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Motivation in Hybrid College Courses: The Influence of Self Efficacy and Sense of Classroom Community on Goal Orientation

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Motivation in Hybrid Courses: The Influence of Self Efficacy and Sense of Classroom Community on Goal Orientation

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Dedication

To my parents, parents-in-law, my husband, and supporters throughout this journey

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Motivation in Hybrid Courses: The Influence of Self Efficacy and Sense of Classroom Community on Goal Orientation

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This study explored changes in goal orientations throughout the semester that might be influenced by self efficacy and a sense of classroom community in hybrid courses in which course management systems (CMS) were used. A hybrid course is distinguished from a traditional face-to-face classroom in that there is an extension of the class, and students interact online in addition to face-to-face.

Data were gathered from 14 hybrid courses two times during a semester, once at the beginning of the semester and once again at the end, and were analyzed using structural equation modeling (SEM) to investigate the relationships among the variables.

Overall, the results indicated that each goal orientation changed throughout the semester, dynamically interacted with one another, and had unique relationship with self efficacy and sense of classroom community.

More specifically, first, a sense of classroom community acted as a significant antecedent of goal orientations and mediated the relationship between pre-mastery goal orientation and post-mastery goal orientation. Second, self efficacy, another antecedent of goal orientations, mediated the relationship between pre-performance avoidance goal orientation and post-performance avoidance goal orientation. Third, post-performance approach goal orientation was influenced by sense of classroom community but not by self efficacy whereas post-performance avoidance goal orientation was influenced by self efficacy but not by sense of classroom community. Fourth, the nature of performance approach goal orientation at the beginning of the semester seemed to change throughout the semester as students gain or lose their competence and develop sense of classroom community.

The results also showed that the collaborative function of the course management system most significantly contributed to the sense of classroom community in hybrid courses among four categories of functions (information delivery, external links, course materials, and collaborative function).

Lastly, the study suggests ways for instructional designers and college teachers to identify and design courses that promote motivation and a sense of classroom community using various CMS functions, thereby enhancing teachers' teaching and student learning.

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Chapter 1. Introduction

STATEMENT OF PROBLEM

Students bring their unique individual differences into the classroom. One area of individual differences is student motivation for learning, which may be changed with the instruction and the situation. Goal orientation, one of these changeable motivation variables, has been one of the most active areas of research in educational psychology (Harackiewicz & Linnenbrink, 2005). Goal orientation concerns the purposes for engaging in academic behavior (Maehr, 1989), and the specific type of goal orientation a student adopts offers a framework for how he or she interprets, experiences, and acts in his or her achievement pursuits (Dweck, 1986; Nicholls, 1989).

Development of goal orientation theory

Normative goal theory

Historically, achievement goal theorists have identified two distinct orientations toward competence: a performance goal versus a mastery goal (Ames, 1992; Dweck, 1986; Dweck & Leggett, 1988; Nicholls, 1984). Performance goal orientation is focused on the demonstration of competence relative to others, while mastery goal orientation is focused on understanding tasks, developing and improving competence or skills (Ames & Archer, 1988; Elliot & Dweck, 1988). These theorists argued that a mastery goal orientation promotes optimal learning motivation. That is, students work harder, persist in the face of difficulties, develop interest, learn more, and perform better when pursuing mastery goals as opposed to performance goals (Harackiewicz & Linnenbrink, 2005). This perspective, referred to as normative goal theory (dichotomy between mastery and

performance) by Pintrich and Schunk (2002), has supported potential benefits of mastery goal orientation. However, normative goal theorists have also been open to the possibility that performance goals may have some positive effects under certain circumstances. As a result, the majority of the research conducted in the 1980's and early 1990's concentrated on mastery versus performance goal comparisons, and the theory and supportive findings have been summarized as "mastery goals are good, and performance goals are bad" (Harackiewicz & Linnenbrink, 2005, p.76).

However, some research findings raised doubts about this dichotomy by showing that sometimes performance goal orientation is positively related to learning outcomes (Pintrich, 2000b). These positive performance goal effects are inconsistent with the normative goal theory. Accordingly, researchers have tried to clarify the nature of performance goal orientation and their influence on student behaviors and learning.

A multiple goals perspective

One approach that has been offered is a multiple goals perspective. Many researchers have conceptualized mastery and performance goals as separate but related constructs and they are interactive in nature. According to this perspective, students may endorse mastery and performance goals at various levels and adopt both goals simultaneously in the classroom (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz, Barron, & Elliot, 1998; Midgley et al., 1998; Pintrich, 2000b; Pintrich & Garcia, 1991). For example, Pintrich and Garcia (1991) found that performance goals facilitated self regulation when students were low in mastery goals although the majority of their results supported normative goal theory. This result suggested the possibility of

performance goals having positive effects for some individuals and of both types of goals working together (Harackiewicz & Linnenbrink, 2005). In addition, Pintrich and Schrauben (1992) proposed that mastery and performance goals may be differently related to the achievement based on the types of engagement and strategies each goal orientation promoted.

Trichotomous goal orientation theory

Another approach is differentiation of the performance goal orientation into performance approach and performance avoidance (Elliot & Church, 1997; Elliot & Harackiewicz, 1996). Elliot and Harackiewicz (1996) have proposed an integrative achievement goal conceptualization that incorporates both the contemporary performance/mastery and the classic approach/avoidance distinctions. In this framework, the performance goal is partitioned into approach and avoidance components, and thus three achievement goal orientations are posited: a mastery goal, a performance approach goal, and a performance avoidance goal. Elliot and Church (1997) suggested that both performance approach and mastery goals are focused on attaining competence; furthermore, these two orientations commonly engender a functionally equivalent set of processes that facilitate optimal task engagement and foster intrinsic motivation, and the difference between the two lies in their performance standards. On the other hand, the performance avoidance goal is focused on avoiding incompetence, and this avoidance orientation is viewed as evoking processes that are antithetical to the very nature of the intrinsic motivation construct.

Debate: Normative goal theory versus multiple goals perspective

However, there is still ongoing debate about normative goal theory versus a multiple goals perspective, and there remain controversial issues and arguments. For example, in response to the multiple goals perspective, Midgley, Kaplan, and Middleton (2001) argued that a mastery goal is the most beneficial goal orientation for all students across affective, cognitive, and achievement outcomes and that there is no need to revise goal theory. Kaplan and Middleton (2002) suggested that we need to consider the types of outcomes for which performance approach goals may be beneficial. Although performance approach goals may be associated with higher achievement, this does not necessarily mean that individuals with performance approach goals engage in the type of in-depth learning and understanding that is advocated by the educators today. On the other hand, researchers who support a multiple goals perspective (Harackiewicz, Barron, Tauer, & Elliot, 2002) argued that recent theoretical developments and empirical findings support a revision of goal theory for three important reasons: a) the importance of separating approach from avoidance strivings (Pintrich, 2000a); b) the unique and positive potential of performance approach goals relative to mastery goals (Harackiewicz, Barron, & Elliot, 1998); and c) identification of the ways in which performance approach goals can combine with mastery goals to promote optimal motivation (Barron & Harackiewicz, 2000, 2001).

Antecedents of goal orientation

Many researchers have suggested that these arguments may be resolved by looking at various contexts (Harackiewicz & Linnenbrink, 2005) and other possible antecedent variables such as self efficacy and classroom environment (Elliot & Church,

1997). According to Elliot and Church (1997), there are three kinds of antecedents of goal orientation: achievement motivation, fear of failure, and competence expectancies. Achievement motivation and fear of failure may be defined simply as the generalized desire to succeed and the generalized desire to avoid failure, respectively (Atkinson, 1957). Elliot and Church (1997) found that mastery goals were linked to achievement motivation, performance avoidance goals were linked to fear of failure, and performance approach goals were linked to both. They concluded that students who are concerned about their performance adopt either approach or avoidance goals depending on whether the achievement situation is perceived as a challenge or as a threat. And, those perceptions about the situation are dependent on students' perception of their own competence for the task.

Self efficacy

In this sense, self efficacy, which is domain specific competence, is predicted to act as an antecedent of goal orientation. According to Bandura (1986), self efficacy is defined as "people's judgments of their capabilities to organize and execute the courses of action required to attain designated types of performances" (p. 391). Researchers have tried to investigate how the goal orientation is related to self efficacy. For mastery goals, many studies have found positive relationships with academic self efficacy (Anderman & Midgley, 1997; Duda & Nicholls, 1992; Midgley, Anderman, & Hicks, 1995; Midgley & Urdan, 1995; Vrugt, Oort, & Zeeberg, 2002). However, the relationship between self efficacy and performance goals was not clear. Sometimes performance goals were related negatively (E. Anderman & Young, 1994), sometimes positively (Midgley & Urdan,

1995), and sometimes they were unrelated to academic efficacy (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Kaplan & Midgley, 1997). According to revised goal theory (Elliot, 1999; Pintrich, 2000b), students who are oriented towards performance avoidance goals may be particularly vulnerable to a maladaptive pattern of learning. However, students' perception of high self efficacy is theorized to provide an effective buffer against the negative cognitions, motivations, emotions, and behaviors involved in such a pattern (Dweck, 1986; Dweck & Leggett, 1988).

An environmental variable: a sense of classroom community

In addition to three antecedents of goal orientation, achievement motivation, competence, and fear of failure, several researchers have proposed that environment variables are considered as another antecedent of goal orientation (Church, Elliot, & Gable, 2001; Elliot & Church, 1997). Students may perceive classrooms as emphasizing mastery or performance goals and these perceptions influence goals students adopt, thereby influencing motivation and learning (Ames & Archer, 1988; Maehr & Midgley, 1991b; Meece, Blumenfeld, & Hoyle, 1988). That is, individuals' perceptions of the classroom environment are presumed to evoke various desires that are channeled in a specific direction through adoption of achievement goal orientation (Church, Elliot, & Gable, 2001).

Among the classroom environment variables, a sense of classroom community has been considered as one of the most influential components(Lee, 2004; Moller, Harvey, Downs, & Godshalk, 2000; Tinto, 1997). Shaffer and Anundsen (1993) define

community as a dynamic whole that emerges when a group of people, who are interdependent, share common practices, make decisions jointly, identify themselves with something larger than the sum of their individual relationships, and make a long term commitment to well being of the whole (Shaffer & Anundsen, 1993). Researchers have found that students' sense of classroom community is positively related to students' motivation, attitudes, and academic achievement (Battistich, Solomon, Kim, Watson, & Schaps, 1995; Goodenow, 1993; Solomon, Watson, Battistich, Schaps, & Delucchi, 1992). A sense of community may help students to fully participate in their learning process by having them perceive the environment as safe, fostering shared responsibility (Moller, Harvey, Downs, & Godshalk, 2000) and, therefore, impacting their adoption of goal orientation (Elliot & Church, 1997). In addition, Lee (2004) found that once a sense of community was established, students developed a sense of camaraderie with their group members, felt more comfortable in working together, developed a greater sense of responsibility, and developed trust in their group members in an online collaborative learning environment.

The relationship between sense of classroom community and self efficacy

Several researchers have shown the possibility that a sense of classroom community may influence students' self efficacy by reducing anxiety and providing emotional support. Studies of self efficacy (Bandura, 1986, 1997; Zimmerman & Martinez-Pons, 1990) have suggested that self efficacy beliefs are largely developed in a supportive learning environment where students are able to get helpful feedback, to experience success with learning tasks, and to observe others being successful. Without a

feeling of being a part of the group, students are more likely to be anxious, defensive and unwilling to take the risks involved in learning (Wegerif, 1998). With the feeling of being comfortable with other students and the instructor and the feeling of acceptance that the community provides, students may begin to engage in rich conversations (Moller, Harvey, Downs, & Godshalk, 2000).

I am predicting that sense of classroom community and self efficacy may interact with each other to influence goal orientation, especially when the environment is supportive (Elliot & Church, 1997). Although students who have high self efficacy can survive in a threatening environment, if the environment is not supportive, open, and safe, they will lose their persistence in the face of difficulties and find it difficult to recover from setbacks (Pajares, 1996).

A context: college classrooms

Up to this point, I have explained how the theory of achievement goal orientation has developed, why several issues have been raised, and how researchers have tried to resolve these issues. These processes necessitate more empirical research which investigates goal orientation in relation to other motivation variables in various contexts (Pintrich, 2003). In this study, I explore a context, college classrooms, where not only the teacher teaches and the students learn, but also where many other kinds of interactions happen. Individual classrooms may be considered as social systems, in which the classroom environment influences students' behaviors (Ormrod, 1999). One critical factor which may influence the classroom environment is continual development of instructional practices that use technology.

Hybrid courses which use course management systems (CMS)

Teachers have been developing and adopting innovative ways to incorporate technology into their classrooms. Course management systems (CMS) are one of these technologies intended to support teachers and students in higher education. CMS refers to a comprehensive software package that supports some or all aspects of course preparation, delivery, communication, participation and interaction and allows these aspects to be accessible via a network (Collis & De Boer, 2004). As a result of more teachers integrating online activities into their traditional face-to-face classes with CMS, new patterns of classes have emerged called web enhanced or hybrid/blended classes. Hybrid classes are usually face-to-face classes which have added discussion forums, email, or electronic chat to the class design.

Although research from the college teachers' perspective shows that college teachers adopt the use of a CMS principally to manage the more mundane tasks associated with teaching (Morgan, 2003), incorporating CMS in a traditional classroom has the potential to change the classroom environment, students' motivation and thus learning process.

A hybrid course is distinguished from a traditional classroom in that it is the extension of the class time and students interact online in addition to face-to-face in different ways. For example, students have enough time to think before they respond to others' comments, rely on the web based audio-visual texts instead of a written textbook in the classroom, and get personalized attention from their teachers and classmates by getting written feedback. On the other hand, a hybrid course is different from a pure online course in that students meet face-to-face in the classroom in addition to the online

interaction. In general, there is a little opportunity to interact face-to-face in pure online courses. This lack of face-to-face interaction leads to considerable dropout rates in online courses (Frankola, 2001) compared to the traditional classes, leads to feeling of isolation from the whole class for they usually rely only on online interactions (Gibbs, 1998), and leads to low participation of class activities because of absence of non-verbal cues within an online environment and the permanence of written communication (Lally & Barrett, 1999).

Several researchers have proposed that CMS may create and facilitate students' sense of classroom community (Dehoney & Reeves, 1999); students and teachers are no longer constrained by time or space with the help of CMS, and this trend has changed the modes of interaction between students and their teachers. Students can start a lively discussion inside the class, and keep that discussion rolling online when teachers and students go home (Bartkovich, 2004). In addition, research has shown that CMS has helped to create a new form of social interdependence (Palloff & Pratt, 1999).

Until now, there has been not much empirical research at the college level on how the sense of community influences students' motivation components such as self efficacy and goal orientation, how student motivation is influenced by the use of CMS, and which CMS functions facilitate the development of the sense of classroom community. Given that CMS is used as a primary technology, which is embedded in a classroom context where students actively interact with each other, and considering the fact that learning needs to be treated situationally dependent by taking into account the context (environment) in which knowledge is constructed (Jonassen, Campbell, & Davidson,

1994), it would be interesting to look at the relationship between sense of classroom community, self efficacy, and goal orientation in hybrid courses that use CMS.

PURPOSE OF THE STUDY

The main purpose of the study was to look at achievement goal orientations along the approach-avoidance dimension in relation to self efficacy and the sense of classroom community in hybrid courses using CMS. The hybrid courses were chosen because these courses were expected to manifest intensively the relationship among variables being studied. The hybrid courses have unique characteristics which are different from pure online courses or traditional face-to-face classrooms. Contrary to face-to-face courses, where students rarely receive feedback from their instructor and peers, hybrid courses provide students with frequent reactions from their classmates and the instructor using various CMS functions. Interacting and collaborating online using CMS in addition to face-to-face interactions in a classroom expand communications between the class members which facilitate the development of the sense of community and increase learning. Especially, the use of asynchronous communication allows students to join in online conversation at their own convenience, to reflect on what was written, and then return to confirm, clarify or challenge the contents (Chapman, Ramondt, & Smiley, 2005) through the exchange of motivated and considered feedback (Kaye, 1995). In the study, I used the Blackboard system, a commercially available course management system.

Specifically, the purposes of this study were to investigate whether students' self efficacy and goal orientation changed as a function of the development of a sense of classroom community over time in hybrid courses, to look at whether goal orientations

interacted with self efficacy and sense of classroom community, and to explore how the uses of the Blackboard functions were correlated with each goal orientation, self efficacy, and a sense of classroom community.

RESEARCH QUESTIONS

The following questions guided this study:

1. Does the level of self efficacy at the beginning of the semester influence the level of self efficacy evidenced at the end of the semester both directly and indirectly via a sense of classroom community?

2. What is the pattern of interrelationships between sense of classroom community, self efficacy, and mastery goal orientation across the semester?

3. What is the pattern of interrelationships between sense of classroom community, self efficacy, and performance approach goal orientation across the semester?

4. What is the pattern of interrelationships between sense of classroom community, self efficacy, and performance avoidance goal orientation across the semester?

5. What is the pattern of interrelationships between three goal orientations at the end of the semester?

6. What is the pattern of the relationship between the factors of sense of classroom community, self efficacy, and each goal orientation throughout the semester?

7. Are there correlations between the use of Blackboard functions, self efficacy, sense of classroom community, and each goal orientation?

8. Does the use of Blackboard functions influence students' sense of classroom community? If it does, which function of the Blackboard system most contributes to students' sense of classroom community?

Chapter 2. Literature Review

In this chapter, literature on goal orientation, self efficacy, course management systems (CMS), and sense of classroom community is reviewed. This background provides grounding related to the research questions of this study. In the following, I attempt to integrate the literature to explore goal orientation changes in relation to self efficacy and sense of classroom community in hybrid courses.

ACHIEVEMENT GOAL ORIENTATION

Definition

Research on achievement goal orientation theory, which began with influential contribution by Ames (1992), Dweck (1986), and Nicholls (1984), has been one of the most active areas of research in educational psychology (Harackiewicz & Linnenbrink, 2005). Goal orientation is commonly defined as the individual's purposes for engaging in achievement behaviors (Maehr, 1989). More specifically, goal orientation theory is concerned with why and how individuals approach and engage in the task (Pintrich & Schunk, 2002), and the specific type of goal orientation a person adopts offers a framework for how he or she interprets, experiences, and acts in his or her achievement pursuits (Dweck, 1986; Nicholls, 1989).

There are many variants of goal orientation theories, and terms used by researchers. They have been labeled learning and performance goals (Dweck & Leggett, 1988; Elliot & Dweck, 1988), task involved and ego involved goals (Nicholls, 1984), mastery and performance goals (Ames, 1992; Ames & Archer, 1988), or task focused and ability focused goals (Maehr & Midgley, 1991b). There is some disagreement among

these researchers about whether all of these goal pairs represent the same constructs, but there is enough conceptual overlap to treat them in similar ways (Pintrich & Schunk, 2002; Vrugt, Oort, & Zeeberg, 2002). Accordingly, I use the terms mastery and performance goals to refer to the two general goal orientations.

Development of theory

Historically, achievement goal theorists have identified two distinct orientations toward competence: a performance goal versus a mastery goal (Ames, 1992; Dweck, 1986; Dweck & Leggett, 1988; Nicholls, 1984). Performance goals are focused on the demonstration of competence relevant to others, while mastery goals are focused on understanding tasks, developing and improving competence or skills (Ames & Archer, 1988; Elliot & Dweck, 1988). For instance, Ames and Archer (1988) investigated the relationship between motivation patterns and goal orientation (mastery vs. performance goals) in actual classroom settings. They found that students who adopted mastery goals in the classroom used more effective strategies, preferred challenging tasks, had a more positive attitude toward the class, and had a stronger belief that success follows effort. Students who adopted performance goals had a tendency to focus on their ability, to evaluate their ability negatively, and to attribute failure to lack of ability. This study suggests that a mastery goal orientation may foster a way of thinking that is necessary to sustain student involvement in learning as well as to increase the likelihood that students will pursue tasks that foster increments in learning.

Until recently, performance goals have been negatively regarded compared to mastery goals. Many studies have shown that students maintained adaptive motivation

patterns in learning when mastery goals are salient, while students showed maladaptive patterns when performance goals are salient (Ames & Archer, 1988). This perspective, referred to as normative goal theory (dichotomy between mastery and performance) by Pintrich and Schunk (2002), has been influential and as a result, the majority of supportive findings have been summarized as "mastery goals are good, and performance goals are bad" (Harackiewicz & Linnenbrink, 2005, p.76). However, some research findings raise doubts about this dichotomy by showing that sometimes performance goal orientation is positively related to learning outcomes (Pintrich, 2000b). These positive performance goal effects conflict with the normative goal theory. Accordingly, researchers have tried to clarify the nature of performance goal orientation and influence on student behaviors and learning.

One approach is multiple goals perspective. Many researchers have conceptualized mastery and performance goals as separate but related constructs that interact with each other, and they have argued that students may endorse mastery and performance goals at various levels and may adopt both goals simultaneously in the classroom (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz, Barron, & Elliot, 1998; Midgley et al., 1998; Pintrich, 2000b; Pintrich & Garcia, 1991). For example, Pintrich and Garcia (1991) found that performance goals facilitated self regulation when students were low in mastery goals although majority of their results supported normative goal theory. This result suggested the possibility of performance goals having positive effects for some individuals and the possibility that both goals may work together (Harackiewicz & Linnenbrink, 2005). In addition, Pintrich and Schrauben (1992) proposed that mastery and performance goals may be differently related to

achievement based on the types of engagement and strategies each goal orientation promoted.

Another approach differentiates performance goal orientation into performance approach and performance avoidance. Several theorists (Elliot & Church, 1997; Elliot & Harackiewicz, 1996) have proposed a trichotomous goal orientation framework with a mastery goal orientation, a performance approach goal orientation and a performance avoidance goal orientation. For instance, Elliot and Harackiewicz (1996) have proposed an integrative achievement goal conceptualization that incorporates both the contemporary performance/mastery and the classic approach/avoidance distinctions. Approach and avoidance motivation differ as a function of valence: in approach motivation, behavior is directed by an actual positive or desirable event and simply by the possibility of these events as well. By contrast, in avoidance motivation, behavior is directed by a negative or undesirable event or possibility (Elliot, 1999). Both performance approach and mastery goals are focused on attaining competence, and these approach orientations commonly engender a functionally equivalent set of processes that facilitate optimal task engagement and foster intrinsic motivation. More specifically, in a performance approach or mastery orientation, individuals perceive the achievement setting as a challenge, and each orientation is likely to generate excitement, encourage affective and cognitive investment, and facilitate concentration and task absorption. On the other hand, the performance avoidance goal is focused on avoiding incompetence, and this avoidance orientation is viewed as evoking processes that are antithetical to the very nature of the intrinsic motivation construct. Specifically, in a performance avoidance

goal orientation, individuals construe the achievement setting as a threat and may therefore try to escape the situation if such an option is readily available.

However, there is still ongoing debate about normative goal theory versus multiple goals perspective, and there remain controversial issues and arguments. For example, in response to the multiple goals perspective, Midgley, Kaplan, and Middleton (2001) argued that mastery goal is the most beneficial goal orientation for all students across affective, cognitive, and achievement outcomes. Although they admitted that performance approach goals may be adaptive for some outcomes (e.g., achievement) and that these benefits may occur in conjunction with mastery goals, they contended that performance approach goals are detrimental for other outcomes (e.g., self handicapping, help seeking). Thus, if one considers a variety of cognitive and affective outcomes, the maladaptive consequences of performance approach goals may become apparent. They concluded that there is no need to revise goal theory. Kaplan and Middleton (2002) also suggested that we need to consider the types of outcomes for which performance approach goals may be beneficial. Although performance approach goals may be associated with higher achievement, this does not necessarily mean that individuals with performance approach goals engage in the type of in depth learning and understanding that is advocated by the educators today. On the other hand, researchers who support multiple goals perspective (Harackiewicz, Barron, Tauer, & Elliot, 2002) argued that recent theoretical developments and empirical findings support a revision of goal theory with three important reasons: a) the importance of separating approach from avoidance strivings (Pintrich, 2000a); b) the unique and positive potential of performance approach goals relative to mastery goals (Harackiewicz, Barron, & Elliot, 1998); and c)

identification of the ways in which performance approach goals can combine with mastery goals to promote optimal motivation (Barron & Harackiewicz, 2000, 2001).

