		PU2: Using the online discussion would improve my work/learning performance.	0.667
		PU3: Using the online discussion would enhance my work/learning effectiveness.	0.639
		PU1: Using the online discussion enables me to accomplish my work/learning more quickly.	0.617
Perceived Enjoyment (Lee et al., 2005; Hsu & Lin, 2008)	The extent to which using ODs would be enjoyable and fun	PT2: The process of participating in online discussions is enjoyable.	0.833
		PT3: I have fun using online discussions.	0.68
		PT1: While participating in online discussions, I experienced pleasure.	0.669
Expected Relationship (Hsu & Lin, 2008)	The extent to which a student participating in knowledge sharing could establish a mutual relationship with others	ER1: Sharing my knowledge in online discussions would strengthen the tie between other discussants and me.	0.727
		ER2: Sharing my knowledge in online discussions would create new relationships with new friends.	0.707
		ER3: My knowledge sharing would expand the scope of my association with other users in online discussions.	0.702
Reputation (Hsu & Lin, 2008; and Wasko & Faraj, 2005)	The extent to which a student's participation in ODs would enhance his/her reputation	Rep2: Participating in online discussion activity would enhance my personal reputation in the online discussion.	0.795
		Rep1: I earn respect from others by Participating in the online discussions.	0.761
		Rep3: Participating in discussions would improve my status in the online discussion.	0.75

Table 1. Factor Measurements

RESEARCH FINDINGS

We analyzed the data using both Excel and SPSS. Table 2 shows the descriptive statistics for the factors. On average, the students responded positively for the four factors with very good reliability. All of the reliability measures ranged from 0.869 to 0.929 for Cronbach's Alpha, indicating a very good reliability for each factor. For the standing in the course factor, on average, students had a mean = 2.16 = "C" grade. This grade did not include the final exam, which had a negative effect on course grade. The final exam score showed a mean = 19.15 and a standard deviation = 4.95, see Table 2. Although the final exam seemed low, it was still higher than the average final exam scores obtained from the prior two semesters that were taught by the same instructor. In the prior two semester, the mean final exam score = 17.79 and the standard deviation = 6.96

(N = 90). When we compared the two average exam scores, we get statistical significance (just about) for the exam scores from this study of being higher (p=0.049), which is a marked improvement that can be attributed to the asynchronous online discussions.

Factor	N	Mean	Std. Deviation	Factor Reliability
Perceived usefulness	122	3.78	0.70	0.929
Perceived enjoyment	122	4.15	0.58	0.874
Expected relationships	122	3.61	0.68	0.869
Reputation	122	3.39	0.80	0.90
Standing in the course	122	2.16	1.17	
Exam performance	122	19.15	4.95	

Table 2. Descriptive and Reliability (Cronbach's Alpha) Statistics

To fully capture the complexities of the dynamics of the relationships between the variables, we employed Step-wise Regression. For Research Model 1, all of the four variables entered emerged as significant. All of the antecedents perceived enjoyment (B=0.363, p<0.001), expected relationship (B=0.301, p<0.001), reputation (B=0.279, p<0.01), and anchoring in AODs (B=0.174, p<0.01) predicted perceived usefulness (R^2=0.539), providing support to our research hypotheses 1a, 1b, 1c, and 1d, see Figure 3. Perceived enjoyment, reputation, expected relationships, and anchoring in the online discussions accounted for 53.9% of the variance in perceived usefulness. This model is statistically significant (*Significant F* <0.0001 and F = 34.23).

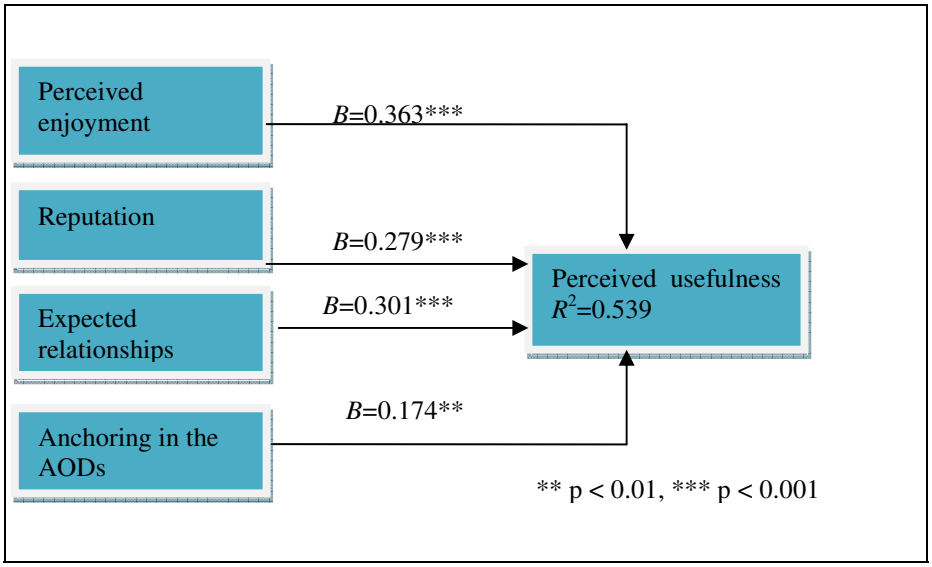

Figure 3. Model 1 Analysis Results

For Research Model 2 analysis results, see Figure 4. Both of the entered factors standing in the course (A, B, C, D, F) and anchoring in the AODs emerged as significant. For this model, the antecedents course standing (B=0.831, p<0.001) anchoring in the AODs (B=0.168, p<0.01) predicted exam performance (R^2=0.723), providing support to our research

hypotheses 2a, 2b. These two factors accounted for 72.3% of the variance in exam performance. This model is statistically significant (*Significant F*<0.00001, *F* = 155.51).