In pursuit of resolving these arguments, many researchers have investigated possible antecedent variables which may help to clarify the mechanism of goal orientation.

Antecedents of goal orientation

According to Elliot and Church (1997), there are three kinds of antecedents for goal orientation: achievement motivation, fear of failure and competence expectancies. Achievement motivation and fear of failure may be defined simply as the generalized desire to succeed and the generalized desire to avoid failure, respectively (Atkinson, 1957). These two concepts are similar to McClelland's (1951; McClelland et al., 1953) conceptualization of a positive form oriented toward the possibility of success (an approach motive that orients individuals toward success) and a negative form oriented toward the possibility of failure (an avoidance motive that orients individuals toward failure) (McClelland, 1951; McClelland, Atkinson, Clark, & Lowell, 1953).

Elliot and Church (1997) found that mastery goals were linked to achievement motivation, performance avoid goals were linked to fear of failure, and performance approach goals were linked to both. These findings show that a mixed pattern of results for performance goals may be explained by considering perceived competence. Some studies have revealed that mixed results for performance goals may be explained by considering perceived competence (Elliot & Church, 1997; Elliott & Dweck, 1988). For example, Elliot and Dweck (1988) interpret perceived competence as a critical moderator

of achievement goal effects. Mastery goals are expected to have a uniform effect across levels of perceived competence. On the other hand, performance goals are posited to lead to a mastery pattern for individuals with high perceived competence, but this same orientation is expected to produce a helpless pattern for those with low perceived competence (Elliot & Harackiewicz, 1996).

In addition to achievement motivation, competence, and fear of failure, environment variables are considered as another antecedent of goal orientation (Church, Elliot, & Gable, 2001; Elliot, 1999; Elliot & Church, 1997). When goal orientations were originally proposed, different goal orientations were considered as personality traits rather than temporary states. However, recently researchers have suggested that not only individual dispositions but also the situational factors interplay to determine the adopted goal in a given situation (Dweck & Leggett, 1988; Pintrich, Marx, & Boyle, 1993). Students may perceive classrooms as emphasizing mastery or performance goals, and these perceptions influence the goals students adopt influencing their motivation and learning (Ames & Archer, 1988; Maehr & Midgley, 1991b; Meece, Blumenfeld, & Hoyle, 1988). For example, Elliot and Church (1997) concluded that students who are concerned about their performance adopt either approach or avoidance goals depending on whether the achievement situation is perceived as a challenge or as a threat. That is, individuals' perceptions of the classroom environment are presumed to evoke various desires that are channeled in a specific direction through adoption of achievement goal orientation (Church, Elliot, & Gable, 2001).

To this date, the focus has been on achievement motivation, fear of failure and competence perceptions as antecedents of goal orientation. In this study, self efficacy,

which is a domain specific competence, and sense of classroom community, which is an environmental variable in a classroom, are predicted to act as antecedents of goal orientation. In the following sections, I describe each concept and how each concept acts as an antecedent of goal orientation.

SELF EFFICACY

Definition

According to Bandura (1986), self efficacy is defined as "people's judgments of their capabilities to organize and execute the courses of action required to attain designated types of performances (p. 391)". Self efficacy beliefs differ from other expectancy beliefs in that self efficacy judgments are both more task specific and situation specific and in that individuals make use of these judgments in reference to some type of goal (Bandura, 1986; Bandura, 1989; Pintrich & Schunk, 2002). Unlike most belief systems, which can be highly personal and persistent, academic self efficacy is generally a belief that can be modified in a classroom context (Lorsbach & Jinks, 1999). Self efficacy beliefs are changeable, especially when situational circumstances change as the semester progresses (Multon, Brown, & Lent, 1991). With this belief, more and more researchers have become interested in how to increase self efficacy beliefs, and as a result, to enhance learning (Bandura, 1997; Pajares, 1996).

In general, there are four factors that affect self efficacy. These are mastery experiences, vicarious experiences, social persuasions, and emotional or physiological states. Self efficacy judgments are more heavily influenced by individual mastery experiences than by any other factor (Bandura, 1997; Bong, 2002; Pajares, 1996). The

second source of efficacy information is vicarious experience of the effects produced by the actions of others. The third source, social persuasions, involves exposure to the verbal judgments of others. Last, emotional and physiological states such as anxiety, stress, arousal, and fatigue also provide information about efficacy beliefs (Pajares, 1996). Jackson (2002) showed that these four factors increased self efficacy, and enhanced self efficacy predicted learning performance.

Self efficacy influences students' behaviors in several ways. First, students' self efficacy helps determine what students will do with the knowledge and skills they possess. Pintrich and De Groot (1990) concluded that self efficacy plays a mediational or facilitative role in relation to cognitive engagement. Therefore, academic performances are highly influenced and predicted by the confidence with which students approach academic tasks (Bandura, 1997; Schunk, 1991). Second, self efficacy contributes to motivation. For example, self efficacy influences how much effort students expend, how long they persevere in the face of difficulties, and their resilience to failures. When faced with obstacles and failures, students who doubt their capabilities do not exert their efforts fully or they give up quickly. On the other hand, students who have strong beliefs in their capabilities exert greater effort (Bandura, 1994). Third, self efficacy influences which goals students set for themselves. Students with high self efficacy are more likely to set challenging goals (Schunk, 1991), persist toward achieving their goals (Pintrich & DeGroot, 1990; Schunk, 1990), and take on academic challenges for mastery reasons (Meyer, Turner, & Spencer, 1997).

The relationship between self efficacy and goal orientation

Researchers have tried to investigate goal orientation as related to self efficacy. For mastery goals, many studies have found a positive relationship with academic self efficacy (Wood & Bandura, 1989; Duda & Nicholls, 1992; Anderman & Young, 1994; Anderman & Midgley, 1997; Midgley & Urdan, 1995; Midgley, Anderman, & Hicks, 1995; Vrug, Hoogstraten, & Oort, 1999). One's sense of efficacy is based on the belief that effort will lead to success or a sense of mastery (Ames, 1992; Ames & Archer, 1988). Like self efficacy, mastery goals are linked to an attributional belief that effort leads to success (Weiner, 1979). Also, the fact that mastery experience is the most influential among factors affecting self efficacy suggests that mastery experiences lead to self efficacy which leads to the adoption of mastery goals. In other words, the higher the self efficacy, the more likely the student is to adopt a mastery goal orientation. In addition, behavior patterns of students with high self efficacy and students with mastery goal orientation are similar. Students are more likely to adopt a mastery goal orientation when they are dealing with a task in an area in which they have high self efficacy (Svinicki, 2004). Kaplan and Midgley (1997) supported this relationship between mastery goals and self efficacy, indicating that mastery goals were more strongly linked to reported use of adaptive learning strategies among students with higher self efficacy than among students with lower self efficacy. This is similar to Miller et al. (1993) who found that undergraduate students with dominant mastery goals and high self efficacy reported higher levels of self monitoring than students with mastery goals and low self efficacy. However, Elliot and Dweck (1988) showed that the pattern under the mastery goals

condition displayed an adaptive pattern regardless of their level of perceived self efficacy.

On the other hand, the relationship between self efficacy and performance goals is not clear. Sometimes performance goals were related negatively to self efficacy (Anderman & Young, 1994), while other research claimed a positive (Midgley & Urdan, 1995), or unrelated relationship (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Kaplan & Midgley, 1997). Middleton and Midgley (1997) found that a performance avoidance goal orientation was negatively related to efficacy, and a performance approach orientation was unrelated to efficacy.

In summary, there are consistent positive relationships between self efficacy and mastery goal orientation. On the other hand, the findings on the relationship between self efficacy and performance goal orientation are inconsistent. However, when researchers distinguished performance goal orientation into approach and avoidance dimension, they found consistent negative relationships between self efficacy and performance avoidance goal orientation. Nevertheless, the relationship between self efficacy and performance approach goal orientation is not clear. This inconsistent pattern may be explained and clarified by considering the fact that performance approach goal orientation is influenced by both achievement motivation and fear of failure (Elliot, 1999). Depending on individual's competence perception in a specific domain, performance approach goal orientation may be more influenced by fear of failure or achievement motivation and may result in different consequences. In this sense, self efficacy, which is competence perception in a domain, may act as another antecedent of goal orientation. However, in

light of the fact that both self efficacy and goal orientation are influenced by a context (environment), we need to investigate the relationship between self efficacy and goal orientation in a specific context. In this study, I look at how goal orientation interacts with self efficacy and sense of classroom community in hybrid courses at the college level.

Accordingly, in the following section, I describe characteristics of college classrooms and changes in classroom environment with the introduction of course management systems. After that, sense of classroom community is described.

CLASSROOM ENVIRONMENT AND COURSE MANAGEMENT SYSTEMS (CMS)

Characteristics of college classroom and hybrid courses

The college classroom is a crossroad where students and faculty meet and where a social and academic setting mix. In this sense, a classroom may be considered as a social system, in which students are dependent on each other as well as on their instructor to pursue learning goals together, and the classroom environment influences students' learning and behaviors (Ormrod, 1999).

The recognition that learning inevitably presupposes a specific social nature and that a process by which individuals construct their knowledge in the situation has changed the definition of learning, from one directional transmission of information from teachers as an end in itself to bidirectional collaborative meaning-making process through dialogue and through participating in activities. Dialogue plays a central role in the construction of knowledge and the development of understanding. By responding to previous responses, sharing information with others, and anticipating a further response

in a situated discourse, an individual's experience becomes knowledge. However, dialogue is not restricted to the spoken language. It also includes language in the form of writing or other forms of representation such as maps, diagrams, and graphs that serve a dialogic function (Wells, 1999, 2000).

While students and an instructor are working together in the specific activity setting, they pursue and try to solve problems (or negotiate meanings) together to attain their common goals. In this sense, learning and teaching processes are inherently relational, and it can be implied that learning requires a high degree of interpersonal connection between students and their teacher working together in the process (Goldstein, 1999).

However, research shows that in reality students' involvement in college classroom is a relatively passive experience where instructor talk dominates (Fischer & Grant, 1983) and where little interaction takes place between the students (Tinto, 1997).

With the recognition of these problems, researchers and practitioners have sought to redefine students' learning experience by restructuring the classroom, altering faculty practices, and introducing technology into class activities so that students consider learning as a shared experience rather than an isolated experience (Tinto, 1997). As technology continues to develop, teachers have developed innovative ways to incorporate it into their classrooms. Course management systems (CMS) are a technology intended to support teachers and students in higher education (Bartkovich, 2004). There are several reasons for teachers to adopt hybrid (web enhanced) courses (MacDonald & Caverly, 2001), which are usually not fully online classes (MacDonald & Caverly, 2001) but incorporate aspects of both online and face-to-face interactions. First, teachers can give

everyone in the class a chance to try their academic voice and equal opportunity to participate. Second, teachers can acknowledge the reflective thinker, who may want some time to contemplate before answering. Third, teachers can provide students a chance to process information and explore a topic in depth.

The incorporation of CMS in a traditional classroom has the potential to change the classroom environment to a student centered environment which promotes engagement and learning (Darden & Richardson-Jones, 2003). Students may learn by actively participating in the process of knowledge creation and interpretation in the hybrid courses which are supported by CMS (Brandon & Hollingshead, 1999; Verdejo, 1996). In addition, the use of CMS can lead to rich learning environment where deeper learning, engaged learning that results in a meaningful understanding of material and content, occurs. Deeper learning occurs when the learning is characterized as being social, active, contextual, engaging, and student owned (Carmean & Haefner, 2002). Furthermore, contrary to face-to-face courses, where students rarely receive feedback on their academic work from their peers, hybrid courses can provide students with frequent reactions from classmates with asynchronous discussions. Several studies have commented on how students used the continuous feedback of their peers to make judgments about the quality of their own work. The constant presence of an audience of peers in the Web based environment also seemed to facilitate continuous self evaluation of discussion posting (Whipp & Chiarelli, 2004).

Course Management Systems (CMS)

Course management systems (CMS) refer to comprehensive software packages that support course preparation, delivery, communication, participation and interaction and allow these aspects to be accessible via the Internet (Collis & De Boer, 2004).

Because course management systems are delivered through the World Wide Web (WWW) and use computer mediated communication (CMC), some characteristics of CMS are influenced by the nature of the WWW and CMC. For example, the WWW can provide a wide range of information for students in various forms (Flake, 1996; Hackbarth, 1997) which include not only text but also multimedia, such as graphics, sound, and animation. Further, when students interact online, they do not have to worry about how they look or how they are dressed. They are connected, instead, around common interests and a common subject matter (Palloff & Pratt, 1999).

Computer mediated communication (CMC), which is another main means for course management systems, can be distinguished from face-to-face communication by three key attributes: place independence, time independence, and text based communication (Harasim, 1990). One of advantages of CMC is that CMC does not require assembling everyone in a single location for discussion (Ellsworth, 1995). Especially, asynchronous discussion of CMC gives students more time to read messages posted by others, reflect on them, and compose thoughtful responses (Griffin & Lewis, 1998; Poole, 2000). By providing a basis for group communication, CMC makes it possible for students to learn in a collaborative manner online (Verdejo, 1996).

These characteristics of CMS may promote students' active and critical thinking and decrease student passivity and apathy (McKeachie, 1999).

The Blackboard System

This study was based on courses that used the Blackboard system, a popular course management system. According to Rovai (2002), the Blackboard system consists of an integrated set of asynchronous application functions which fall into four major categories. The first one is productivity functions such as calendars and the syllabus. The second one is communication/collaboration functions such as discussion boards, email, and group pages. The third one is assessment functions such as computer assisted testing and a grade book. The fourth one is content management functions which allow the teacher to present rich content online, including hypermedia and multimedia (Rovai, 2002).

Teachers and students can use any and all of these functions to exchange information and construct knowledge. Teachers can upload class notes or multimedia (text, sound, graphics, and video) materials that meet varying student learning preferences, such as visual orientation or verbal orientation (Carmean & Haefner, 2002). In addition, teachers can add internal and external links to other web sites that would better illustrate the topics, thus helping students to master the content (MacDonald & Caverly, 2001; Newlin & Wang, 2002). Furthermore, teachers can use discussion board as a place where students and their teacher post questions and provide different points of view on the topics. By using debates, problem solving, and case study analysis, teachers can facilitate knowledge construction and provide some scaffolding for the students (MacDonald & Caverly, 2001).

On the other hand, students may be involved in self directed learning which increases learner control and promotes planning, managing, and organizing course

materials at their own pace by using various functions that fit their own learning preferences (Brockett & Hiemstra, 1991).

Previous research has found that students typically use the Blackboard to check class assignments or announcements, communicate with their classmates, access course materials, take an exercise quiz, and retrieve their grades (Yi & Hwang, 2003). The factors determining the student usage of CMS include the usefulness of online class notes and discussion boards, as well as the students' perception of increased learning and higher course grades (Communale, Sexton, & Pedagano Voss, 2002).

Blackboard allows for the electronic transmission of feedback as quickly as teachers consider desirable. The teacher can send comments and grades on student assignments via email or by postings. In addition, teachers can provide personalized, question by question feedback to each student in a timely manner (Newlin & Wang, 2002). Several studies indicated that students appreciate helpful and positive feedback from the teacher (Whipp & Chiarelli, 2004).

In this section, I explained CMS (the Blackboard systems) which supports learning in hybrid courses. Students may use the Blackboard functions differently depending on their level of self efficacy and their goal orientation to maximize their learning and thus benefit differently from their environment. However, simply using CMS does not guarantee the positive results in student learning and motivation. Thus, recent research on web based environments has emphasized the importance of social and environmental factors on learning (Gunawardena & Zittle, 1997; Hiltz, 1997; Richardson & Swan, 2003; Rourke, Anderson, Garrison, & Archer, 2001; Swan, 2002, 2003), and the sense of community has gotten attention as an important concept to be considered. In the

following section, a sense of classroom community is explained in relation to student motivation in hybrid courses.

SENSE OF CLASSROOM COMMUNITY

Definition

College classrooms are often considered as small communities of learning located in the middle of a broader academic community of college (Tinto, 1997). Classroom community is considered as one type of community which takes place in the classroom.

Although faculty try to actively promote community building in a class, there has been little empirical research about the specific characteristics of teacher, student, or classroom that contribute to the formation of a community (Bush, Svinicki, Achacoso, & Kim, 2004). The lack of research may be due to the continually evolving definition on classroom community.

The concept of classroom community was adapted from the concept of community in the professional literature (McMillan & Chavis, 1986; Rovai, 2002). However, even within the psychological field, there have been several different ways of defining and using the concept of community and psychological sense of community (Obst, Zinkiewicz, & Smith, 2002). In an examination of uses of the term "community", Hillery (1955) revealed that most definitions included three elements: geographical area, common ties, and social interaction. Gusfield (1975) distinguished between territorial and relational uses of the term community. In the territorial use of community, communities are generally considered based on the location. For example, the small town or neighborhood in which people live is their community (Palloff & Pratt, 1999). In the

relational use of community, communities are based on the quality or character of human relations without reference to location. This is the sense when we refer to communities of interest such as work settings, hobby clubs, or religious groups (Obst, Zinkiewicz, & Smith, 2002).

Sarason (1977) asserted that the concept of psychological sense of community implies a value judgment and has basic characteristics such as perception of similarity with others, acknowledged interdependence, willingness to maintain interdependence, and feeling of being part of larger stable structure (Sarason, 1977). Later McMillan and Chavis (1986) reviewed the literature on psychological sense of community in depth and developed the psychological theory of sense of community, which to date has remained one of the few theoretical discussions of the concept and still the most widely used and accepted (Obst, Zinkiewicz, & Smith, 2002). McMillan and Chavis (1986) defined sense of community as "feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (McMillan & Chavis, 1986). They suggested four elements of sense of community: membership, influence, integration and fulfillment of needs, and shared emotional connection. McMillan and Chavis' definition and theory of sense of community could be applied to both geographical communities and communities of interest (Chipuer & Pretty, 1999; Lee, 2004; Obst, Zinkiewicz, & Smith, 2002).

Sense of classroom community has been defined in similar ways. Summers et al (2002) regarded classroom community as a sense of social belongingness in the classroom (Summers, Svinicki, Gorin, & Sullivan, 2002). Rovai (2002) defined

classroom community as feelings of connectedness among students and commonality of learning expectations and goals. Rovai (2002) found two factors of classroom community: connectedness and learning. Connectedness refers to the sense of the community members on their connectedness, cohesion, spirit, trust, and interdependence. Learning refers to the sense of community members regarding interaction with each other as they pursue the construction of understanding and as work towards their educational goals and expectations.

Svinicki et al. (2004) found three dimensions of sense of classroom community: Engagement with Content, Student-Instructor interaction, and Respect and Connectedness among members. Svinicki et al. (2004) emphasized that "engagement with content" dimension is an important factor that needs to be considered in classroom community. In addition, they regarded student-instructor interaction as a different dimension from respect and connectedness (student-student interaction).

Within the traditional sense of community research, considerable work has been done on geographical communities rather than on communities of relational or interest (Obst, Zinkiewicz, & Smith, 2002), despite the fact that there is increasing attention on the communities of relational or interest due to the development of the internet and technology on sense of community (Rheingold, 1991). Thus, communities today are formed around the issues of identity and shared values rather than based on the place (Palloff, 1996). For example, Lave and Wenger (1991) viewed community as a group that shares different interests and viewpoints and a sense of belongingness and are thus able to make diverse contributions to the community.

Given that there are increasing numbers of online courses and hybrid courses which are provided through the Internet, the term of classroom community has expanded to include online communities where class members are interacting just through online or through online in combination with face-to-face. The online community is also known as virtual community, or virtual learning community.

Kowch and Schwier (1997) defined virtual learning communities as a group of members who are separated physically but engage collectively in the transaction or transformation of knowledge through computer mediated communication (CMC) technology (Kowch & Schwier, 1997). Similarly, online community can be viewed as "a persistent, sustained socio-technical network of individuals who share and develop an overlapping knowledge base, set of beliefs, values, history and experiences focused on a common practice and/or mutual enterprise (p.55)" (Barab, MaKinster, & Schecker, 2004). There are some identified elements in online conversations which differentiate an online learning community from simple information exchanges. These elements include informality, familiarity, honesty, openness, heart, passion, dialogue, rapport, empathy, trust, authenticity, disclosure, humor, and diverse opinions (Chapman, Ramondt, & Smiley, 2005).

Although people admit that sense of community is context specific, like a classroom community influenced by teacher, characteristics of class, class size, gender, etc (Hill, 1996; Rheingold, 1991; Rovai, 2002), recently a review of the literature suggested that the characteristics of sense of community include feelings of connectedness, cohesion, spirit, trust, and interdependence among members regardless of setting (Rovai, 2002).

Development of Sense of Classroom Community

Research has shown that a sense of classroom community may develop, especially, when contributing factors are facilitated. If appropriate assistance for technology is provided to facilitate the factors, a sense of community may be further strengthened (Bateman, 1998; Lee, 2004). Next I discuss some possible ways to create and develop sense of classroom community, based on the literature to date.

First, when courses are organized to assist in the collaboration between students, sense of classroom community may develop. Tinto (1997) found evidence that participation in a collaborative or shared learning group enables students to develop a network of support that helps bond students to the broader social communities of the college while also engaging them more fully in the academic life of the college. Lee (2004) also found that students' sense of community was influenced primarily by the outcome of interactions with group members, such as group members showing consideration for others, responding to their contributions, and contributing to the group collaboration. Experiencing a sense of co-accomplishment through collaboration helped students to develop sense of community.

Second, technology allows teachers to use specific strategies to facilitate the creation of communities (Moller, 1998). For example, Dehoney and Reeves (1999) showed that the use of CMS, which is generally based on asynchronous communication, creates and facilitates students' sense of community. In asynchronous discussions, students may be deeply involved in discussion by having time to read messages posted by others, reflecting on threads, and composing thoughtful responses. Also, students get personalized attention from their teacher and classmates through feedback. These

interactions in asynchronous discussion may create sense of classroom community. In this sense, asynchronous discussion using CMS functions is an extension of classroom activities where students interact with each other socially and interpersonally as much as intellectually online (Do & Schallert, 2004; Goodenow, 1992). Furthermore, with negotiation of meaning (Amador et al., 1999), asynchronous discussion is an occasion for the social construction of knowledge. When students are deeply involved in discussion, they have socially shared cognition which is generated by social interaction. When two or more people meet and discuss their individual construction of meaning, there occurs an enlargement of everyone's understanding sparked by the contributions made to the group (Schallert & Reed, 1997).

Third, when there is an active interaction between students and their teacher, a sense of classroom community may develop. Gentle and non-intrusive facilitation of collaborative activities by the teacher (Barab et al., 2001), and desirable behaviors modeled by the teacher (Brown, 2001; Solomon, Watson, Battistich, Schaps, & Delucchi, 1992) may help communities to form more readily for students. Barab and colleagues (2001) showed that when the teacher was committed to fostering a sense of community and chose texts and assignments that facilitated deep and personal sharing, students were engaged in deep and meaningful learning in the course. Especially when course activities are organized to allow students to connect their personal experiences to class content and recognize the diversity of views and experiences of classmates, communities may be further strengthened (Tinto, 1997). However, without a feeling of being a part of the group, students were likely to be anxious, defensive, and unwilling to take the risks involved in learning (Wegerif, 1998). Although sometimes it is difficult to manage

discussion if conflicts occur online, teachers can bring that issue into face-to-face situations and choose a number of options for dealing with conflict. The process of solving conflicts may contribute not only to group cohesion but also to the quality of the learning outcome (Palloff & Pratt, 1999).

The process of being a full member in a classroom community

From the beginning of the semester, each student in a classroom is qualified as a member of the classroom community. However, just staying in a classroom does not guarantee full membership or belongingness in the classroom. Rather, the process of becoming a full member from a peripheral member of a classroom community is varied and dynamic depending on contexts, common goals, interest, access, resources, values, needs, and so on (Svinicki, Mohammed, Bush, Kim, & Yoo, 2006, in preparation).

When we consider a classroom as a specific setting, there may be several coexisting communities in a classroom. There may be several small learning communities that provide learners with considerable support in obtaining knowledge by providing setting where students can easily ask questions and also attempt solving difficult problems. Such social networks can be thought of as communities of learners (Bateman, 1998; Bateman, Bransford, Goldman, & Newbrough, 2000). Gallini and Zhang (1997) conceived of the classroom as a community of inquiry, using co-participation and co-construction of knowledge and learning. In addition, there may be a community of practice which is defined as "an activity system about which participants share understandings concerning what they are doing and what that means in their lives and for their communities" (Lave & Wenger, 1991, p. 98). Research shows that communities of practice provide learners

with intrinsic motivation to move to greater levels of participation in the community, thus becoming active members of the community of learners (Lave & Wenger, 1991).

As Lave and Wenger (1991) insisted, learning is not a separate and disconnected activity but an integral aspect of participation in any community of practice (Wells, 2000). In a community of practice, a peripheral member becomes a full member through the process called legitimate peripheral participation. Legitimate peripheral participation refers to the process of moving from peripheral to full participation in communities of practice through either formal or informal apprenticeship (Lave & Wenger, 1991). In the process of formal or informal apprenticeship, students get social support from class members, share common goals, and develop trust between members. In a classroom, a learner becomes an expert through a cognitive apprenticeship by participating in community practices. A cognitive apprenticeship occurs when less skilled students work at the side of more capable students or their teacher (Collins, Brown, & Holum, 1991) within students' zone of proximal development (ZPD) (Vygotsky, 1978). The ZPD provides a potential for learning that is created in the interaction between a student and more capable others as they engage in a particular activity together in a community of practice. However, 'more capable others' do not necessarily mean that there are members who are in all respects more capable than the other students, because a student who is expert in one task may need assistance from others on another task (Wells, 1999). For example, in a group work situation, it is unusual that in all activities a person is more capable than the others. Rather, group work involves a variety of tasks such that students who are expert in one task, and therefore able to offer assistance to their peers, may themselves need assistance on another task. Moreover, when group members have to

solve a difficult task as a group, the group as a whole can solve the tasks by working together even if no member has expertise beyond his or her group members (Wells, 1999; 2000).

As described in this section, a sense of classroom community through the uses of CMS may make the classroom environment safe and engage students more with course contents, thus influencing student motivation and learning. In this study, I investigate how a sense of classroom community influences self efficacy and, further, how self efficacy and a sense of classroom community work uniquely and together to influence goal orientation changes. In the following section, I describe interrelationship between self efficacy, sense of classroom community, and goal orientations in hybrid courses.

RELATIONSHIP AMONG VARIABLES

Recently, in an effort to understand student goal orientation, researchers have suggested that goal orientation should be investigated in relation to other motivation variables in various contexts to look at interplay between motivation variables with consideration that each goal orientation may interact differently (Pintrich, 2003; Pintrich, Conley, & Kempler, 2003). In this section, I provide the relationship between self efficacy, sense of classroom community, and goal orientations in hybrid courses, which is the context for this study.

Although there has been little empirical research on the impact of CMS on students' learning and motivation, several researchers have suggested that CMS may promote sense of community and may influence student motivation (Battistich, Solomon,

Kim, Watson, & Schaps, 1995; Goodenow, 1993; Solomon, Watson, Battistich, Schaps, & Delucchi, 1992).

Self efficacy and goal orientation

In the previous section, I explained the relationship between self efficacy and goal orientation in detail (please refer to the section on page 23).

The current research suggests that self efficacy may act as an antecedent of goal orientation and have a strong impact on students' goal adoption process.

In the present study, I ask the following two questions: "Will self efficacy that is influenced by four factors of self efficacy in CMS environmnet result in more mastery-oriented goals at the end of the semester?" and "If students with high performance avoidance goal orientation at the beginning of the semester gain self efficacy over time, will the perception of high self efficacy provide an effective buffer against the thretening environment so as to overcome their fear of failure?"

Sense of Classroom Community and Self Efficacy in a Hybird Course

A sense of community which is created in hybrid classes may help students to participate more fully in their learning process by having them feel they belong to a class (Lave & Wenger, 1991), by having them perceive the environment as safe, by fostering their sense of obligation or responsibility to meet the needs of the group (Moller, Harvey, Downs, & Godshalk, 2000), and by impacting their social confidence (Bateman, 2002).

It is predicted that a sense of classroom community may influence factors of self efficacy and thus influence self efficacy. First, students may be persuaded to feel a sense

of accomplishment by receiving helpful and positive feedback from peers and teachers while they interact online using various CMS functions.

Second, students may follow a model which is posted on CMS by teachers' or peers' work, thus increasing their confidence in their own work. This modeling may stimulate students to do their own investigations and also share their results (Flake, 1996).

Third, students may relax and feel comfortable in interacting with classmates, because the community provides emotional support for risk taking behaviors that are essential for intellectual growth. With the feeling of being more comfortable with other students and the teacher and the feeling of acceptance that the community provides, students begin to allow themselves to take educational risks and engage in substantive and rich conversations (Moller, Harvey, Downs, & Godshalk, 2000).

Sense of classroom community and goal orientation

Recently, researchers have been interested in environmental variables which may act as another antecedent of goal orientation (Elliot & Church, 1997).

In this study, a sense of community is considered to be an important component that influences on students' adoption process of goal orientation.

Several researchers have supported that students do perceive classrooms as emphasizing mastery or performance and that these perceptions influence the goals that students themselves adopt, thereby influencing their motivation and learning (Ames & Archer, 1988; Maehr & Midgley, 1991b; Meece, Blumenfeld, & Hoyle, 1988). Ames and Archer (1998) argued that classroom goal orientation is determined by what is actually

happening in the classroom and how a student interprets and reacts to classroom experiences.

Church, Elliot, and Gable (2001) also viewed classroom environments as exerting an indirect effect on achievement outcomes by their influence on achievement goal adoption. That is, students' perceptions of the classroom environment are presumed to lead students to a specific direction through the adoption of achievement goal orientation. For example, research has shown that mastery goal is likely to develop when students are involved in choice and decision making, when there are opportunities for peer interaction and cooperation, when grouping is based on interest and needs, and when success is defined in terms of effort, progress, and improvement (Ames & Archer, 1988; Maehr & Midgley, 1991).

Course Management Systems and Sense of Classroom Community

Since the introduction of CMS, teachers have explored various functions to enhance their teaching and students' learning. Although each function of CMS alone does not guarantee deep learning or effective environment, the uses of CMS based on students' learning preferences may transform the traditional classroom into student centered environments where a sense of community may further develop by interacting and collaborating online in addition to face-to-face interactions in a classroom (Morgan, 2003).

According to Svinicki et al (2004), there are three dimensions which contribute to the sense of classroom community: Engagement with Content, Student-Instructor Interactions, and Respect and Connectedness. Engagement with Content dimension refers

to student engagement with lecture and discussion in the classroom. Student-Instructor Interaction dimension assess how students perceive interactions with their instructor, and Respect and Connectedness refers to the extent that students value and respect each other.

It is expected that use of the Blackboard functions contribute to each dimension of sense of classroom community. Teachers and students may use any or all of these functions to exchange information and construct knowledge. For example, teachers can expand communication with students by group email functions, add internal or external links for further investigation, give students 24 hour access to class documents, and use online grade-book to make grading convenient and transparent (Morgan, 2003). Similarly, students can also use various functions to maximize their goals mostly at their own pace. For example, students can prepare for their class and maintain their learning goals by looking at calendar and syllabus. In addition, students may be deeply involved in discussion by having time to read messages posted by others, reflecting on threads, and composing thoughtful responses by using discussion boards or small group pages.

More importantly, the use of the Blackboard system facilitates interactions between students and their teacher through giving and getting of the feedback. Feedback, which is provided with the form of oral and written comments, may bond the relationship between students and their teacher as one who pursue same goals together. Previous research has indicated that students appreciate helpful and positive feedback from their teacher (Whipp & Chiarelli, 2004), want to receive care from their teacher (Noddings, 1984; Noddings, 1992), and want to be in touch with the instructor to maintain their confidence about their learning (Burford & Gross, 2000).

Sense of Classroom Community and Self Efficacy on Goal Orientation

Previous findings showed that students may perceive their environment as either safe or threatening and adopt either approach or avoidance motivation depending on their level of competence for the task (Elliot & Church, 1997). Given that competence expectancy is an important antecedent of goal orientation, domain specific competence perception, which is self efficacy, may act as a buffer against the threatening environment. Thus, it is predicted that even students with performance avoidance goal orientation may try harder to rise to the challenge of a task if their self efficacy is high, because students with high self efficacy persist toward achieving their goals (Pintrich & DeGroot, 1990; Schunk, 1990), strategically approach tasks, and accept new challenges rather than avoid them (Pajares, 1996). However, if the environment is not continually supportive, open, and safe, they may lose their persistence in the face of difficulties and find it difficult to recover from setbacks (Pajares, 1996), although students who have high self efficacy can survive in a threatening environment. Thus, it is predicted that sense of classroom community and self efficacy may interact with each other to influence goal orientation especially when environment is supportive (Elliot & Church, 1997).

Up to this point, I have reviewed the current literature which is related to achievement goal orientation, self efficacy, sense of classroom community, and interrelationship among these variables in hybrid courses. There is increasing evidence that student goal orientation should be investigated in relation to other variables in a classroom because motivation may not be explained without considering context.

In this study, I investigate goal orientation in relation to self efficacy and sense of classroom community in hybrid courses which are supported by CMS. While students

interact with online using CMS in addition to face-to-face classroom activities, students may learn to appreciate other's opinions, feel sense of classroom community and change their self efficacy and goal orientations. In the following chapter, the specific research hypotheses and methods are explained.

Chapter 3. Method

The main purpose of this study was to examine whether goal orientations at the beginning of semester change over time as the semester progresses, and what are the roles of self efficacy and sense of classroom community on each goal orientation uniquely and together. Both self efficacy and sense of classroom community were expected to influence goal orientations throughout a semester. Specifically, I was interested in investigating how mastery, performance approach, and performance avoidance goal orientation changed as a function of the development of a sense of classroom community and self efficacy in hybrid courses which use course management system (CMS). Thus, the specific context of this study was hybrid courses at college level in which students interacted with their teacher and classmates online in addition to face-to-face interactions in the classroom.

To investigate the interrelationship between these variables, quantitative research methods were used, and data were gathered two times during a semester, once at the beginning of the semester and once again at the end.

PARTICIPANTS

Between two to three weeks into the fall semester in 2005, 429 students, who were enrolled in hybrid courses of various disciplines, at a large southwestern university participated in TIME1 survey. At the end of the semester, two weeks before the final exams, 421 undergraduate students participated in TIME2 survey. Among these students, a total of 359 undergraduate students who took both TIME1 survey and TIME2 survey

were included in the data analyses and those (around 20 students) who took only either TIME1 or TIME2 were excluded from the data analyses.

Of the participants, 69.6% (250) were female and 30.4% (109) were male, with the following rank breakdown: 18.7% (67) freshmen, 15.9% (57) sophomore, 29.5 % (106) junior, 34.8% (125) senior, and 1.1% (4) other.

Around 14 hybrid/web based courses included in the study were representative of the regular classes that used the Blackboard system, which is one of the course management systems (CMS) used at the institution. The criteria for inclusion were that course activities were composed of both face-to-face interactions and online communications using the Blackboard system. Students used various functions on the Blackboard such as syllabus, calendar, class materials, group email, discussion board, grade-book, and external links. Students also engaged in both self directed learning and collaborative learning via these functions on the Blackboard. However, students' uses of the Blackboard system were varied depending on disciplines, class size, teachers' teaching styles, and teachers' preferences for use of the Blackboard system. Table 1 shows demographic information about the hybrid courses that were included in this study.

Among participants, 45.1% (162) students responded that their class was lecture-oriented, 44.8% (161) said it was mixed lecture and discussion, and 10% (36) students answered that their class was discussion-oriented. In addition, 76.3% (274) among participants said that they have never participated in group work during the semester, and 57.9% (208) said their classes were required.

Class size also varied across disciplines. 16.4% (59) replied that their class size was small (less than 30), 38.7% (139) said it was medium (between 30 and 99), and 44.8% (161) said their class was big (over 100).

Table 1 Demographic information about the hybrid courses

Class	Disciplines	Class size	Participants	Teaching styles
1	School of Information	Big	131	Lecture
2	Sociology	Medium	72	Mixed
3	Finance	Medium	42	Mixed
4	English 1	Small	17	Discussion
5	English 2	Small	17	Discussion
6	Music	Medium	13	Mixed
7	Biology	Medium	13	Lecture
8	English 3	Small	11	Discussion
9	Radio-Television-Film	Big	10	Mixed
10	Psychology	Medium	9	Mixed
11	Communication Science	Medium	8	Lecture
12	Management	small	8	Mixed
13	Geosciences	small	4	Lecture
14	Architecture	Small	4	Mixed

MEASURES

The students completed a total of four measures designed to identify their self efficacy, achievement goal orientation, a sense of classroom community, and use of the Blackboard system through an experimenter-developed questionnaire. In this last questionnaire, which was a survey form, students were asked to provide their perception about the relative influence of CMS activities on a sense of classroom community and to indicate how often they used various aspects of the Blackboard site during the semester. In addition, demographic information was gathered at the beginning of the semester. Student identification number was used with the experimenter-developed questionnaire at the end of semester for the purpose of matching students at TIME1 and TIME2.

Self efficacy

The measure of self efficacy was adapted from the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich, Smith, Garcia, & McKeachie, 1993).

The self efficacy scale of MSLQ consists of 8 items which focus on students' judgments about their capability to accomplish study tasks as well as on their confidence in their skills to perform those tasks (e.g., I'm confident I can learn the basic concepts taught in this course). The participants responded to these items on a Likert scale, with 1 being "not at all true of me," and 7 being "very true of me." The scores on this measure have high reliability (α= .95 for TIME1 and α= .96 for TIME2). These two reliabilities with the present sample were higher than the reliability (α= .93.) that was originally reported when the scale was validated (Pintrich, Smith, Garcia, & McKeachie, 1993). Appendix A contains a list of items.

Achievement goal orientation

The achievement goal orientation instrument developed by Elliot and Church (1997) was used to measure participants' mastery, performance approach, and performance avoidance goal orientation for the class. Each item utilizes a Likert scale for responses, with 1 being "strongly disagree", and 7 being "strongly agree." Appendix B contains a list of items.

Mastery goal items (six items, α= .88 for TIME1 and α= .91 for TIME2) assess the degree to which students are oriented towards learning and understanding the material in their class (e.g., It is important for me to understand the content of this course as thoroughly as possible). High levels of mastery mean students have a positive attitude toward learning.

Performance approach goal items (six items, α= .89 for TIME1 and α= .92 for TIME2) assess the degree to which students are oriented towards outperforming other students or demonstrating how smart they are in their class (e.g., It is important to me to do better than the other students). High levels of performance approach also mean more positive learning outcomes, but here students are concerned about their performance relative to others rather than learning.

Performance avoidance goal items (six items, α= .83 for both TIME1 and TIME2) assess how much students are oriented towards avoiding doing worse than other students or avoiding demonstrating low ability in their class (e.g., I worry about the possibility of getting a bad grade in this class). High levels of performance avoidance mean students have a negative attitude toward learning and are more anxious; thus, they want to withdraw from the learning environment.

These obtained reliabilities were similar to Elliot and Church's (Mastery: α= .89, Performance approach: α= .91, Performance avoidance: α= .77). Previous research (Elliot, 1999; Harackiewicz et al., 2000) has shown the evidence of independence of these three goal orientations so that I modeled these three goal orientations as separate but related constructs.

Sense of classroom community

The instrument developed by Svinicki et al. (2004) was used. The instrument measures degree to which community is felt in the classroom by an individual student and is composed of three dimensions: Engagement with Content, Student-Instructor Interaction, and Respect and Connectedness (Student-Student Interaction). Each factor

was named according to various aspects of community that have been found in the literature (Lave & Wenger, 1991; McMillan & Chavis, 1986; Rovai, 2002).

The Engagement with Content (5 items, α= .72 for TIME1 and α= .74 for TIME2) assesses the degree to which students are interested in the course content (e.g., Students are genuinely interested in the topics in the course).

The Student-Instructor Interaction (5 items, α= .87 for TIME1 and α= .90 for TIME2) assesses the degree to which students interact with their instructor and the quality of that interaction (e.g., The instructor gives me positive feedback when I make a comment in class).

The Respect and Connectedness (Student-Student Interaction) (5 items, α= .87 for TIME1 and α= .89 for TIME2) assesses the degree to which students respect, value, and interact with each other (e.g., I value each student's contribution to the class).

Similar reliabilities were reported when the measure was validated (Engagement with Content: α= .88, Student-Instructor Interaction: α= .91, and Respect and Connectedness (Student-Student Interaction): α= .81). However, Engagement with Content dimension was slightly higher (α= .88) at validation than this study (α= .76~.78).

Each question utilizes a Likert scale from 1 (strongly disagree) to 7 (strongly agree). Appendix C contains a list of items.

A questionnaire to measure perceptions of CMS environment

In addition to these three measures, a questionnaire designed to measure the impact of the CMS environment on sense of classroom community, relative to traditional classroom environment, was administered. There were several major functions of the

Blackboard system used in various courses including syllabus, calendar, course materials, discussion board, email, external links, and grade-book.

This questionnaire was intended to provide a way to look at participants' thoughts and perceptions about a CMS environment and its impact on sense of classroom community with the consideration that students' sense of classroom community may be influenced by the setting in which it occurs. Specifically, students were asked to estimate how often they used various functions of the Blackboard system using 1 (none) to 7 (very often) Likert scale and also how much their use of the Blackboard functions help them to be engaged in course materials using 1 (not at all) to 7 (very much) Likert scale. In addition, students were asked to evaluate how their in-class interactions (face-to-face interaction) with classmates and instructor influenced their sense of classroom community and how their online contacts with classmates and instructor influenced their sense of classroom community using 1 (very negative) to 7 (very positive) Likert scale. Lastly, students were asked to specify what aspects (e.g., discussion board, email) of the Blackboard contributed to their sense of community for the class.

In addition, based on Rovai's (2002) categorization about the major functions of the Blackboard system, I had categorized the functions into three. The first category was an information delivery function such as providing syllabus, calendar, and grade-book. The second category was a content management function such as providing course materials and external links. The third category was a communication/collaboration function such as use of discussion board, group pages, and email. This categorization was revised later after I conducted exploratory factor analysis (EFA) with this sample data to find underlying factors which represent the use of blackboard system. The procedure of

exploratory factor analysis (EFA) is reported in detail later in data analyses section. Appendix D contains a list of survey questions.

PROCEDURE

Before the start of fall 2005 semester, instructors who had used the Blackboard system or had participated in the Blackboard workshops were contacted by email and invited to participate in the study (The Blackboard workshop is conducted once a semester to help college instructors who are interested in using the Blackboard system by Center for Instructional Technologies (CIT) at the university).

I chose instructors of undergraduate classes among the instructors who responded by email and also visited the offices of some of the instructors who wanted to hear more about the purpose of the study. All of these instructors included online activities using the Blackboard system in their classes. However, there were some variations among these instructors from basic users to more experienced users. Some instructors gave extra credits to students who took both surveys to encourage students' participation.

At the beginning of the fall semester of 2005, between two weeks and three weeks after the semester had started, TIME1 data from the volunteers' classes were collected through an electronic survey tool. First, I visited these volunteers' classes, briefly explained the study, requested participation, and reminded students that they would be contacted via email later. Students were then contacted again via email through the Blackboard group email function and reminded to participate in the study. In the email, information about the purpose of the study and confidentiality of any responses on the survey were provided along with the link to the electronic survey tool. The voluntary

nature of their participation was explained as well as an estimate of the time required. A copy of this information page is found in Appendix G.

Once the students clicked the link, an informed consent form (see Appendix H) showed up on the first screen of the survey. At the bottom of the first screen, there were two icons: 'I accept' and 'I decline'. Once a student clicked on the 'I accept' icon, it was assumed that he/she understood the conditions of the study and gave complete consent for the participation in this study. On the other hand, when a student clicked on the 'I decline' icon, it was assumed that he/she did not wish to participate, and he/she was thanked and returned to his or her home page.

Then the responses to the three measures (self efficacy, goal orientation, sense of classroom community) and demographic data (Appendix E) were gathered. I used the same sense of community measure for both at the beginning of the semester and at the end of the semester; I expected that two to three weeks from the beginning of the semester is an enough time to feel sense of community, even though some might be expectations rather than the actual sense of community. This sense of community at the beginning may measure similar but a little bit different perception from the sense of community at the end of the semester. For this reason, I did not examine the changes in sense of classroom community over time.

After the first invitation email, two reminder emails were sent to students, approximately four days after the initial invitation and on the last day of pre-set deadline.

At the end of the semester, similar procedures were used. Students were contacted via email again with the link to the electronic survey tool approximately two weeks before the final exams. The three measures which were collected at TIME1 were

administered again with an experimenter-developed questionnaire which asked students' perception about the use of the Blackboard system and its influence on their sense of community. The time between the TIME1 and TIME2 administrations was about 12 weeks.

HYPOTHESES

(For specific paths of Hypothesis 1 to 5, please refer to Figure 1 (the hypothesized structural model for overall model and paths with letters) on page 71)

Self efficacy: H 1.1- 1.2

Hypothesis 1.1: Pre-self efficacy at the beginning of the semester will be predictive of post-self efficacy at the end of the semester (path: m).

Hypothesis 1.2: A student's sense of classroom community will partially mediate the relationship between pre- and post-self efficacy. That is, pre-self efficacy will influence post-self efficacy directly and also indirectly via sense of classroom community (path: m-r-o).

Mastery goal orientation: H 2.1 – 2.3

Hypothesis 2.1: A student's pre-mastery goal orientation at the beginning of the semester will be predictive of post-mastery goal orientation at the end of the semester (path: a).

Hypothesis 2.2: A student's post-self efficacy will mediate the relationship between pre-mastery and post-mastery goal orientation. That is, pre-mastery goal orientation will influence post-mastery goal orientation directly and indirectly via self efficacy (path: a-k-d).

Hypothesis 2.3: A sense of classroom community will partially mediate the relationship between pre- and post-mastery goal orientation. That is, pre-mastery goal orientation will influence post-mastery goal orientation directly and indirectly via sense of classroom community (path: a-p-e).

Performance approach goal orientation: H 3.1 – 3.3

Hypothesis 3.1: Pre-performance approach goal orientation at the beginning of the semester will be predictive of post-performance approach goal orientation at the end of the semester (path: g).

Hypothesis 3.2: It is hypothesized that post-self efficacy will mediate the relationship between pre-performance approach and post-performance approach goal orientation (path: g-l-i).

Hypothesis 3.3: A sense of classroom community will mediate the relationship between pre- performance approach and post- performance approach goal orientation (path: g-q-j).

Performance avoidance goal orientation: H 4.1 – 4.3

Hypothesis 4.1: Pre-performance avoidance goal orientation will be predictive of post-performance avoidance goal orientation (path: t).