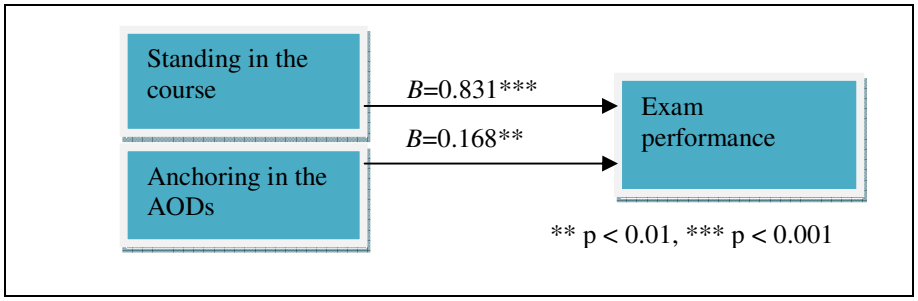

Figure 4. Model 2 Analysis Results

CONCLUSION

This study was motivated by the need to make improvements in a problematic process. The traditional teaching process for business statistics has not been effective, because it emphasizes teaching, knowledge reproduction, and treats students as dependent learners. We conducted our study with the aim of making improvements in the student's effort, engagement, and performance. We learned from TAM the value of perceived usefulness as a very important antecedent to behavioral intentions for using an information system. We examined the effects of knowledge sharing motivations in terms of reputation and expected relationship and found the two variables to be significant predictors for perceived usefulness, see Figure 3. In addition, perceived enjoyment was also a significant predictor of perceived usefulness. Perceived enjoyment was the most significant predictor in this model with the highest standardized coefficient (*B*=0.363). If the students perceived participating in the ODs as enjoyable, then they also perceive it as useful. According to the descriptive statistics shown in Table 1, perceived enjoyment had the highest mean of 4.15, which is higher than agree with the survey statements. This finding is in line with previous studies (i.e., Hsu & Lin, 2008). Students were also positive on the other factors, perceived usefulness, expected relationships, and reputation. This study revealed that the students perceived asynchronous online discussions as useful and anchoring had a significant and positive effect on the perceived usefulness of the AODs. Although anchoring had the lowest standardized coefficient (*B*=0.174), it was still a significant predictor (p<0.01) of perceived usefulness.

In Figure 4, the student's standing in the course was the most significant predictor of exam performance with the highest standardized coefficient (*B*=0.831). This finding did not surprise us as it is supported by common sense, in which good students generally do well on their exams. Use of anchoring in the online discussions was a significant predictor (p<0.01) of exam performance, but with a much lower coefficient (*B*=0.168). When we compared the mean exam score from this study with exam scores from the previous academic year (Fall 2007 and Spring 2008) for this course, we found the mean exam score from this study to be higher (p=0.058, nearly significant) when we assumed unequal variances, because of the large difference in the standard deviations (prior year standard deviation = 6.96 vs. standard deviation from our study = 4.95). We obtained a higher exam score mean (19.15 vs. 17.79) and a lower standard deviation (variance) in this study. All of the sections were taught by the same instructor and given the same questions on the exam. This finding suggests a narrower range and less variation in exam scores, which can be viewed as an improvement in exam performance. This finding extends prior research that showed anchoring technology can be useful for collaborative discussions (Van der Pol, 2007; Van der Pol et al., 2006). (Eryilmaz et al., 2009) also found that use of anchoring in the AODs to have an effect on reducing the cognitive (mental) load of the students, which can help explain the difference in the performance.

In conducting this study, we gained more insights about the dynamics that help explain students' perceptions for AODs as well as some of the knowledge sharing motivations behind students' participations. We also learned that employing AODs can be an effective pedagogical tool for students, particularly when the AODs allowed for anchoring. A suggestion for future research is to examine the effects of social influence factors to further our understanding of the dynamics of students' interactions in asynchronous online discussion forums.

LIMITATIONS AND ASSUMPTIONS

The course is an introductory business statistics and the participants were mostly junior undergraduate students majoring in business (i.e., marketing, accounting, and management). The instructor facilitated the ODs with limited participation to ensure appropriate and respectful content, and replied occasionally based on a need to do so. A more active participation of the instructor could yield different results. The two key assumptions are that a faculty member is motivated to improve his or her instructional design and be willing to integrate social or educational technology into the course to help students succeed.

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