Hypothesis 4.2: It is hypothesized that post- self efficacy will mediate the relationship between pre- performance avoidance and post- performance avoidance goal orientation (path: t-n-x).

Hypothesis 4.3: A sense of classroom community will mediate the relationship between pre-performance avoidance and post-performance avoidance goal orientation (path: t-s-w).

Relationship between goal orientations: H 5

Hypothesis 5: At the end of the semester, post-performance approach goal orientation will influence post-mastery goal orientation (path: f) and also influence post-performance avoidance goal orientation (path: y). It is hypothesized that a hybrid classroom provides a safe environment and thus reduces the level of fear of failure associated with performance avoidance goal orientation. Besides, the engagement with content and interaction with class members using the Blackboard system will provide additional small success experiences which positively influence students' competence. For these reasons, as the semester progresses, students may have a clearer idea about the subject matter and their competence, thus their performance approach goal orientation at the end of the semester may be less affected by fear of failure (Svinicki, Kim, Bush, Acachoso, 2005). Elliot and Church (1997) also suggested that reducing fear of failure would not only drop the level of performance goal adoption, but also "purify" a performance approach goal orientation, because it would then be uncontaminated by fear of failure (p 229).

Each Goal Orientation and each factor of sense of community

Mastery goal orientation and each factor of sense of community

(For specific paths of Hypothesis 6.1 to 6.2, please refer to Figure 3 (the hypothesized structural model for mastery goal orientation and paths with letters) on page 87)

Hypothesis 6.1: Pre-mastery goal orientation will influence each factor of sense of classroom community (path: d, g, i).

Hypothesis 6.2: Post-mastery goal orientation will be directly influenced by factor1 (Engagement with Content) (path: e) and indirectly by factor 2 (path: h, m) and factor 3 through post- self efficacy (path: j, m).

Performance approach goal orientation and each factor of sense of community

(For specific paths of Hypothesis 6.3 to 6.4, please refer to Figure 5 (the hypothesized structural model for performance approach goal orientation and paths with letters) on page 95)

Hypothesis 6.3: Pre-performance approach goal orientation will positively influence each factor of sense of classroom community (path: d, g, i).

Hypothesis 6.4: Post-performance approach goal orientation will be directly influenced by factor1 (Engagement with Content) (path: e) and indirectly by factor 2 (path: h, m) and factor 3 through post-self efficacy (path: j, m).

Performance avoidance goal orientation and each factor of sense of community

(For specific paths of Hypothesis 6.5 to 6.6, please refer to Figure 7 (the hypothesized structural model for performance avoidance goal orientation and paths with letters) on page 102)

Hypothesis 6.5: Pre-performance avoidance goal orientation will influence each factor of sense of classroom community (path: d, e, i).

Hypothesis 6.6: Post-performance avoidance goal orientation will be directly influenced by factor2 (Student-Instructor Interaction) (path: g) and factor 3 (Respect, Connectedness) (path: j) and indirectly by factor 1 (Engagement with Content) through post-self efficacy (path: f, n).

Use of the Blackboard system

Hypothesis 7: It is hypothesized that students' use of each factor of the Blackboard system will be correlated with self efficacy, each goal orientation, and overall sense of classroom community. Use of information delivery functions, such as syllabus, calendar, and grade-book, will be positively correlated with sense of classroom community and performance goal orientations. Use of content management functions, such as course materials and external links, which are hypothesized to promote self directed learning, will be positively correlated with mastery goal orientation and self efficacy. Use of communication/collaboration functions, such as discussion board, group pages, and email, which are hypothesized to promote collaborative learning, will be positively correlated with mastery goal orientation, performance goal orientations, sense of classroom community, and self efficacy.

Hypothesis 8: It is hypothesized that uses of the Blackboard system will influence sense of classroom community. Information delivery function, content management function, and communication/collaboration function will uniquely influence sense of classroom community. Among these three categories of functions, communication/ collaboration function will contribute the most to the sense of classroom community in hybrid courses.

ANALYTICAL PROCEDURES

In this study, classroom variables such as class size or class characteristics (e.g., class size, discipline, and teaching methods) were used solely to describe the sample but not in part of the model. Future research could include these variables.

In addition, the Blackboard functions which were used in hybrid courses were not included in the structural equation modeling (SEM) analysis. One reason was that the main purpose of this study was to focus on dynamic interplay between self efficacy, sense of classroom community, and three goal orientations throughout a semester in hybrid settings. Another reason was that there were some variations in using each function of the Blackboard system among classes. For example, students in some classes used discussion board more than any other function whereas students in some classes used mainly course materials. For these reasons, I regarded each function of the Blackboard system as a supporting tool which makes hybrid courses different from the traditional face-to-face courses.

As a first analysis, independent t-tests were used to explore whether there were gender differences in goal orientation, self-efficacy, and a sense of classroom community. The results showed that there was no gender difference in goal orientations, self efficacy, and a sense of classroom community except in pre-mastery goal orientation.

Second, descriptive statistics and correlations between the main variables were calculated. After that, the main analyses using Structural Equation Modeling (SEM) were used to examine relationships between the variables. Next, descriptive statistics and correlation analysis were used to examine how students used various functions of the Blackboard system in a semester and how uses of the Blackboard system were related to

main variables. Before a correlation analysis was conducted, exploratory factor analysis (EFA) was used to find the underlying factors which represent the use of the Blackboard system. Lastly, a hierarchically ordered regression analysis was used to investigate how students' use of the Blackboard functions influenced their perception about classroom community. In addition, an open-ended question which asked what aspects of the Blackboard system contributed to the sense of classroom community was analyzed. For all analyses, the significance level of alpha .05 was used. Discussions of these specific procedures are described in next chapter.

Chapter 4. Results

The purpose of this study was to contribute to a better understanding of how goal orientations dynamically interact with other variables in hybrid courses at college level that use course management system (CMS). More specific purposes were to explore changes in achievement goal orientations throughout a semester, which might be influenced by self efficacy and a sense of classroom community, to examine the influence of each dimension of sense of classroom community on self efficacy and goal orientations, and to study how the use of CMS influences sense of classroom community, self efficacy, and goal orientations.

This chapter begins with the preliminary analyses which provide information on gender differences, descriptive statistics, and correlation between the main variables. After that, this chapter describes the main analyses that test four proposed structural models: one model for the overall relationship and three models for each goal orientation. Before testing each proposed structural model, each measurement model was examined based on the fit indices. Finally, this chapter reports classroom environment of the hybrid courses using descriptive statistics, correlation analyses, and a hierarchically ordered regression analysis.

PRELIMINARY ANALYSES

Gender difference

The results of the independent t-tests showed that there was no gender difference in goal orientations, self efficacy, and a sense of classroom community ($p > .05$) except in pre-mastery goal orientation ($pre_{mastery}$: t (356) = 2.57, $p < .05$). At the beginning of the

semester, female students (*M*= 5.45, *SD*= 1.02) had a higher level of mastery goal orientation than male students (*M*= 5.13, *SD*= 1.19). However, the effect size of this difference was small (*d*= .289). Cohen (1988) defined effect sizes as small when *d* = .2, medium when *d* = .5, and large, when *d* = .8.

Descriptive statistics and Correlation between main variables

First, as shown in Table 2, the relative contribution of the Blackboard on the course engagement significantly correlated with mastery goal orientation and sense of classroom community but did not correlate with self efficacy, performance approach- and performance avoidance-goal orientation.

Second, students' overall sense of classroom community was significantly correlated with post-self efficacy, pre- and post-mastery goal orientation, and post-performance approach goal orientation. However, a sense of community was not significantly correlated with pre-self efficacy, pre-performance approach goal orientation, and pre- and post-performance avoidance goal orientation.

Third, both pre-self efficacy and post-self efficacy were significantly correlated with pre- and post-tests of each goal orientation. Pre-self efficacy showed higher correlation with each pre-goal orientation than with each post-goal orientation. On the other hand, post-self efficacy showed higher correlation with each post-goal orientation than with each pre-goal orientation. Overall, compared to pre-self efficacy, post-self efficacy had stronger correlation with each post-goal orientation than pre-goal orientation.

Fourth, both at the beginning of the semester and at the end of the semester, mastery goal orientation was significantly correlated with performance approach goal orientation, and, as expected, performance approach goal orientation was significantly correlated with performance avoidance goal orientation. However, the relationship between mastery and performance avoidance goal orientation was not significant both at the beginning of the semester and at the end of the semester.

Fifth, the mean scores of students' perception about the relative contribution of in-class contacts to sense of classroom community was higher than the relative contribution of online contacts to sense of classroom community. In addition, there was a suggestion that students felt more sense of community from in-class contacts with the instructor than from in-class contacts with the classmates. Similarly, in online contacts using the Blackboard functions, students felt more sense of community from contacts with the instructor than contacts with the classmates.

Table 2 displays the means, the standard deviations, and the inter-correlations between the main variables.

Table 2 Descriptive Statistics and Correlations between Main Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
BE	-																				
SE1	-.08	-																			
SE2	.02	.49	-																		
M1	.13	.27	.26	-																	
M2	.23	.16	.38	.64	-																
PA1	.01	.17	.16	.21	.09	-															
PA2	.03	.18	.26	.19	.34	.67	-														
AV1	.06	-.30	-.25	.02	.00	.24	.15	-													
AV2	.06	-.19	-.34	-.06	.01	.16	.25	.56	-												
T1F1	.24	.04	.07	.48	.49	.08	.12	.04	.02	-											
T1F2	.12	.21	.19	.45	.32	.13	.14	-.02	-.10	.47	-										
T1F3	.17	.15	.17	.44	.33	.07	.13	.07	.06	.59	.64	-									
T2F1	.29	-.10	.05	.30	.49	.04	.14	.12	.05	.65	.38	.42	-								
T2F2	.19	.07	.22	.28	.44	.02	.11	.03	-.04	.39	.56	.40	.54	-							
T2F3	.27	.07	.22	.35	.48	.04	.16	.09	.06	.52	.47	.67	.61	.68	-						
T1SCC	.21	.15	.17	.54	.46	.11	.15	.04	-.03	.84	.81	.87	.59	.53	.65	-					
T2SCC	.29	.01	.18	.36	.55	.04	.15	.10	.03	.61	.54	.57	.85	.85	.88	.68	-				
CC-C	.35	-.02	.16	.23	.29	.00	.02	-.00	-.00	.34	.23	.39	.37	.31	.48	.35	.41	-			
CC-I	.33	.02	.17	.27	.42	.02	.07	-.04	-.10	.42	.44	.32	.50	.62	.51	.53	.52	.50	-		
OC-C	.41	.07	.10	.18	.23	-.01	.07	.02	.02	.20	.13	.18	.22	.16	.22	.21	.22	.39	.33	-	
OC-I	.36	.11	.17	.19	.23	.08	.15	.04	.04	.14	.23	.12	.17	.28	.19	.25	.27	.24	.41	.62	-
M	4.21	5.80	5.34	5.36	4.81	4.28	3.89	4.20	4.23	4.50	5.62	5.26	4.15	5.24	5.06	5.13	4.81	4.61	4.86	3.80	4.31
SD	1.68	.91	1.22	1.09	1.29	1.49	1.48	1.45	1.49	1.19	.96	.98	1.30	1.18	1.13	.876	1.03	1.28	1.34	1.33	1.39

Note. BE: the relative role of blackboard system on students' engagement in course materials, SE1: pre-self efficacy, SE2: post-self efficacy, M1: pre-mastery goal orientation, M2: post-mastery goal orientation, PA1: pre-performance approach goal orientation, PA2: post-performance approach goal orientation, AV1: pre-performance avoidance goal orientation, AV2: post-performance avoidance goal orientation, SCC: total composite score of sense of classroom community, F1: engagement with content factor of SCC, F2: student-instructor interaction factor of SCC, F3: respect and connectedness factor of SCC, CC-C: In-class contact with classmates, CC-I: In-class contact with instructor, OC-C: online contact with classmates, OC-I: online contact with instructor. T1 indicates TIME1 and T2 indicates TIME2.

MAIN ANALYSES: STRUCTURAL EQUATION MODELING ANALYSES

Structural Equation Modeling (SEM) using M-plus program version 3.11 (Muthen & Muthen, 1998-2004) was used to examine the research questions.

SEM is a method for representing the relations in multivariate data in the behavioral and social sciences (McDonald & Ho, 2002). SEM allows researchers to simultaneously assess measurement model parameters and structural path coefficients. Maximum Likelihood (ML) estimation is the default in M-plus program that is a statistical estimation procedure used to make inferences about parameters by maximizing the probability (likelihood) of the sample (Kline, 2005; Winer, Brown, & Michels, 1991).

The assumptions of ML estimation include independence of the observations, multivariate normality of the endogenous variables, independence of the exogeneous variables and disturbances, and correct specification of the model (Kline, 2005).

Specifically in this study, SEM was used to examine research questions 1 to 6. Before the analyses, a covariance matrix for each question was created using SPSS with raw data. To deal with the missing data, pair wise deletion method was used. I set the factor variances to 1 for predictor (exogenous) variables and set the loadings of the first indicators of each factor to 1 for criterion (endogenous) variables.

General structural equation modeling consists of two complementary models: the measurement model, of which factor analysis is an example, and the structural model, which concerns relations among the independent and the dependent variables. Thus, I followed two steps (measurement phase and structural phase).

The first step was testing convergent validity to determine whether the observed variables were loading on latent factors appropriately. This step was accomplished through confirmatory factor analysis (CFA) using the M-plus program.

Generally, CFA is viewed as the first step in developing a structural equation model, as it allows for the hypothesized relationships between the observed variables and the latent factors to be tested statistically (Kline, 2005).

Before I tested the measurement model, I looked at the score distributions on each variable. The results showed that the distribution of each construct was reasonably symmetric (skewness < 3 and Kurtosis < 8) (DeCarlo, 1997).

Then, the initial measurement model imposed a model where all factors were allowed to covary. If the initial measurement model does not fit satisfactorily, then the measurement model needs to be adjusted and fixed prior to examination of the structural model (Segars & Grover, 1993). If the final measurement model does not fit, then there is no reason to run the structural model and the results should not be interpreted. At this step, confirmatory factor analysis (CFA) and reliability analysis via M-plus (Muthen & Muthen, 1998-2004) were performed on each hypothesized model. After conducting CFA, item reliability, variance extracted, and construct reliability were examined for each construct.

Item reliability refers to the degree of the variance that is explained by the construct. This is typically measured by squared factor loadings which represent the item's ability to capture variance within the construct. Items demonstrating high reliability typically record squared factor loadings more than .50 as recommended by Fornell and Larcker (1981).

Variance extracted refers to the amount of variance in the indicator variables for a factor captured by the measurement model compared to the amount due to measurement error. It has been suggested that variance extracted should be greater than .50 to demonstrate significant variance captured by the measurement model (Fornell & Larcker, 1981).

Construct reliability "assesses whether a measure relates to other observed variables in a way that is consistent with theoretically derived predictions" (Bollen, 1989, *p*.188). Traditionally, construct reliability has been calculated by the summation of squared factor loadings / [(summation of squared factor loadings) + (summation of error variance)]. It is generally recommended that a construct reliability should be at least .70 or greater for evidence of strong construct reliability (Bollen, 1989). However, it has been argued that traditional construct reliability is adversely affected if a factor has some indicators loading with opposite sign, if an additional (relatively poor) indicator detracts from the overall assessment of construct reliability, and if the assessment of construct reliability is less than that of its single best indicator (Hancock & Mueller, 2001). Thus, Hancock and Muller (2001) recommended using Coefficient *H* which is not affected by loading sign, not detracted by additional indicators, and not smaller than the reliability (λ^2) of the best indicator.

In this study, I used the proposed improved index of construct reliability, coefficient *H*, using standardized loadings λ for each factor with p variables;

$$H = 1/(1+(1/[\lambda_1^2/(1-\lambda_1^2)+\ldots+\lambda_p^2/(1-\lambda_p^2)]))$$

In general, recommended minimum size of *H* is from .70 to .80 (Hancock & Mueller, 2001).

The second step was finding the best fitting structural model. A structural model can be viewed as syntheses of path and measurement models. As in path analysis, a structural model allows tests of hypotheses about patterns of relationships among variables. However, unlike path models, these effects can involve latent variables, because a structural model incorporates a measurement model that represents observed variables as the indicators of underlying factors (Kline, 2005). The initial structural model, which was imposed on the latent factors defined in the

final measurement model, was tested for the goodness of fit of the model to the given data. Then, the initial structural model was further tested and modified so that the final structural model could be used for the study.

In this study, there were four separate SEM analyses. The first analysis was with the overall model which shows the relationships among all of the main variables (each pre- and post-goal orientation, pre- and post-self efficacy, and a sense of classroom community). In this analysis, a composite score of sense of classroom community was used because the model was too complicated to understand when I tried to incorporate all the items of the sense of community in the model.

After I looked at the overall relationship between the main variables, each goal orientation was investigated separately, in the second to fourth analysis, to explore how three factors of sense of community differently relate to each goal orientation and self efficacy. Each model was based on each goal orientation with seven latent constructs (each pre-and post-goal orientations, pre-and post-self efficacy, and three factors of sense of classroom community).

SEM Analysis 1: Model for overall relationship (research questions #1 - #5)

To investigate research questions from 1 to 5 (the influence of sense of classroom community, pre- and post-self efficacy, and pre-goal orientations on post-goal orientations), the data were analyzed with SEM via the M-plus program (Muthen & Muthen, 1998-2004). These questions were investigated on one model which describes the pattern of interrelationships between variables over time in hybrid courses. The hypothesized structural model is illustrated in Figure 1.

Test of the Measurement Model

The first step was accomplished through confirmatory factor analysis (CFA) using the M-plus program focusing on 9 latent factors (SE1, M1, PA1, AV1, SCC,

SE2, M2, PA2, AV2) and 55 observed variables. The factor structure showed high and consistent loadings on the 9 proposed factors.

Table 3 shows statistics regarding initial item reliability, variance extracted, and construct reliability. As shown in Table 3, one item of performance approach goal orientation and two items of performance avoidance goal orientation that had squared factor loadings with the latent factors of less then .30 and variance extracted and construct reliability below the recommended minimum level, .50 and .70 to .80, respectively, were dropped from further analysis, in an attempt to explain more variance and to aid in construct parsimony. The deleted item of performance approach goal orientation was "I want to do well in this class to show my ability to my family, friends, advisors, or others". Two items dropped from performance avoidance goal orientation were "I just want to avoid doing poorly in this class" and "I am afraid that if I ask my TA or instructor a "dumb" question, they might not think I'm very smart". Because TIME1 items and TIME2 items were same, a total of 6 items were removed from the goal orientations.

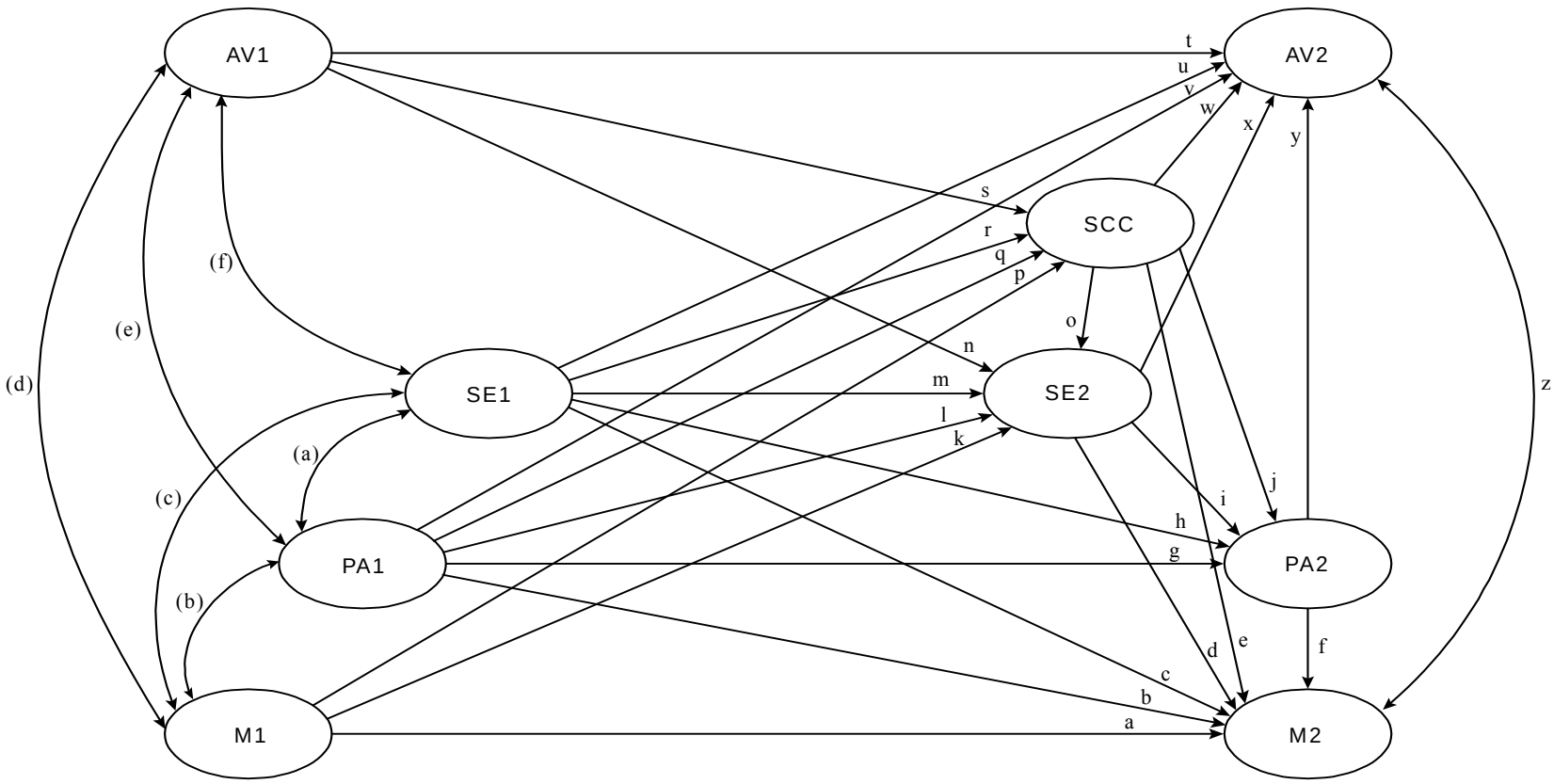


Figure 1 Hypothesized Structural Model of Overall Relationship between Variables

Note. M1: pre-mastery goal orientation, M2: post-mastery goal orientation, PA1: pre-performance approach goal orientation, PA2: post-performance approach goal orientation, AV1: pre-performance avoidance goal orientation, AV2: post-performance avoidance goal orientation, SCC: total composite score of sense of classroom community, SE1: pre-self efficacy, SE2: post-self efficacy

In addition, three items of self efficacy which may be interpreted similarly and have high residual correlations between these items were dropped. More specifically, the meanings of 3 items (item 1: "I believe I will receive excellent grades in this course", item 6: "I expect to do well in this course", and item 8: "Considering the difficulty of the study, the teachers, and my skills, I think I will do well in this course) were similar. Furthermore, correlations between these 3 items were high, ranging from .77 to .85 for TIME1 and from .86 to .91 for TIME2. Thus, among these three items, item 8 which had highest loading on self efficacy was retained. Second, the meanings of two items (item 2: "I'm certain I can understand the most difficult material presented in this course" and item 4: "I'm confident I can understand the most complex material presented by the instructors in this course") were similar. Also, correlation between these two items was .84 for TIME1 and .90 for TIME2. Thus, item two was retained for higher loading on self efficacy.

For this SEM analysis, a composite score of each factor of sense of classroom community was used, because the purpose of this analysis was to look at the relationship between overall sense of community, self-efficacy, and goal orientations. Items' standardized loadings were ranged from .58 to .86.

Table 3 Initial Test of Squared Factor Loadings, Variance Extracted, and Construct Reliability

Latent factors	Item	Squared Factor Loadings	Variance Extracted	Construct Reliability	Disposition
Pre-self efficacy (SE1)	SE1	0.717	0.709	0.957	Remove
	SE2	0.639			
	SE3	0.517			
	SE4	0.674			Remove
	SE5	0.807			
	SE6	0.764			Remove
	SE7	0.718			
	SE8	0.835			
Post-self efficacy (SE2)	SE1	0.731	0.728	0.962	Remove
	SE2	0.659			
	SE3	0.568			
	SE4	0.650			Remove
	SE5	0.805			
	SE6	0.803			Remove
	SE7	0.742			
	SE8	0.868			
Sense of classroom community (SCC)	F1	0.504	0.587	0.814	
	F2	0.624			
	F3	0.632			
Pre-mastery goal orientation (M1)	M1	0.689	0.562	0.907	
	M2	0.626			
	M3	0.736			
	M4	0.669			
	M5	0.323			
	M6	0.331			
Post-mastery goal orientation (M2)	M1	0.735	0.644	0.930	
	M2	0.743			
	M3	0.782			
	M4	0.704			
	M5	0.414			
	M6	0.483			
Pre-performance approach goal orientation (PA1)	PA1	0.635	0.610	0.929	
	PA2	0.743			
	PA3	0.534			
	PA4	0.752			
	PA5	0.797			
	PA6	0.196			Remove
Post-performance approach goal orientation (PA2)	PA1	0.719	0.667	0.941	
	PA2	0.779			
	PA3	0.600			
	PA4	0.759			
	PA5	0.827			
	PA6	0.318			Remove
Pre-performance avoidance goal orientation (AV1)	AV1	0.635	0.458	0.872	
	AV2	0.706			
	AV3	0.609			
	AV4	0.277			Remove
	AV5	0.213			Remove
	AV6	0.305			
Post-performance avoidance goal orientation (AV2)	AV1	0.533	0.463	0.862	
	AV2	0.679			
	AV3	0.570			
	AV4	0.391			Remove
	AV5	0.141			Remove
	AV6	0.465			

The revised measurement model contained 43 observable variables representing 9 latent factors. The tests showed a considerably better measurement model with even more parsimony. Standardized loadings ranged from a low 0.452 to a high of 0.932, and the variance extracted ranged from 0.549 to 0.739 exceeding the suggested minimum of .50. Table 4 shows intercorrelation between these latent variables.

Table 4 Intercorrelation between Latent Variables

	1	2	3	4	5	6	7	8	9
SE1	-								
SE2	.494	-							
SCC	.009	.184	-						
M1	.266	.255	.359	-					
M2	.163	.381	.545	.640	-				
PA1	.169	.157	.042	.206	.091	-			
PA2	.177	.256	.153	.188	.341	.671	-		
AV1	-.295	-.246	.095	.020	.004	.237	.151	-	
AV2	-.189	-.337	.025	-.058	.013	.157	.253	.564	-

Note. SE1: Pre-self efficacy, SE2: Post-self efficacy, SCC: Total composite score of sense of classroom community, M1: Pre-mastery goal orientation, M2: Post-mastery goal orientation, PA1: Pre-performance approach goal orientation, PA2: Post-performance approach goal orientation, AV1: Pre-performance avoidance goal orientation, AV2: Post-performance avoidance goal orientation

The initial measurement model did not fit satisfactorily, and thus, I needed to make respecifications of additions in the measurement model. In this stage, I checked for correlated residuals and cross-loadings for self efficacy, sense of classroom community, and goal orientations using a Lagrange Multiplier (LM) test and made sure that adding a path based on Modification indices (MI) was theoretically meaningful and statistically significant.

A modification index (MI) is a univariate version of a Lagrange Multiplier (LM), which is expressed as a χ^2 statistic with a single degree of freedom. The purpose of using

the LM test is to check for correlated residuals and cross-loadings. The value of LM in the form of MI estimates the amount by which the overall model χ^2 would decrease if a particular fixed-to-zero path were freely estimated. The greater the value of MI, the better the predicted improvement in overall fit if that path was added to the model (Kline, 2005).

First, I noticed that error variances of each item in pre- and post-tests were covariates of each other because, these pairs of items were the same at pre- and post-tests. Thus, I added error covariances on the same items for each pre- and post-tests.

Second, for mastery goal orientation, I checked MI for item 5 and item 6 and added an error covariance, because the meanings of these two items looked similar. Item 5 was "In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn," and item 6 was "In a class like this, I prefer course material that really challenges me so I can learn new things."

Third, for self efficacy, I added error covariances between item 5 (original) and 8 (original). Item 5 was "I'm confident I can do an excellent job on the assignments and tests in this course," and item 8 was "considering the difficulty of the study, the teachers, and my skills, I think I will do well in this study".

I added one path at a time and looked to check if the χ^2 dropped significantly using modification indices (MI). After that, I reran the model with all of the final changes noting the goodness of fit information.

Overall, there were not many changes in standardized loadings between the initial measurement model and the final measurement model for each factor. The differences ranged from a low of 0 to a high of .047.

The model fit for the final measurement model was tested using the chi-square (χ^2) test statistic and other fit indices that show whether the model is plausible or not in a given data based on Hu and Bentler's (1999) recommendation.

Hu and Bentler (1999) suggested two combinational rules: a cutoff value of .96 for CFI in combination with SRMR $\leq$ .10; RMSEA $\leq$ .06 and SRMR $\leq$ .10 resulting in the least sum of Type I and Type II error rates.

Overall, the model fit for final measurement model was plausible based on Hu and Bentler's recommendation (1999) (RMSEA $\leq$ .06 and SRMR $\leq$ .10), although the chi-square test statistic itself showed that the model was not plausible given the data. Table 5 shows the summary of model-fit statistics for measurement models.

Table 5 Fit Indices of Measurement Models

Model	χ^2	df	*P*-value	CFI	SRMR	RMSEA	90% CI RMSEA
Initial Measurement Model	2143.317	824	.00	.889	.064	.067	.063-.070
FinalMeasurement Model	1525.784	796	.00	.939	.062	.051	.047-.054

The standardized measurement model including factor loadings and residual paths is included in Table 6. Factor loadings are standardized, and all are significant ($p < .01$).

Table 6 Standardized Factor Loadings, R^2, Error Paths in the Final Measurement Model

Latent factors	Indicators	Factor loadings	R^2	Error Path
Pre-self efficacy (SE1)	SE1	.782	.612	.623
	SE2	.734	.538	.680
	SE3	.888	.789	.459
	SE4	.868	.753	.497
	SE5	.898	.807	.439
Post-self efficacy (SE2)	SE1	.897	.805	.442
	SE2	.813	.661	.582
	SE3	.836	.698	.550
	SE4	.932	.869	.557
	SE5	.814	.662	.581
Sense of classroom community (SCC)	F1	.711	.506	.703
	F2	.791	.626	.612
	F3	.792	.627	.611
Pre-mastery goal (M1)	M 1	.829	.688	.559
	M2	.801	.641	.599
	M3	.864	.747	.503
	M4	.817	.667	.577
	M5	.544	.296	.839
	M6	.553	.306	.833
Post-mastery goal (M2)	M 1	.858	.735	.515
	M2	.867	.752	.498
	M3	.890	.792	.456
	M4	.836	.699	.549
	M5	.624	.390	.781
	M6	.688	.473	.726
Pre-performance approach goal orientation (PA1)	PA1	.779	.607	.627
	PA2	.843	.710	.539
	PA3	.734	.539	.679
	PA4	.873	.763	.487
	PA5	.903	.816	.429
Post-performance approach goal orientation (PA2)	PA1	.829	.688	.559
	PA2	.871	.760	.490
	PA3	.770	.593	.638
	PA4	.876	.767	.483
	PA5	.918	.843	.396
Pre-performance avoidance goal orientation (AV1)	AV1	.806	.650	.592
	AV2	.876	.768	.482
	AV3	.756	.571	.655
	AV4	.452	.205	.892
Post- performance avoidance goal orientation (AV2)	AV1	.758	.575	.652
	AV2	.867	.752	.498
	AV3	.714	.510	.700
	AV4	.573	.328	.820

Test of the structural model

Once the measurement model was determined to measure the adequacy of all latent constructs, the hypothesized structural model was tested by imposing the structural model on the final measurement model. The structural model sought to examine the influence of pre-goal orientations, self efficacy, and a sense of community on post-goal orientations.

I respecified the initial model to get the final structural model by looking at modification indices and changed some paths based on previous literature.

After that, for the goodness of fit of the model given the data, the chi-square (χ^2) test statistic was used to determine whether the model was plausible or not. In addition to chi-square (χ^2) test statistic, other fit indices were considered based on Hu and Bentler's (1999) recommendation (CFI $\geq$.96 and SRMR $\leq$.10, or RMSEA $\leq$.06 and SRMR $\leq$.10) considering the sensitivity of chi-square statistic (χ^2) to sample size.

Overall, the model fit for final structural model was plausible based on Hu and Bentler's recommendation (1999) (RMSEA $\leq$ .06 and SRMR $\leq$ .10) although the chi-square test statistic itself showed that the model was not plausible given the data. Table 7 shows the fit indices for final structural model.

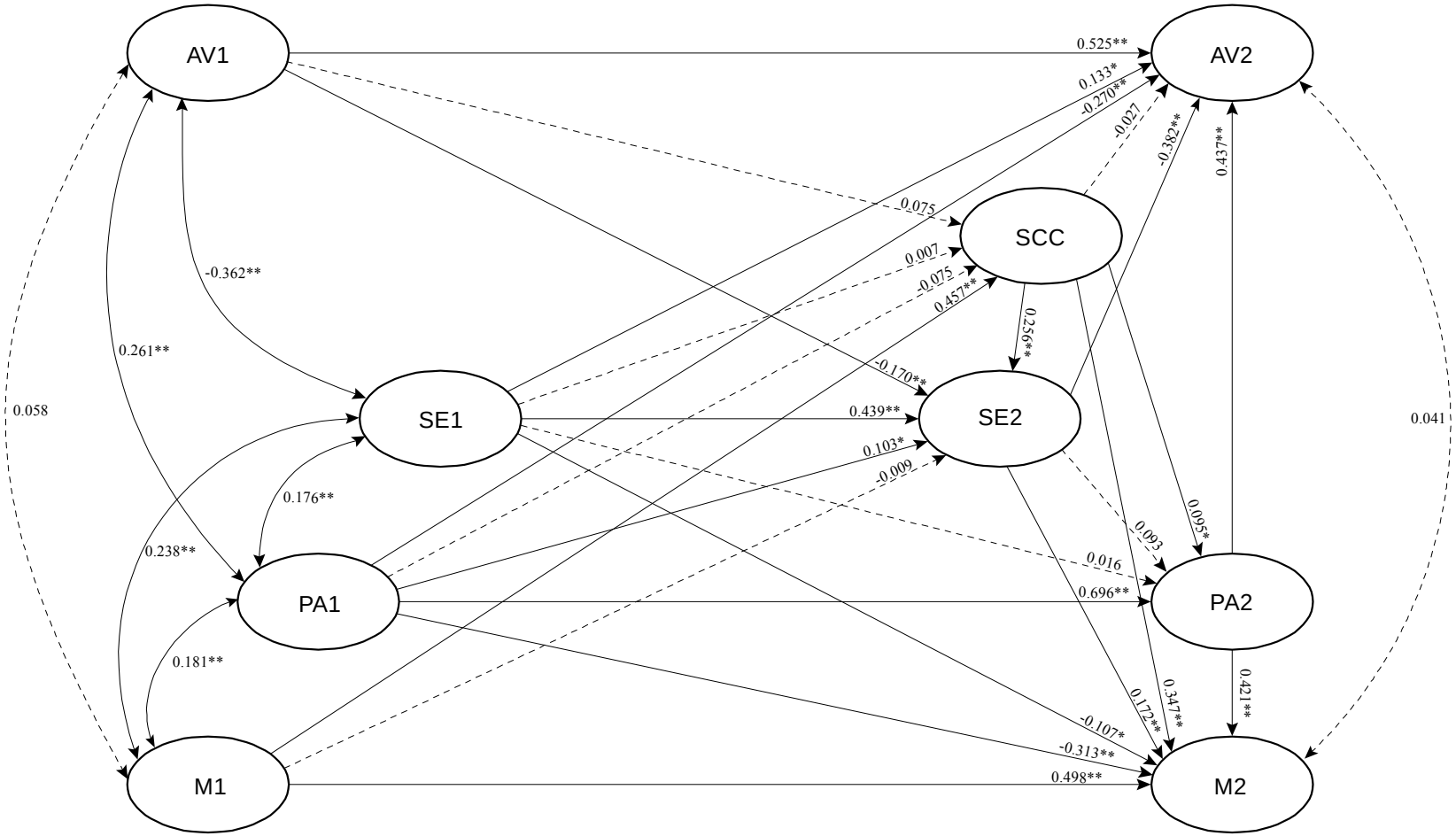
Table 7 Fit Indices of Final Structural Model

Model	χ^2	df	*P* value	CFI	SRMR	RMSEA	90% CI RMSEA	
Final Structural M	1527.747	800	.00	.939	.063	.050	.047	.054

Test of Model Fit: Chi-square Difference ($\Delta \chi^2$) Test

I did a Chi-square difference test once the fits of both the final measurement model and the final structural model were plausible. The purpose of a chi-square difference ($\triangle\chi^2$) test of the final measurement model and the final structure model is to test whether the structural model appears to fit significantly worse than the measurement model. If this test shows that the fits of the two models are not significantly different from each other ($p > .05$), then I can use the final structural model to test the research questions. If this test shows that the fits of the two models are significantly different from each other ($p < .05$), then I cannot use the structural model to test the research questions, because there is significant loss of fit when I move from the final measurement model to the final structural model. This means that the measurement model is preferred over the structural model.

The chi-square difference test showed that two models were not significantly different from each other ($\triangle\chi^2 = 1.963$, $\triangle df = 4$, $p = 0.743$), and thus, I could use final structural model to test and interpret the research questions. Figure 2 shows the standardized structural model and Table 8 shows significant direct and indirect effects of latent factors on self efficacy and each goal orientation.



Note: ----- Non significant paths, ____ Significant paths (**p*< .05, ***p*< .01), M1: pre-mastery goal, M2: post-mastery goal, PA1: pre-performance approach goal, PA2: post-performance approach goal, AV1: pre-performance avoidance goal, AV2: post-performance avoidance goal, SCC: total composite score of sense of classroom community, SE1: pre-self efficacy, SE2: post-self efficacy

Figure 2 Standardized Structural Model of the Overall Relationship between Variables

Table 8 Standardized Direct and Indirect Effects on Self Efficacy, Sense of Classroom Community and Each Goal Orientation

Dependent Variable	Path	Direct/Indirect	Specific paths	Effect
Post-Mastery (M2)	M1 to M2	Direct effect	M1 – M2	.498
		Indirect effect	M1-SCC-M2	.159
			M1-SCC-SE2-M2	.020
			M1-SCC-PA2-M2	.018
	SE1 to M2	Direct effect	SE1 - M2	-.107
		Indirect effect	SE1-SE2- M2	.076
	SCC to M2	Direct effect	SCC-M2	.347
		Indirect effect	SCC-SE2-M2	.044
			SCC-PA2-M2	.040
	PA1 to M2	Indirect effect	PA1-PA2-M2	.293
	PA2 to M2	Direct effect	PA2 – M2	.421
	AV1 to M2	Indirect effect	AV1-SE2-M2	-.029
	SE2 to M2	Direct effect	SE2 - M2	.172
Post- performance Approach (PA2)	PA1 to PA2	Direct effect	PA 1 – PA 2	.696
	SCC to PA 2	Direct effect	SCC – PA2	.095
	M1 to PA2	Indirect effect	M1-SCC-PA2	.043
Post- performance Avoidance (AV2)	AV1 to AV2	Direct effect	AV1 – AV2	.525
		Indirect effect	AV1-SE2-AV2	.065
	SE1 to AV2	Direct effect	SE1 – AV2	.133
		Indirect effect	SE1-SE2-AV2	-.168
	SCC to AV2	Indirect effect	SCC-SE2-AV2	-.098
	M1 to AV2	Indirect effect	M1-SCC-SE2-AV2	-.045
	PA2 to AV2	Direct effect	PA2 – AV2	.437
Sense of Classroom Community (SCC)	M1 to SCC	Direct effect	M1-SCC	.457
	SE1 to SE2	Direct effect	SE1 – SE2	.439
Post-self efficacy (SE2)	M1 to SE2	Indirect effect	M1-SCC-SE2	.117
	PA1 to SE2	Direct effect	PA1 – SE2	.103
	AV1 to SE2	Direct effect	AV1 – SE2	-.170
	SCC to SE2	Direct effect	SCC – SE2	.256

Note. SE1: pre-self efficacy, SCC: total composite score of sense of classroom community, M1: pre-mastery goal orientation, PA1: pre-performance approach goal orientation, AV1: pre-performance avoidance goal orientation

Findings from the results

Self efficacy: Hypothesis 1.1 – 1.2

Hypothesis 1.1: Pre-self efficacy at the beginning of the semester will be predictive of post-self efficacy at the end of the semester (path: m).

As hypothesized, a student's pre-self efficacy about success in the course was predictive of post-self efficacy (direct path coefficient (m): .44).

Hypothesis 1.2: A student's sense of classroom community will partially mediate the relationship between pre- and post-self efficacy. That is, pre-self efficacy will influence post-self efficacy directly and indirectly via sense of classroom community (path: m-r-o).

Hypothesis 1.2 was not supported by the results. That is, a student's sense of classroom community did not mediate the relationship between pre- and post-self efficacy. However, post-self efficacy was directly influenced by pre-self efficacy (Direct effect: .44, $p < .01$) and by the sense of classroom community (Direct effect: .26, $p < .01$), although pre-self efficacy did not influence the sense of classroom community ($p > .05$).

Mastery goal orientation: Hypothesis 2.1-2.3

Hypothesis 2.1: A student's pre-mastery goal orientation at the beginning of the semester will be predictive of post-mastery goal orientation at the end of the semester (path: a).

As hypothesized, a student's post-mastery goal orientation was positively influenced by pre-mastery goal orientation (Direct effect: .50, $p < .01$). As shown in Table 8, the results indicated that pre mastery goal orientation had a total effect of .70 on post mastery goal orientation (Sum of the direct and indirect effect).

Hypothesis 2.2: A student's post-self efficacy will mediate the relationship between pre-mastery goal orientation and post-mastery goal orientation. That is, pre-mastery goal orientation will influence post-mastery goal orientation directly and indirectly via self efficacy (path: a-k-d).

Hypothesis 2.2 was not supported by the results. That is, a student's post-self efficacy did not mediate the relationship between pre-mastery and post-mastery goal

orientation. However, post-self efficacy directly influenced post-mastery goal orientation (Direct effect: .17, $p < .01$).

Hypothesis 2.3: A sense of classroom community will partially mediate the relationship between pre- and post-mastery goal orientation. That is, pre-mastery goal orientation will influence post-mastery goal orientation directly and indirectly via sense of classroom community (Path: a-p-e).

As shown in table 8, results supported hypothesis 2.3. That is, a sense of classroom community partially mediated the relationship between pre- and post-mastery goal orientation. Pre-mastery goal orientation influenced post-mastery goal orientation directly (Direct effect: .50, $p < .01$) and indirectly (Indirect effect: .16, $p < .01$) via sense of classroom community.

Performance approach goal orientation: Hypothesis 3.1-3.3

Hypothesis 3.1: Pre-performance approach goal orientation at the beginning of the semester will be predictive of post-performance approach goal orientation at the end of the semester (path: g).

As hypothesized, post-performance approach goal orientation was positively influenced by pre-performance approach goal orientation (Direct effect: .70, $p < .01$). However, there was no indirect effect of pre-performance approach goal orientation on post-performance approach goal orientation through other constructs.

Hypothesis 3.2: It is hypothesized that post-self efficacy will mediate the relationship between pre-performance approach and post-performance approach goal orientation (path: g-l-i).

Hypothesis 3.2 was not supported by the results. That is, a student's post-self efficacy did not mediate the relationship between pre-performance approach and post-performance approach goal orientation. Pre-performance approach goal orientation positively influenced the post-self efficacy (Direct effect: .10, $p < .05$). However, post-self efficacy did not influence the post-performance approach goal orientation ($p > .05$).

Hypothesis 3.3: A sense of classroom community will mediate the relationship between pre-performance approach and post-performance approach goal orientation (path: g-q-j).

Hypothesis 3.3 was not supported by the results. However, a sense of classroom community significantly influenced the post-performance approach goal orientation (Direct effect: .10, $p < .05$) although a sense of classroom community did not mediate the relationship between pre-performance approach and post-performance approach goal orientation.

Performance avoidance goal orientation: Hypothesis 4.1-4.3

Hypothesis 4.1: Pre-performance avoidance goal orientation will be predictive of post-performance avoidance goal orientation (path: t).

As hypothesized, post-performance avoidance goal orientation was influenced by pre-performance avoidance goal orientation (Direct effect: .53, $p < .01$).

Hypothesis 4.2: It is hypothesized that post- self efficacy will mediate between pre-performance avoidance and post-performance avoidance goal orientation (path: t-n-x).

As shown in Table 8, the results showed that post-self efficacy partially mediated the relationship between the pre-performance avoidance and the post-performance avoidance goal orientation (Indirect effect: .07, $p < .01$). That is, pre-performance avoidance goal orientation influenced the post-performance avoidance goal orientation directly and indirectly through post-self efficacy. The total effect of the pre-performance avoidance goal orientation on the post-performance avoidance goal orientation was .59 (Sum of the direct and indirect effect).

Hypothesis 4.3: A sense of classroom community will mediate the relationship between pre-performance avoidance and post-performance avoidance goal orientation (path: t-s-w).

Hypothesis 4.3 was not supported by the results. That is, a sense of classroom community did not mediate the relationship between the pre-performance avoidance and

the post-performance avoidance goal orientation. Nevertheless, a sense of classroom community positively influenced post-self efficacy (Direct effect: .26, $p < .01$), and in turn, post self efficacy negatively influenced the post-avoidance goal orientation (Direct effect: -.38, $p < .01$). That is, sense of classroom community was a positive predictor of post-self efficacy, and this post-self efficacy lower the level of post-performance avoidance goal orientation.

Hypothesis 5

Hypothesis 5: At the end of the semester, post-performance approach goal orientation will influence post-mastery goal orientation (path: f) and also influence post-performance avoidance goal orientation (path: y).

Hypothesis 5 was supported by the results. That is, post-performance approach goal orientation positively influenced the post-mastery goal orientation (Direct effect: .42, $p < .01$), and it also positively influenced the post-performance avoidance goal orientation (Direct effect: .44, $p < .01$). These results are consistent with the previous findings by Svinicki et al. (Svinicki, Kim, Bush, & Achacoso, 2005).

After I looked at the overall relationship between self efficacy, goal orientations, and a sense of classroom community, which used a composite score instead of using each factor of sense of classroom community, my additional interest was to investigate how each factor of the sense of classroom community was differently related to self efficacy and each goal orientation. For example, factor 1 (Engagement with Content) may directly influence mastery goal orientation and performance approach goal orientation; on the other hand, factor 2 and factor 3 may directly influence performance avoidance goal orientation. Elliot (1999) suggested that both performance-approach and mastery goals are focused on attaining competence, and these approach orientations commonly engender a functionally equivalent set of processes that facilitate optimal task engagement and foster intrinsic motivation. On the other hand, the performance-avoidance goal is focused on avoiding incompetence, and individuals perceive the achievement setting as a threat and may therefore try to escape the situation if such an option is readily available. However, if students interact positively with the instructor and their classmates and perceive connectedness and respect from the class, these perceptions may lower their fear of failure and thus lead to decreased avoidance goal orientation. To investigate this possibility of each factor of sense of classroom community having a different role in predicting each post-goal orientation, three separate SEM analyses were used.

SEM Analysis 2: Model for mastery goal orientation (research questions # 6.1 - # 6.2)

To investigate research questions 6.1 and 6.2 (the influence of sense of classroom community, pre- and post-self efficacy, and pre-mastery goal orientation on post-mastery goal orientation), the data were analyzed with SEM via the M-plus program (Muthen & Muthen, 1998-2004). These questions were investigated on one model which described the pattern of interrelationships between the variables over time in hybrid courses. The hypothesized structural model is illustrated in Figure 3.

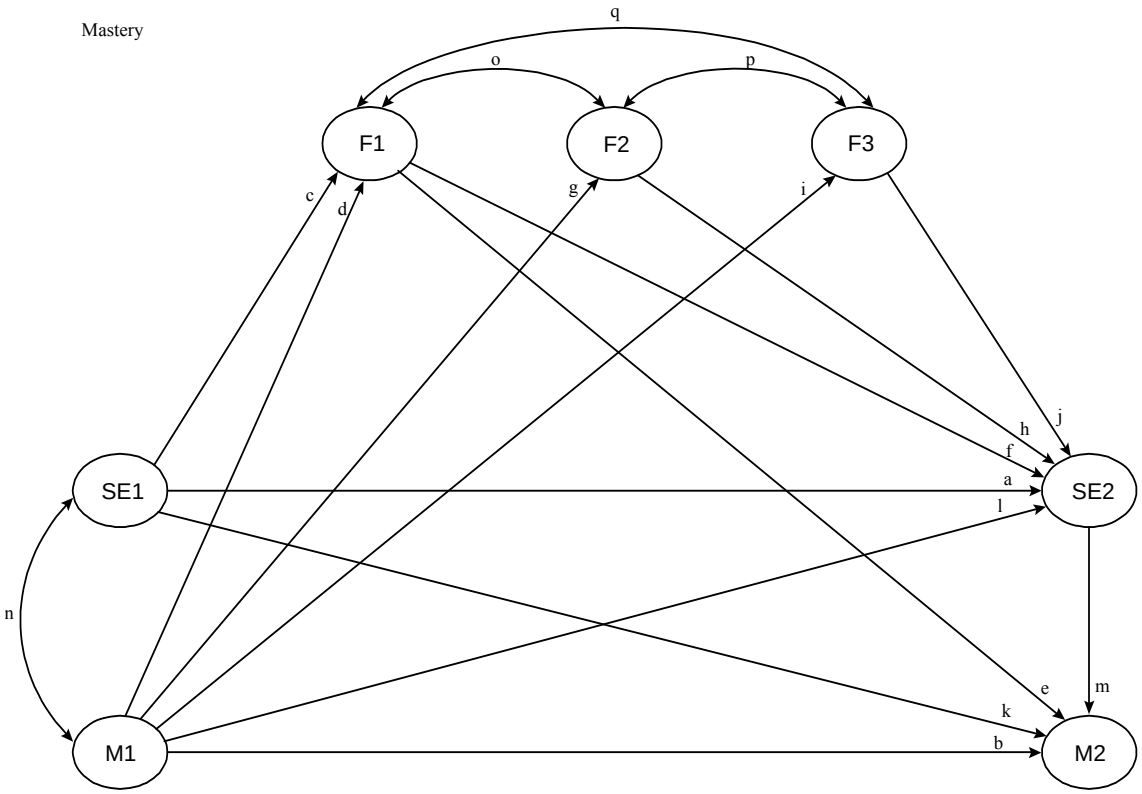


Figure 3 Hypothesized Structural Model for Mastery Goal Orientation

Note. SE1: Pre-self efficacy, SE2: Post-self efficacy, M1: Pre-mastery goal orientation, M2: Post-mastery goal orientation, F1: Engagement with content, F2: Student-instructor interaction, F3: Respect and connectedness

Test of the Measurement Model

The first step was accomplished through confirmatory factor analysis (CFA) using the M-plus program focusing on 7 latent factors (SE1, M1, F1, F2, F3, SE2, M2) and 37 observed variables. After the confirmatory factor analysis (CFA) with this sample was completed, three out of five original items from factor 1 (Engagement with Content) were used with two items being dropped because of their low loadings. These items were "The course content is not very interesting to me personally" and "I do not see the value of learning about this course content". Item reliabilities of these two items, which were measured by squared factor loadings, were low (.102 and .142 respectively). Typically, items demonstrating high reliability record squared factor loadings of more than .50 as recommended by Fornell and Larcker (1981). Thus, a total of 35 observed variables were used in this analysis.

The factor structure showed high and consistent loadings on the 7 proposed factors. Table 9 shows intercorrelation between these latent variables.

Table 9 Intercorrelation between Latent Variables

	1	2	3	4	5	6	7
SE1	-						
M1	.253	-					
F1	-.115	.302	-				
F2	.065	.275	.543	-			
F3	.070	.350	.612	.679	-		
SE2	.486	.253	.062	.230	.229	-	
M2	.157	.640	.489	.439	.477	.396	-

Note. SE1: Pre-self efficacy, SE2: Post-self efficacy, M1: Pre-mastery goal orientation, M2: Post-mastery goal orientation, F1: Engagement with content, F2: Student-instructor interaction, F3: Respect and connectedness

The process of imposing correlated residuals and cross loadings was similar to the overall model (auto correlation between pre- and post-tests and 1 error covariance of mastery goal orientation) with one additional error covariance between item 1 and item 3 of factor 3 (Respect, Connectedness) of a sense of classroom community. Item 1 was "Students value other's opinions" and item 3 was "I respect my classmates". These two items were similar in meaning, and the simple correlation between these two items was .53.

For the goodness of fit of the model given the data, the chi-square test statistic and other fit indices were used to determine whether the model was plausible or not. Overall, the model fit for the final measurement model was plausible based on Hu and Bentler's recommendation (1999) (RMSEA $\leq$ .06 and SRMR $\leq$ .10), although the chi-square test statistic itself showed that the model was not plausible given the data. Table 10 shows the summary of model-fit statistics for measurement models.

Table 10 Fit indices of Measurement Models

Model	χ^2	df	*P* value	CFI	SRMR	RMSEA	90% CI RMSEA
Initial Measurement Model	1384.265	539	.00	.907	.058	0.067	.063-.071
Final Measurement Model	1038.364	523	.00	.943	.056	.053	.048-.058

The standardized measurement model including factor loadings and residual paths is included in Table 11. Factor loadings are standardized and all are significant (p< .01).

Table 11 Standardized Factor Loadings, R^2, Error Paths in the Final Measurement Model (Mastery Goal Orientation)

Latent factors	Indicators	Factor loadings	R^2	Error Path
Pre-self efficacy (SE1)	SE1	.789	.622	.614
	SE2	.737	.543	.676
	SE3	.890	.793	.455
	SE4	.859	.737	.513
	SE5	.887	.786	.463
Pre-mastery (M1)	M1	.829	.687	.559
	M2	.798	.637	.602
	M3	.864	.746	.504
	M4	.797	.635	.604
	M5	.540	.291	.842
	M6	.553	.306	.833
Engagement with Content (F1)	F1_1	.793	.629	.609
	F1_2	.822	.676	.569
	F1_3	.584	.341	.812
Student-Instructor Interaction (F2)	F2_1	.767	.588	.642
	F2_2	.747	.559	.664
	F2_3	.843	.710	.539
	F2_4	.859	.738	.512
	F2_5	.834	.695	.552
Respect, Connectedness (F3)	F3_1	.823	.678	.567
	F3_2	.772	.596	.636
	F3_3	.755	.571	.655
	F3_4	.838	.702	.546
	F3_5	.784	.614	.621
Post-self efficacy (SE2)	SE1	.894	.799	.448
	SE2	.811	.658	.585
	SE3	.831	.691	.556
	SE4	.918	.843	.396
	SE5	.799	.639	.601
Post-mastery (M2)	M1	.857	.734	.516
	M2	.869	.756	.494
	M3	.893	.797	.451
	M4	.833	.694	.553
	M5	.635	.403	.773
	M6	.705	.498	.709

Test of the structural model

The hypothesized structural model was tested by imposing the structural model on the final measurement model. The structural model sought to examine the influence of the pre-mastery goal orientation, self efficacy, and the sense of community on post-mastery goal orientation.

Overall, the model fit for final structural model was plausible based on Hu and Bentler's recommendation (1999) (RMSEA $\leq$ .06 and SRMR $\leq$ .10), although the chi-square test statistic itself showed that the model was not plausible given the data. Table 12 shows the fit indices for final structural model.

Table 12 Fit Indices of Final Structural Model

Model	χ^2	df	*P* value	CFI	SRMR	RMSEA	90% CI RMSEA	
Final Structural M	1038.765	527	.00	.944	.056	.053	.048	.056

Test of Model Fit: Chi-square Difference (Δ χ 2) Test

The chi-square difference test showed that the fits of the two models were not significantly different from each other ($\triangle\chi$ 2 = .401, $\triangle$df = 4, *p*= 0.982) and thus, I can use final structural model to test and interpret the research questions. Figure 4 shows the standardized structural model.

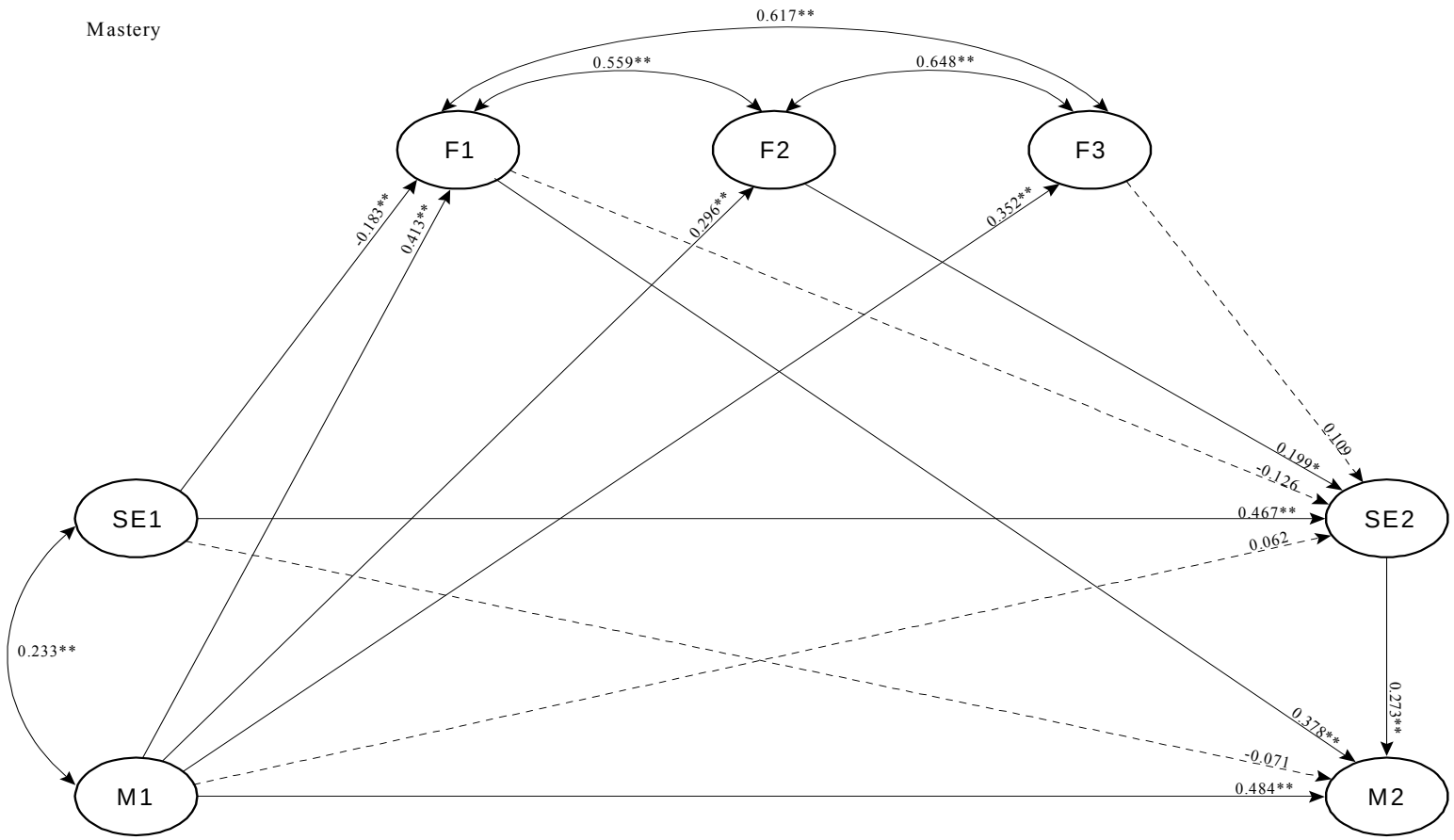


Figure 4 Standardized Structural Model for Mastery Goal Orientation

Note. ***p*< .01, **p*< .05, SE1: Pre-self efficacy, SE2: Post-self efficacy, M1: Pre-mastery goal orientation, M2: Post-mastery goal orientation, F1: Engagement with content, F2: Student-instructor interaction, F3: Respect, connectedness

The following Table 13 describes significant direct and indirect effects of latent factors on post mastery goal orientation.

Table 13 Standardized Direct and Indirect Effects on Post-Mastery Goal Orientation

Path		Specific paths	Effect
M1 to M2			
	Direct effect	M1 – M2	.484
	Indirect effect	M1 – F1 – M2	.156
		M1 – F2 – SE2-M2	.016
SE1 to M2			
	Indirect effect	SE1 – F1 – M2	-.069
		SE1 – SE2 – M2	.128
F1 to M2			
	Direct effect	F1 – M2	.378
F2 to M2			
	Indirect effect	F2 – SE2 – M2	.054
SE2 to M2			
	Direct effect	SE2 – M2	.273

Note. SE1: Pre-self efficacy, SE2: Post-self efficacy, M1: Pre-mastery goal orientation, M2: Post-mastery goal orientation, F1: Engagement with content, F2: Student-instructor interaction, F3: Respect and connectedness

Findings from the results

Hypothesis 6.1: Pre-mastery goal orientation will influence each factor of sense of classroom community (path: d, g, i).

As shown in Figure 4, hypothesis 6.1 was supported by the results. That is, pre-mastery goal orientation positively influenced each factor of sense of classroom community.

Hypothesis 6.2: Post-mastery goal orientation will be directly influenced by factor 1 (Engagement with Content) (path: e) and indirectly by factor 2 (path: h, m) and factor 3 through post-self efficacy (path: j, m).

Hypothesis 6.2 was partially supported by the results. That is, factor 1 (Engagement with Content) directly influenced the post- mastery goal orientation (Direct effect: .38, $p < .01$), and factor 2 (Student-Instructor Interaction) indirectly influenced the

post-mastery goal orientation through post-self efficacy (Indirect effect: .05, $p < .05$). However, there was no influence of factor 3 (Connectedness, Respect) on the post-mastery goal orientation.

SEM Analysis 3: Model for performance approach goal orientation (research questions # 6.3 - # 6.4)

To investigate research questions 6.3 and 6.4 (the influence of sense of classroom community, pre- and post-self efficacy, and pre-performance approach goal orientation on post performance approach goal orientation), the data were analyzed with SEM via the M-plus program (Muthen & Muthen, 1998-2004). These questions were investigated on one model which described the pattern of interrelationships between the variables over time in hybrid courses. Figure 5 shows the hypothesized structural model.

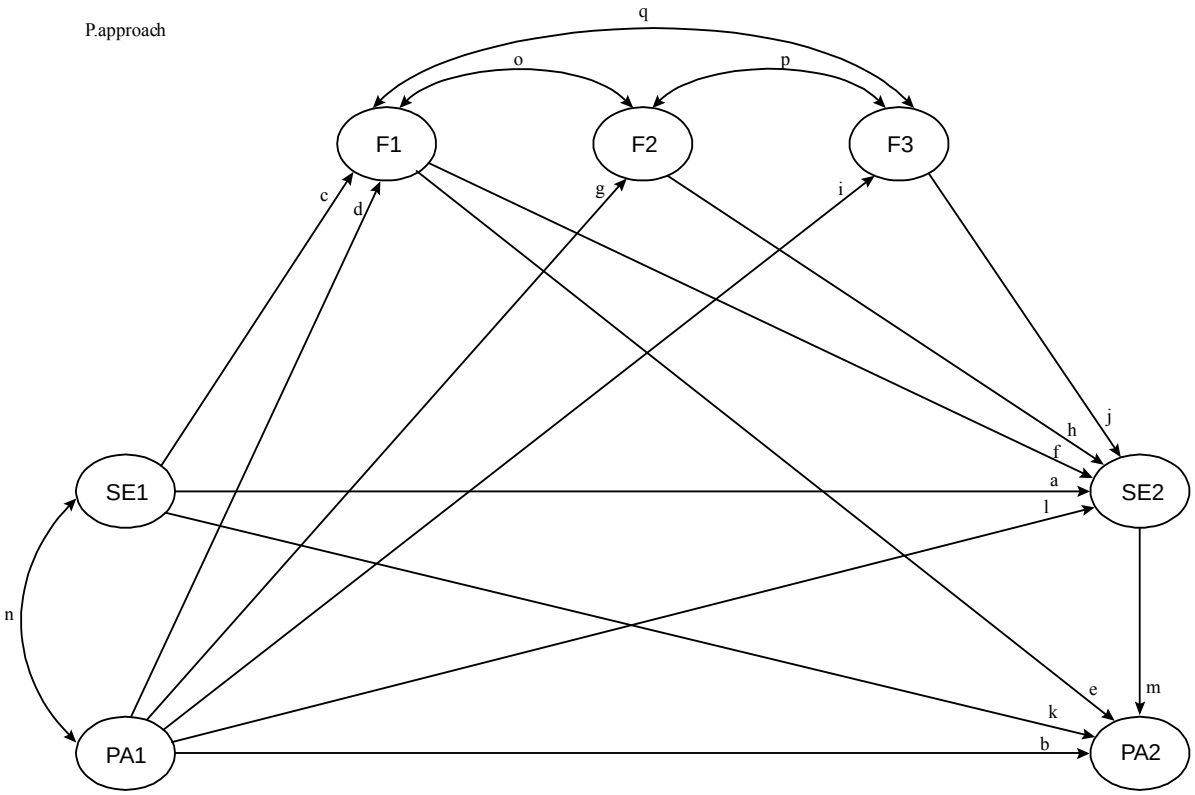


Figure 5 Hypothesized Structural Model for Performance Approach Goal Orientation

Note. SE1: Pre-self efficacy, SE2: Post-self efficacy, PA1: Pre-performance approach goal orientation, PA2: Post-performance approach goal orientation, F1: Engagement with content, F2: Student-instructor interaction, F3: Respect and connectedness

Test of the Measurement Model

The first step was accomplished through confirmatory factor analysis (CFA) using the M-plus program focusing on 7 latent factors (SE1, PA1, F1, F2, F3, SE2, PA2) and 33 observed variables. The factor structure showed high and consistent loadings on the 7 proposed factors. Table 14 shows intercorrelation between these latent variables.

Table 14 Intercorrelation between Latent Variables

	1	2	3	4	5	6	7
SE1	-						
PA1	.176	-					
F1	-.115	.039	-				
F2	.065	.024	.543	-			
F3	.070	.044	.612	.679	-		
SE2	.486	.167	.062	.230	.229	-	
PA2	.182	.671	.135	.105	.155	.291	-

Note. SE1: Pre-self efficacy, SE2: Post-self efficacy, PA1: Pre-performance approach goal orientation, PA2: Post-performance approach goal orientation, F1: Engagement with content, F2: Student-instructor interaction, F3: Respect and connectedness

The process of imposing correlated residuals and cross loadings was similar to the model for mastery goal orientation (auto correlation between pre- and post-tests and 1 error covariance of performance approach goal orientation, and 1 error covariance of factor 3 (Respect, Connectedness)).

Overall, the model fit for final measurement model was plausible based on Hu and Bentler's recommendation (1999) (RMSEA≤ .06 and SRMR≤ .10), although the chi-square test statistic itself showed that the model was not plausible given the data. Table 15 shows the summary of model-fit statistics for measurement models.

Table 15 Fit Indices of Measurement Models (Performance Approach Goal Orientation)

Model	χ^2	df	*P* value	CFI	SRMR	RMSEA	90% CI RMSEA
Initial Measurement Model	1246.179	474	.00	.915	.059	.068	.064-.073
Final MeasurementModel	998.951	459	.00	.940	.059	.058	.053-.063

The standardized measurement model including factor loadings and residual paths is included in Table 16. Factor loadings were standardized and all were significant ($p < .01$).

Test of the structural model

The hypothesized structural model was tested by imposing the structural model on the final measurement model. The structural model sought to examine the influence of the pre-performance approach goal orientation, self efficacy, and the sense of community on post-performance approach goal orientation.

Overall, the model fit for the final structural model was plausible based on Hu and Bentler's recommendation (1999) (RMSEA≤ .06 and SRMR≤ .10), although the chi-square test statistic itself showed that the model was not plausible given the data. Table 17 shows the fit indices for the final structural model.

Table 16 Standardized Factor Loadings, R^2, Error Paths in the Final Measurement Model (Performance Approach Goal Orientation)

Latent factors	Indicators	Factor loadings	R^2	Error Path
Pre-self efficacy (SE1)	SE1	.792	.628	.610
	SE2	.736	.542	.677
	SE3	.892	.796	.452
	SE4	.857	.734	.516
	SE5	.887	.787	.462
Pre-performance approach (PA1)	PA1	.785	.616	.620
	PA2	.847	.718	.531
	PA3	.725	.525	.689
	PA4	.866	.749	.501
	PA5	.894	.799	.448
Engagement with Content (F1)	F1_1	.776	.603	.630
	F1_2	.843	.710	.539
	F1_3	.576	.332	.817
Student-Instructor Interaction (F2)	F2_1	.767	.588	.642
	F2_2	.740	.547	.673
	F2_3	.839	.703	.545
	F2_4	.862	.742	.508
	F2_5	.838	.702	.546
Respect, Connectedness (F3)	F3_1	.837	.701	.547
	F3_2	.763	.582	.647
	F3_3	.766	.586	.643
	F3_4	.844	.713	.536
	F3_5	.781	.610	.624
Post-self efficacy (SE2)	SE1	.879	.772	.477
	SE2	.806	.649	.592
	SE3	.833	.694	.553
	SE4	.920	.846	.392
	SE5	.803	.645	.596
Post-performance approach (PA2)	PA1	.833	.694	.553
	PA2	.871	.759	.491
	PA3	.766	.587	.643
	PA4	.876	.767	.483
	PA5	.912	.832	.410

Table 17 Fit Indices of Final Structural Model

Model	χ^2	df	*P* value	CFI	SRMR	RMSEA	90% CI RMSEA	
Final Structural M	1002.671	463	.00	.940	.062	.058	.053	.063

Test of Model Fit: Chi-square Difference (Δ χ 2) Test

The chi-square difference test showed that two models were not significantly different from each other ($\triangle\chi^2 = 3.72$, $\triangle df = 3$, $p = 0.293$) and thus, I could use final structural model to test and interpret the research questions. Figure 6 shows the standardized structural model and Table 18 shows significant direct and indirect effects of latent factors on post-performance approach goal orientation.

Findings from the results

Hypothesis 6.3: Pre-performance approach goal orientation will positively influence each factor of sense of classroom community (path: d, g, i).

Hypothesis 6.3 was not supported by the results. The results showed that the pre-performance approach goal orientation did not influence any factor of sense of classroom community ($p > .05$).

Hypothesis 6.4: Post-performance approach goal orientation will be directly influenced by factor1 (Engagement with Content) (path: e) and indirectly by factor 2 (path: h, m) and factor 3 through post-self efficacy (path: j, m).

Hypothesis 6.4 was partially supported by the results. That is, factor 1 (Engagement with Content) directly influenced the post-performance approach goal orientation (Direct effect: .13, $p < .01$). However, the indirect effect of factor 2 (Student-Instructor Interaction) or factor 3 (Respect, Connectedness) through self efficacy on the post-performance approach goal orientation was not statistically significant ($p > .05$). Although the indirect effect of F2 on post-performance approach goal orientation through post-self efficacy was not significant, post-self efficacy directly influenced the post-performance approach goal orientation (Direct effect: .11, $p < .05$).

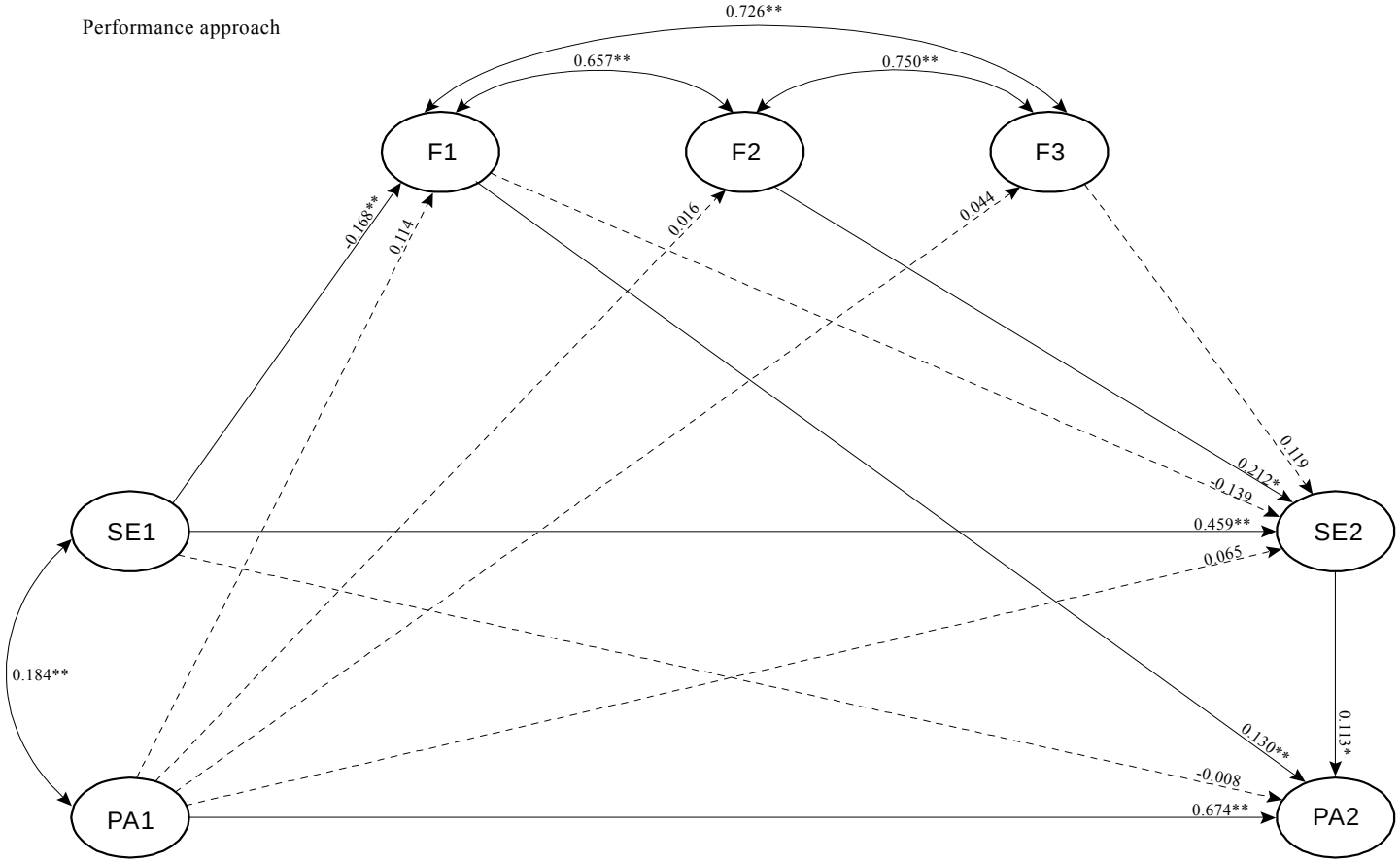


Figure 6 Standardized Structural Model for Performance Approach Goal Orientation

Note. ***p*< .01, **p*< .05, SE1: Pre-self efficacy, SE2: Post-self efficacy, PA1: Pre-performance approach goal orientation, PA2: Post-performance approach goal orientation, F1: Engagement with content, F2: Student-instructor interaction, F3: Respect and connectedness

Table 18 Standardized Direct and Indirect Effects on Post- Performance Approach Goal Orientation

Path	Specific paths	Effect
PA1 to PA 2		
Direct effect	PA 1 – PA 2	.674
SE1 to PA 2		
Indirect effect	SE1 – F1 – PA 2	-.022
	SE1 – SE2 – PA 2	.052
F1 to PA 2		
Direct effect	F1 – PA 2	.130
SE2 to PA2		
Direct effect	SE2 – PA2	.113

Note. SE1: Pre-self efficacy, SE2: Post-self efficacy, PA1: Pre-performance approach goal orientation, PA2: Post-performance approach goal orientation, F1: Engagement with content, F2: Student-instructor interaction, F3: Respect and connectedness

SEM Analysis 4: Model for performance avoidance goal orientation (research questions # 6.5 - # 6.6)

To investigate research questions 6.5 and 6.6 (the influence of sense of classroom community, pre- and post-self efficacy, and pre-performance avoidance goal orientation on post-performance avoidance goal orientation), the data were analyzed with SEM via the M-plus program (Muthen & Muthen, 1998-2004). These questions were investigated on one model which described the pattern of interrelationships between the variables over time in hybrid courses. The hypothesized structural model is illustrated in Figure 7.

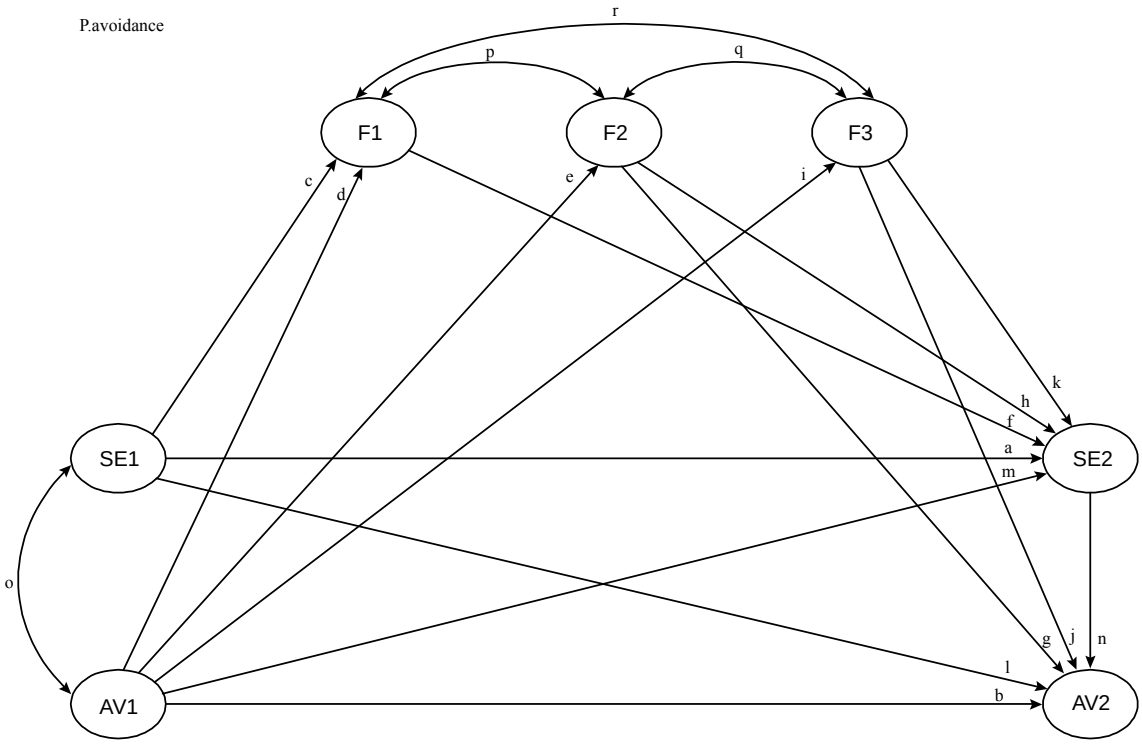


Figure 7 Hypothesized Structural Model for Performance Avoidance Goal Orientation

Note. SE1: Pre-self efficacy, SE2: Post-self efficacy, AV1: Pre-performance avoidance goal orientation, PA2: Post-performance avoidance goal orientation, F1: Engagement with content, F2: student-instructor interaction, F3: Respect and connectedness

Test of the Measurement Model

The first step was accomplished through the confirmatory factor analysis (CFA) using the M-plus program focusing on 7 latent factors (SE1, AV1, F1, F2, F3, SE2, AV2) and 31 observed variables. The factor structure showed high and consistent loadings on the 7 proposed factors. Table 19 shows intercorrelation between these latent variables.

Table 19 Intercorrelation between Latent Variables

	1	2	3	4	5	6	7
SE1	-						
AV1	-.306	-					
F1	-.115	.113	-				
F2	.065	.027	.543	-			
F3	.070	.083	.612	.679	-		
SE2	.486	-.246	.062	.230	.229	-	
AV2	-.209	.564	.035	-.051	.058	-.339	-

Note. SE1: Pre-self efficacy, SE2: Post-self efficacy, AV1: Pre-performance avoidance goal orientation, PA2: Post-performance avoidance goal orientation, F1: Engagement with content, F2: Student-instructor interaction, F3: Respect and connectedness

The process of imposing correlated residuals and cross loadings was similar to the models for mastery goal orientation and performance approach goal orientation (auto correlation between pre- and post-tests, 1 error covariance of performance approach goal orientation, and 1 error covariance of factor 3 (Respect, Connectedness)).

Overall, the model fit for final measurement model was plausible based on Hu and Bentler's recommendation (1999) (RMSEA≤ .06 and SRMR≤ .10), although the chi-square test statistic itself showed that the model was not plausible given the data. Table 20 shows the summary of model-fit statistics for measurement models.

Table 20 Fit Indices of Measurement Models (Performance Avoidance Goal Orientation)

Model	χ^2	df	*P* value	CFI	SRMR	RMSEA	90% CI RMSEA
Initial Measurement Model	1078.240	413	.00	.909	.049	.068	.063-.073
Final Measurement Model	809.677	401	.00	.944	.046	.054	.049-.059

The standardized measurement model including factor loadings and residual paths is included in Table 21. Factor loadings were standardized and all were significant ($p < .01$).

Table 21 Standardized Factor Loadings, R^2, Error Paths in the Final Measurement Model (Performance Avoidance Goal Orientation)

Latent factors	Indicators	Factor loadings	R^2	Error Path
Pre-self efficacy (SE1)	SE1	.786	.618	.618
	SE2	.742	.551	.670
	SE3	.893	.798	.449
	SE4	.854	.730	.520
	SE5	.891	.795	.453
Pre-performance avoidance (AV1)	AV1	.786	.618	.618
	AV2	.882	.778	.471
	AV3	.762	.580	.648
	AV4	.489	.239	.872
Engagement with Content(F1)	F1_1	.773	.597	.635
	F1_2	.827	.683	.563
	F1_3	.580	.336	.815
Student-Instructor Interaction(F2)	F2_1	.768	.589	.641
	F2_2	.749	.561	.663
	F2_3	.839	.705	.543
	F2_4	.859	.738	.512
	F2_5	.839	.704	.544
Respect, Connectedness (F3)	F3_1	.822	.676	.569
	F3_2	.746	.556	.666
	F3_3	.754	.568	.657
	F3_4	.826	.683	.563
	F3_5	.775	.601	.632
Post-self efficacy (SE2)	SE1	.878	.771	.479
	SE2	.808	.653	.686
	SE3	.829	.688	.559
	SE4	.927	.860	.374
	SE5	.789	.622	.615
Post-performance avoidance (AV2)	AV1	.738	.545	.675
	AV2	.866	.751	.499
	AV3	.723	.523	.691
	AV4	.614	.377	.789

Test of the structural model

The hypothesized structural model was tested by imposing the structural model on the final measurement model. The structural model sought to examine the influence of the pre-performance avoidance goal orientation, self efficacy, and the sense of community on post-performance avoidance goal orientation.

Overall, the model fit for final structural model was plausible based on Hu and Bentler's recommendation (1999) (RMSEA≤ .06 and SRMR≤ .10), although the chi-square test statistic itself showed that the model was not plausible given the data. Table 22 shows the fit indices for final structural model.

Table 22 Fit Indices of Final Structural Model

Model	χ^2	df	*P* value	CFI	SRMR	RMSEA	90% CI RMSEA	
Final Structural Model	814.800	404	.00	.944	.053	.054	.049	.059

Test of Model Fit: Chi-square Difference (Δ χ 2) Test

The chi-square difference test showed that the fits of the two models were not significantly different from each other (△χ 2 = 5.123, △df = 3, p= 0.163) and thus, I could use the final structural model to test and interpret the research questions. Figure 8 shows the standardized structural model.

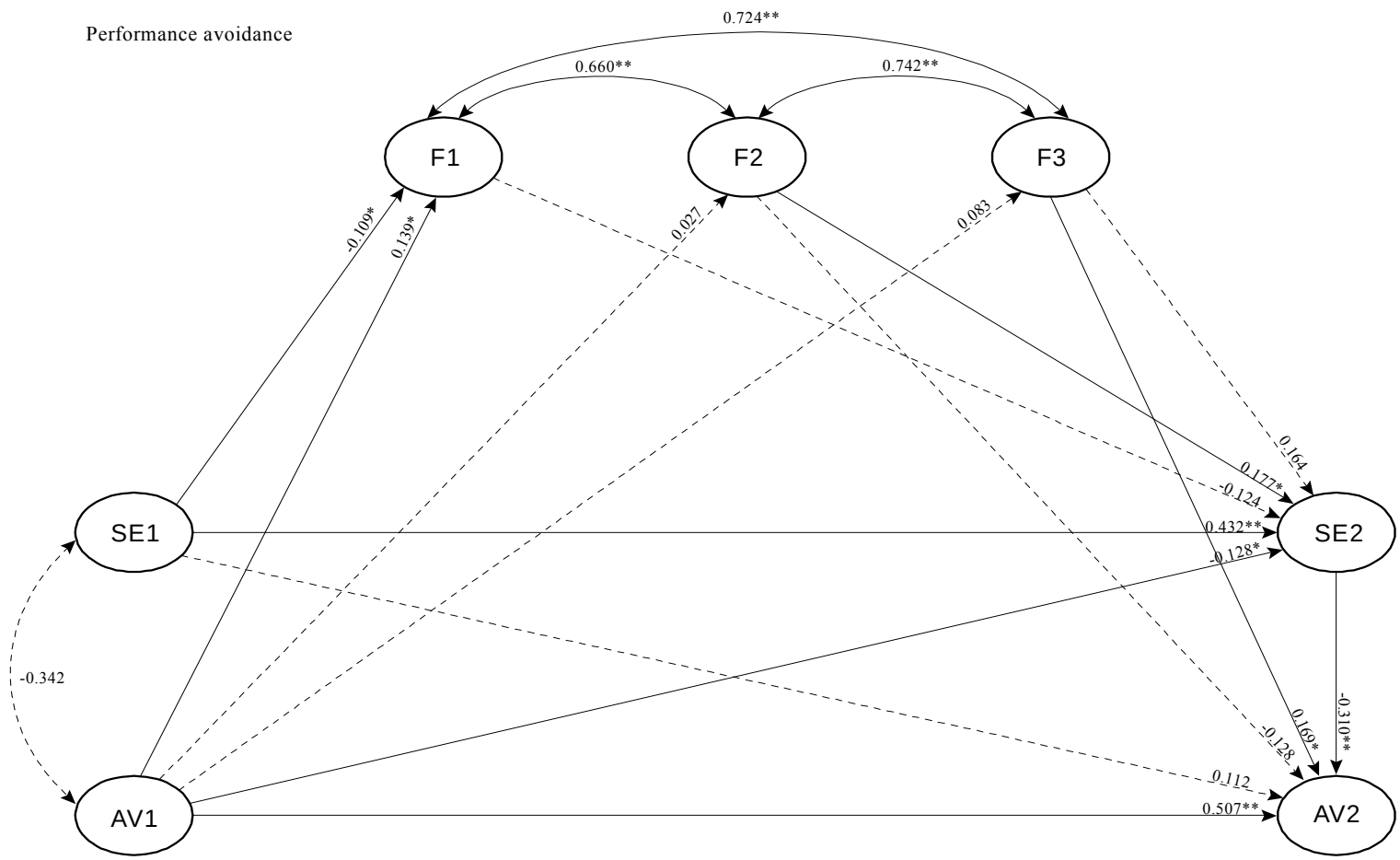


Figure 8 Standardized Structural Model for Performance Avoidance Goal Orientation

Note. ***p*< .01, **p*< .05, SE1: Pre-self efficacy, SE2: Post-self efficacy, AV1: Pre-performance avoidance goal orientation, AV2: Post-performance avoidance goal orientation, F1: Engagement with content, F2: Student-instructor interaction, F3: Respect and connectedness

Findings from the results

Hypothesis 6.5: Pre-performance avoidance goal orientation will influence each factor of sense of classroom community (path: d, e, i).

Hypothesis 6.5 was partially supported by the results. That is, pre-performance avoidance goal orientation positively influenced factor 1 (Engagement with Content), but did not influence factor 2 (Student-Instructor Interaction) and factor 3 (Respect, Connectedness) of the sense of classroom community.

Hypothesis 6.6: Post-performance avoidance goal orientation will be directly influenced by factor 2 (Student-Instructor Interaction) (path: g) and factor 3 (Respect, Connectedness) (path: j) and indirectly by factor 1 (Engagement with Content) through post- self efficacy (path: f, n).

Hypothesis 6.6 was partially supported by the results. That is, factor 3 (Respect, Connectedness) directly influenced the post-performance avoidance goal orientation (Direct effect: .17, $p < .05$). However, the direct effect of factor 2 (Student-Instructor interaction) and the indirect effect of factor 1 (Engagement with Content) through post-self efficacy were not statistically significant ($p > .05$). Although the indirect effect of factor 2 through post-self efficacy on post-performance avoidance goal orientation was not significant, post-self efficacy did directly influence post-performance avoidance goal orientation (Direct effect: -.31, $p < .01$).

The following table 23 shows significant direct and indirect effects.

Table 23 Standardized Direct and Indirect Effects on Post-Performance Avoidance Goal Orientation

Path	Specific Paths	Effect
AV1 to AV2		
Direct effect	AV1 – AV2	.507
Indirect effect	AV1-SE2-AV2	.040
SE1 to AV2		
Indirect effect	SE1-SE2-AV2	-.134
F3 to AV 2		
Direct effect	F3 – AV2	.169
SE2 to AV2		
Direct effect	SE2-AV2	-.310

Note. SE1: Pre-self efficacy, SE2: Post-self efficacy, AV1: Pre-performance avoidance goal orientation, AV2: Post-performance avoidance goal orientation, F1: Engagement with content, F2: Student-instructor interaction , F3: Respect and connectedness

ANALYSIS FOR THE USE OF BLACKBOARD SYSTEM

After I looked at the interrelationship between main variables, my additional interest was to examine how the environment of hybrid courses was related to each construct of this study. For this purpose, first, descriptive statistics and correlation were used specifically to explore how students used the Blackboard system and how the use of Blackboard was related to each construct. Before correlation analysis was used, exploratory factor analysis (EFA) was used to find the underlying factors of the use of Blackboard system. Second, a hierarchically ordered regression analysis was used to how students' use of the Blackboard system influenced their perception about classroom community. After that, an open-ended question was analyzed to further understand the contribution of the Blackboard system to sense of classroom community.

Descriptive statistics for the use of blackboard system

Students reported their degree of using each function of the Blackboard system with 7 point Likert type scale from 1 (Never) to 7 (Very often). Table 24 describes descriptive statistics for the use of blackboard functions.

As shown Table 24, students responded that they used the grade book more often than any other functions. Other functions that were used often included the course material function such as class notes, power point slides, practice exams, and course readings.

Table 24 Descriptive Statistics

Function	Sub function	N	Minimum	Maximum	*M*	*SD*
Syllabus	Syllabus	348	1	7	4.09	2.06
Calendar	Calendar	348	1	7	3.47	2.21
Course	Class notes	348	1	7	4.59	2.21
material	Power point slides	348	1	7	4.52	2.30
	Practice exams	348	1	7	4.55	2.15
	Course readings	348	1	7	4.12	2.22
Discussion	Group pages	348	1	7	2.32	2.08
Board	Small discussion	348	1	7	2.23	2.10
	Live chat	348	1	7	1.42	1.15
Email	Email to instructor	348	1	7	3.32	2.11
	Email to classmates	348	1	7	2.30	1.84
External	Content related resources	348	1	7	2.93	2.16
Links	UT resources	348	1	7	2.63	2.06
	Simulation	348	1	7	1.93	1.61
Grade book	Grade book	348	1	7	5.52	1.87

Exploratory factor analysis

The next step was an exploratory factor analysis to reduce these subcategories to a smaller number of factors that represent the use of the Blackboard system. I hypothesized that there were three factors of the use of the Blackboard system based on Rovai's (2002) categorization about the major functions of the Blackboard system. The first category was an information delivery function such as providing syllabus, calendar, and grade-book. The second category was a content management function such as providing course materials and external links. The third category was a communication/collaboration function such as the use of discussion board, group pages, and email.

I used the principal axis factoring (PAF) with Oblimin (oblique) rotation because the factors of the use of the Blackboard system were anticipated to correlate each other. Table 25 shows the correlation between the subcategories of the Blackboard system and Figure 9 shows the scree plot.

Table 25 Correlation between Subcategories

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Syllabus	-														
Calendar	.621	-													
Class notes	.318	.310	-												
Power point slides	.333	.202	.673	-											
Practice exam	.339	.181	.453	.499	-										
Reading	.363	.373	.440	.376	.443	-									
Group page	.255	.245	-.066	-.077	.065	.153	-								
Small discussion	.171	.183	-.243	-.226	-.064	.056	.657	-							
Live chat	.197	.198	.073	.108	.079	.149	.411	.416	-						
Email to instructor	.285	.294	.228	.201	.249	.289	.214	.190	.255	-					
Email to class	.324	.311	.131	.136	.205	.238	.402	.341	.344	.529	-				
Content related resource	.170	.294	.096	.060	.170	.225	.346	.401	.276	.368	.377	-			
UT resources	.302	.315	.187	.152	.222	.285	.387	.345	.355	.322	.361	.651	-		
Simulation	.319	.363	.144	.142	.179	.203	.408	.369	.483	.351	.412	.555	.622	-	
Grade-book	.222	.163	.155	.152	.216	.284	.278	.298	.056	.231	.165	.208	.264	.179	-

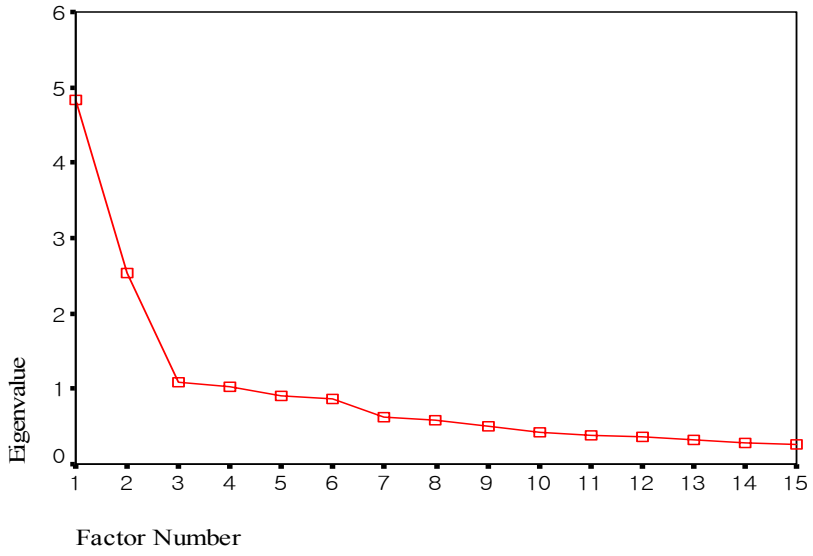


Figure 9 Scree plot

Careful consideration was given to the number of factors to retain. An examination of the eigenvalues over 1 and the scree plot suggested that three or four factors were possible. However, a four-factor solution seemed more feasible in that it was more consistent with previous categorization (Rovai, 2002) and close to my hypotheses. In my hypotheses, I regarded course materials and external links as similar functions

which might be categorized as content management system. However, exploratory factor analyses showed that these two functions are different. It was understandable because course materials directly related to course content are needed immediately whereas external links are components with which students can use as an additional source of information on the course content. Therefore, a four factor solution was considered to best represent the data. The cumulative variance accounted for prior to rotation was 51.71%, with factor 1 accounting for 29.16%, factor 2 for 14.25%, factor 3 for 4.71%, and factor 4 for 3.59%.

As a next step, I examined the interpretability of the factors following an oblique rotation using the factor loadings in pattern matrix. A ± .40 threshold was used to identify items that defined a given factor (Table26). As is frequently the case with oblique rotations, the coefficients suggested that several items loaded on more than one factor. For example, small group discussion produced a coefficient of .77 on the factor 4, -.29 on the second factor, and .14 on the first factor. However, these cross loadings were small enough to disregard.

The first factor was labeled external links, with items reflecting the use of course content related resources, school resources, and simulation. The item with the highest loading on this factor was content related resources (.797).

The second factor was labeled course materials, with items reflecting the use of power point slides, class notes, assignments/practice exams, and readings. The highest loading item was power point slides (.778).

The third factor, labeled information delivery, included the use of calendar and syllabus. The higher loading item was calendar (-.925).

The fourth factor, labeled collaborative function, included small group discussion and group pages for a project. The higher loading item was small group discussion (.771).

Table 26 shows the factor loadings in pattern matrix and Table 27 shows the intercorrelation between factors.

Table 26 Factor Loadings for the Use of Blackboard System in Pattern Matrix

	Factor loading			
Items for subscales	Factor 1	Factor 2	Factor 3	Factor 4
Content related resources	.797	-.020	.058	-.026
UT resources	.795	.071	.023	-.031
Simulation	.766	-.030	-.083	-.028
Live chat	.369	-.015	-.027	.225
Email to classmates	.339	.087	-.135	.227
Email to instructor	.335	.207	-.096	.097
Power point slides	.022	.778	.001	-.117
Class notes	.051	.726	-.103	-.188
Practice exams	.044	.657	.028	.075
Readings	.033	.490	-.177	.126
Calendar	.056	-.093	-.925	-.094
Syllabus	-.062	.182	-.634	.120
Small group discussion	.141	-.294	-.037	.771
Group pages for a project	.155	-.116	-.086	.647
Gradebok	.002	.248	-.006	.364

Note. Rotation converged in 9 iterations.Extraction Method: Principal Axis Factoring, Rotation Method: Oblimin with Kaiser Normalization.

Table 27 Factor Correlation Matrix

Factor	1	2	3	4
1	1.000			
2	.242	1.000		
3	-.459	-.414	1.000	
4	.534	.062	-.310	1.000

Note. Extraction Method: Principal Axis Factoring, Rotation Method: Oblimin with Kaiser Normalization.

As mentioned above, a ± .40 threshold was used to identify salient items that defined each factor, and, therefore, items which have factor loadings below .40 were dropped for scale revision purpose. Then, with revised items, another factor analysis was used.

Table 28 shows revised factor loading estimates for a four factor solution. The cumulative variance accounted for prior to rotation was 60.89%, with factor 1 accounting for 31.16%, factor 2 for 18.70%, factor 3 for 6.74%, and factor 4 for 4.30%. Reliabilities with revised items were .82 for factor1 (External Links), .79 for factor 2 (Course Materials), .77 for factor 3 (Information Delivery), and .79 for factor 4 (Collaborative Function).

Table 28 Factor Loadings for Revised Items of Pattern Matrix

Category	Subcategories	Factor loading			
		Factor 1	Factor 2	Factor 3	Factor 4
External links	UT resources	.841	.066	.017	-.019
	Content related resources	.804	-.037	.033	-.001
	Simulation	.639	.023	-.094	.080
Course materials	Power point slides	-.012	.804	.036	-.108
	Class notes	.049	.716	-.084	-.192
	Practice exams	.024	.682	.065	.081
	Readings	.048	.500	-.150	.103
Information delivery	Calendar	.093	-.094	-.953	-.067
	Syllabus	-.059	.265	-.544	.173
Collaborative function	Small group discussion	.078	-.142	.007	.794
	Group pages for a project	.041	.055	-.016	.757

Note. Rotation converged in 8 iterations.Extraction Method: Principal Axis Factoring, Rotation Method: Oblimin with Kaiser Normalization

Table 29 shows the factor correlation with revised items.

Table 29 Factor Correlation Matrix with Revised Items

Factor	1	2	3	4
External links	1.000			
Course materials	.269	1.000		
Information delivery	-.379	-.426	1.000	
Discussion board	.541	-.058	-.283	1.000

Note. Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.

Correlation with other measures

The next step was the correlation analysis to look at how uses of blackboard function were related to other measures of this study. For this purpose, subscale scores were computed for each factor with the retained items and were subsequently correlated with the other measures such as self efficacy, sense of community, and goal orientations. Table 30 shows the descriptive statistics and correlation.

Table 30 Correlation and Descriptive Statistics

	1	2	3	4	5	6	7	8	9	10	11	12	13
B.E	-												
M2	.23	-											
PA2	.03	.34	-										
AV2	.06	.01	.25	-									
SE2	.02	.38	.26	-.34	-								
F1	.29	.49	.14	.05	.05	-							
F2	.19	.44	.11	-.04	.22	.54	-						
F3	.27	.48	.16	.06	.22	.61	.68	-					
SCC	.29	.55	.15	.03	.18	.85	.85	.88	-				
EL	.30	.09	.09	.08	-.07	.18	.10	.11	.16	-			
CM	.21	.08	.02	.13	-.10	.15	.13	.05	.13	.25	-		
ID	.34	.17	.04	.05	-.05	.19	.09	.12	.16	.37	.43	-	
CF	.28	.11	.06	.05	-.07	.24	.09	.17	.20	.48	-.07	.26	-
M	4.21	4.81	3.89	4.24	5.39	4.15	5.24	5.06	4.81	2.49	4.44	3.78	2.28
SD	1.68	1.29	1.48	1.49	1.22	1.30	1.18	1.13	1.03	1.68	1.73	1.92	1.90

Note. B.E indicates that how much use of blackboard system made students engage in course materials, M2: post-mastery goal orientation, PA2: post-performance approach goal orientation, AV2: post-performance avoidance goal orientation, SE2: post-self efficacy, F1: engagement with content, F2: student-instructor interaction, F3: respect and connectedness, EL: external links, CM: course materials, ID: information delivery, CF: collaborative function

Findings from the results

Hypothesis 7 was carefully examined based on four-factor solution, which differentiates course materials and external links because the four-factor solution seemed better than the three-factor solution.

Hypothesis 7: It is hypothesized that students' use of each factor of the Blackboard system will be differently correlated with self efficacy, each goal

orientation, and a sense of classroom community. Use of information delivery functions will be positively correlated with sense of classroom community and performance goal orientations. Use of content management functions such as course materials and external links which are expected to promote self directed learning will be positively correlated with mastery goal orientation and self efficacy. Use of communication/collaboration functions which are expected to promote collaborative learning will be correlated with mastery goal orientation, performance goal orientations, sense of classroom community, and self efficacy.

As shown in Table 30, hypothesis 7 was partially supported from the results. First, the use of information delivery function was correlated with the sense of classroom community (r= .16, p< .01) but did not correlate with the performance goal orientations (p> .05). Rather, the use of information delivery function was correlated with the mastery goal orientation (r= .17, p< .01). Second, the use of course materials was correlated with the performance avoidance goal orientation (r= .13, p< .05) and the sense of community (r= .13, p< .05) but was not significantly correlated with the performance approach goal orientation, mastery goal orientation, or self efficacy (p> .05). Third, the external links was correlated with the sense of community (r= .16, p< .01) but was not correlated with the goal orientations or self efficacy (p> .05). Fourth, as expected, the use of collaborative function was correlated with the mastery goal orientation(r= .11, p< .05) and the sense of classroom community (r= .20, p< .01), however, this function was not significantly correlated with the performance goal orientations and self efficacy (p> .05).

The influence of the use of blackboard system on sense of community

Another research question in relation to the influence of environment in hybrid courses was to examine how students' use of the Blackboard system influenced their perception about classroom community. As in hypothesis 7, hypothesis 8 was examined

based on the four-factor solution (External Links, Course Materials, Information Delivery, and Collaborative Function) using a hierarchically ordered regression analysis. After that, an open-ended question was analyzed to further understand the aspects of the Blackboard system that contributed students' sense of classroom community.

Hierarchically ordered regression analysis

A hierarchically ordered regression analysis was used to assess the unique contribution of each factor (Factor 1: Information Delivery, Factor 2: Course Materials, Factor 3: External Links, and Factor 4: Collaborative Function) of the use of blackboard system on the sense of classroom community based on the following hypothesis 8.

Hypothesis 8: Hypothesis 8: It is hypothesized that uses of the Blackboard system will influence sense of classroom community. Information delivery function, content management function, and communication/collaboration function will uniquely influence sense of classroom community. Among these three categories of functions, communication/collaboration function will contribute most on the sense of classroom community in hybrid courses.

Each factor was entered one at a time in the order of factor 4, factor 2, factor 3, and factor 1, because I hypothesized that factor 4 (Collaborative Function) would be the best predictor of the sense of classroom community. For example, factor 2 was entered at step two to explain the variability in the sense of classroom community after taking factor 4 into consideration. And then, same procedures were followed for factor 3 and factor 1.

The equation for this question was $Y_{scc}= b_0 + b_1X_1 + b_2X_2 + b_3X_3+ b_4X_4 + e$ (X_1= Factor 4 (Collaborative Function), X_2= Factor 2 (Course Materials), X_3 = Factor 3 (Information Delivery), X_4 = Factor 1 (External Links), Y_{scc}= Sense of classroom community, e= error). Table 31 shows the result of hierarchically ordered regression analysis.

Table 31 The Result of Hierarchically Ordered Regression

	Sense of classroom community (overall)			
Predictor	β^a	ΔR^2	R^2	F change
F4 (CF)	.181	.038	.038	13.852
F2 (CM)	.117	.022	.060	7.912
F3 (ID)	.054	.002	.062	.882
F1 (EL)	.021	.000	.063	.108
Adjusted R^2			.052	

Note. [a]: Regression weights shown are standardized coefficients obtained at the final step, F1 (EL): factor 1 of the use of the Blackboard (External Links), F2 (CM): factor 2 of the use of the Blackboard (Course Materials), F3 (ID): factor 3 of the use of the Blackboard (Information Delivery), F4 (CF): factor 4 of the use of the Blackboard (Collaborative Function)

The results of hierarchically ordered regression analysis showed that hypothesis 8 was supported by the results. That is, the use of the Blackboard system influenced the sense of classroom community. Among four categories of functions (Information Delivery, External Links, Course Materials, and Collaborative Function), the collaborative function (factor 4) significantly contributed to the sense of classroom community in hybrid courses. In addition, the course materials (factor 2) influenced the sense of classroom community after taking factor 4 was taken into account. However, neither information delivery (factor 3) nor the external links (factor1) influenced the sense of classroom community after factor 4 and factor 3 were taken into account.

Analysis for an open ended question: the aspects of the Blackboard system on sense of classroom community

Students were asked to specify what aspects (e.g., discussion board, email) of the Blackboard contributed their sense of community for the class. It was an open-ended question and there were about 295 responses.

The results of the survey showed that there were variations among responses regarding the influence of the Blackboard system on sense of classroom community.

Among these responses, 12.88% (N= 38) replied that their use of the Blackboard system was unrelated to the sense of classroom community.

Of the positive responses (N= 257), 40.46% (N= 104) of responses mentioned Email function, 28.02% (N= 72) was Discussion Board function, 15.58% (N= 39) was Course Materials function, 7% (N= 18) was Announcement function, 6.61% (N= 17) was Grade-book, 1.56% (N= 4) was Syllabus/Calendar function, and 1.17% (N= 3) was External Links function.

Students' open-ended responses further provided information about how the use of the Blackboard system could lead to their sense of classroom community. There were three aspects of the Blackboard system that contributed to sense of classroom community.

First, the Blackboard system was a source of communication about the class and thus students feel connected to the class which led to sense of classroom community. Students said that the use of the Blackboard functions provided them information that helped them to monitor what is going on in their class and to manage their own progress in the class (e.g., We receive at least 2 emails a week from our instructor and our grades are posted every week so we can check our progress).

Second, the Blackboard system was a source of communication among students and also between students and their instructor, which led to feeling of classroom community. There were two ways of communicating with each other. One was providing and getting feedback mainly through the Discussion Board function (e.g., The discussion board allows students to read comments, suggestions and input from other students. You become aware of how other students are thinking and approaching the class. There is a

section in which students can post questions, comments and concerns which is very helpful). The other was corresponding/contacting each other mainly through Email function. Students commented that these communications deepen their understanding on the course materials and strengthen their connectedness (e.g., We can always contact someone in the class because of Blackboard if we have questions or problems and that is immensely helpful. Also, my class uses the discussion board for many of our writing assignments and it is an interesting, new way to get things done).

Third, the Blackboard system was a place to meet together online and share resources and concerns. In this way students and instructors could feel they are in the same community (e.g., The discussion board is what hosts our journals that we discuss in class. From there we also talk about our semester long projects and help critique each other).

More descriptions about each aspect of the Blackboard system mentioned above are presented in Appendix F.

Chapter 5. Discussion

The main purpose of this study was to explore the changes in student goal orientations that might be influenced by self efficacy and a sense of classroom community in hybrid courses. Previous research, by Svinicki et al. (2005), suggested that an examination of the relationship between the sense of classroom community and the competence expectancies is needed to clarify the nature of the goal orientation, especially performance approach goal orientation. An additional interest was the influence of the sense of classroom community on self efficacy, and how the use of course management systems influenced the sense of classroom community, self efficacy, and goal orientations.

Overall, the results of this study provide empirical support that self efficacy and the sense of community influence goal orientation changes. Although many researchers have suggested the relationship between these variables, there were not many empirical studies done, especially at the postsecondary level.

This chapter describes the findings from the analyses, the limitations of the study, the implications for future research, and the conclusions.

DISCUSSION OF THE FINDINGS

Research questions from #1 to #5: Overall relationship between main variables

This section discusses the findings on the overall relationship between the variables which are described in Figure 2 (the influence of sense of classroom community, pre- and post-self efficacy, and pre-goal orientations on post-goal orientations). In the following, each role of self efficacy, sense of classroom community,

and their interaction on goal orientation changes are described. And then, how each goal orientation interacted with each other at the end of the semester is explained.

The role of self efficacy on goal orientation changes

The results of this study indicated that self efficacy, a competence expectancy variable, acts as an antecedent of post-mastery goal orientation and post-performance avoidance goal orientation but not of post-performance approach goal orientation.

Self efficacy partially mediated the relationship between pre- and post-performance avoidance goal orientation. It seemed that the degree of performance avoidance goal orientation seen at the end of the semester would depend in part on the level of self efficacy that students gain throughout the semester. Students who gain self efficacy tend to have low performance avoidance goal orientation at the end of the semester. On the other hand, self efficacy did not mediate either the relationship between pre- and post-mastery goal orientation or the relationship between pre- and post-performance approach goal orientation.

For the mastery goal orientation, post-self efficacy positively predicted post-mastery goal orientation. It seems that students tend to adopt a mastery goal orientation at the end of the semester as they gain their competence for the course over time.

For the performance approach goal orientation, the results showed that pre-performance approach goal orientation positively predicted post-self efficacy, but post-self efficacy did not predict post-performance approach goal orientation. That is, students who had high performance approach goal orientation at the beginning of the semester

tended to have high self efficacy at the end, but self efficacy at the end of the semester did not necessarily influence post-performance approach goal orientation.

Rather, the result suggested that self efficacy at the end of the semester has positive influence on mastery goal orientation and negative influence on performance avoidance goal orientation. Developing self efficacy over time in a semester seems to have an important role in predicting goal orientation changes of students who initially had performance approach goal orientation. It may be possible that students who gain competence over the semester change their goal orientations, and thus the students who had high performance approach goal orientation at the beginning but make gains in self-efficacy during the semester are more likely to have high mastery goal orientation at the end of the semester. On the other hand, students who lose their feelings of competence across semester also change their goal orientations, and thus students who had high performance approach goal orientation but lost in self-efficacy during the semester were more likely to have high performance avoidance goal orientation at the end of the semester.

The role of sense of classroom community on goal orientation changes

Given that goal orientation may be a changeable construct which is influenced by the environment variables, one of the purposes of this study was to confirm that one environmental variable, a sense of classroom community, might be another significant antecedent of goal orientation in addition to achievement motivation, fear of failure, and competence expectancies (Elliot, 1999; Elliot & Church, 1997).

The results of this study indicated that, as hypothesized, a sense of classroom community acts as an antecedent of post-mastery goal orientation and post-performance approach goal orientation but not of post-performance avoidance goal orientation. There was no direct relationship between the sense of classroom community and the performance avoidance goal orientation.

It was interesting to see how the sense of classroom community is related to the pre- and post-performance approach goal orientation. The results showed that a sense of classroom community positively influenced the post-performance approach goal orientation although pre-performance approach goal orientation did not influence a sense of classroom community. This suggests that performance goal orientation may change as students develop a sense of classroom community throughout a semester.

For mastery goal orientation, a sense of classroom community partially mediated the relationship between pre- and post-mastery goal orientation. That is, students who had high mastery goal orientation at the beginning of the semester were more likely to feel community in the classroom, and in turn this sense of community facilitated mastery goal orientation at the end of the semester. This result indicates that the sense of community is a necessary component which predicts and maintains mastery goal orientation. When students perceive their classmates and teacher as supporters who pursue the same goals in a classroom, they are more likely to engage in class activities and this, in turn, may lead to the sense of accomplishment or task mastery that facilitates mastery goal orientation (Svinicki, Kim, Bush, & Achacoso, 2005).

With this model, it is not clear why students who had performance approach goal orientation at the beginning of the semester were less likely to feel sense of community at

the end of the semester. However, considering the nature of each goal orientation may give us some insights into this relationship.

By nature, performance goal orientation is focused on the demonstration of competence relative to others, while mastery goal orientation is focused on understanding the tasks, developing and improving competence or skills (Ames & Archer, 1988; Elliot & Dweck, 1988). Given that goal orientation provides a framework for how people interpret experiences and acts (Dweck, 1986; Nicholls, 1989), students who had performance approach goal orientation at the beginning of the semester may consider their classmates as competitors rather than cooperators, because they want to demonstrate their competence relative to others. These students' behaviors or attitudes may preclude close relationship with other class members, and thus their performance approach goal orientation does not predict sense of classroom community at the end of the semester. Levy, Kaplan, and Patrick (2004) found that performance goal oriented students who emphasize social comparisons are more elitist and self-centered than mastery goal oriented students. In addition, performance oriented students are more oriented to social status and prefer to work on their own or collaborate only with in-group peers, rather than with the full range of their peers (Levy, Kaplan, & Patrick, 2004). Both of these propensities would work against the formation of community in a class.

However, as the semester progress, as students build up relationships over time with other classmates, they might change their attitudes toward learning and begin to feel belongingness. For example, they might realize that their learning can be enhanced by cooperating with other classmates. In this way, students' sense of community might positively influence their post-performance approach goal orientation.

The role of interaction between self efficacy and sense of classroom community on goal orientation changes

In addition to the unique contribution of sense of classroom community and self efficacy on goal orientations, there were joint influences of these two constructs on mastery goal orientation and performance avoidance goal orientation.

For the mastery goal orientation, sense of community and self efficacy directly influenced post-mastery goal orientation, and, at the same time, sense of classroom community indirectly influenced mastery goal orientation through self efficacy. Sense of classroom community boosts self efficacy and enhanced self efficacy boosts mastery goal orientation.

A more interesting finding was shown for performance avoidance goal orientation. Although there was no significant direct relationship between the sense of community and performance avoidance goal orientation, there was a significant indirect effect of a sense of classroom community on post-performance avoidance goal orientation through self efficacy. These results suggested that although the sense of classroom community did not directly influence performance avoidance goal orientation, it boosted the self efficacy; this enhanced self efficacy decreased the level of performance avoidance goal orientation. This result supports previous suggestions that a sense of community may help students to participate more fully in their learning process by impacting their social confidence (Bateman, 2002). In addition, it also supports the assertion that self efficacy may act as a buffer against the threatening environment; even the students with performance avoidance goal orientation may try harder to rise to the challenge of a task if their self efficacy is high, because students with high self efficacy persist toward achieving their goals (Pintrich & DeGroot, 1990; Shunk, 1990),

strategically approach tasks, and accept new challenges rather than avoiding them (Pajares, 1996).

The interrelationship between three goal orientations at the end of the semester

The results of structural equation modeling (SEM) showed that at the end of the semester, post-performance approach goal orientation positively influenced both post-mastery goal orientation and post-performance avoidance goal orientation.

However, the significant direct paths in itself from post-performance approach goal orientation to mastery goal orientation and from post-performance approach goal orientation to post-performance avoidance goal orientation in the overall model could not support the argument that these directions are better than the opposite directions (e.g., direct path from post-performance avoidance goal orientation to post-performance approach goal orientation or direct path from post-mastery goal orientation to post-performance approach goal orientation) because fit indices of these two models (one that proposed in this study and the other that has opposite directions in those paths) are exactly same in SEM analyses. Further investigation about the alternative model would provide more information about the interrelationship between three goal orientations at the end of the semester.

Nevertheless, these direct paths that are proposed based on hypothesis 5 in this study suggested the changes of goal orientations throughout the semester. Especially, the proposed model suggested a possibility that the characteristics of students' performance approach goal orientation at the beginning of the semester and at the end of semester might be somewhat different in nature.

According to theory and previous researches, students' self efficacy and sense of classroom community seem to play important roles in those goal orientation changes.

Given that students concerned about performance adopt either approach or avoidance goal orientations depending on their perception of the situation and, their own competence for the task (Elliot & Church, 1997), students' goal orientations are likely to be unstable at the beginning of the semester when success or failure is uncertain. At this time, students' goal orientations are influenced by the antecedents of goal orientations, such as achievement motivation, fear of failure, and uncertain evaluation about their own competence for the course. However, as the semester progresses, students gain clearer ideas about the subject matter, engage in course activities, and develop relationship with other class members. These processes provide many chances to evaluate their perception about their own competence. From this perspective, students' performance approach goal orientation, which may be influenced at the beginning of the semester by both achievement motivation and fear of failure, changes into one which may be more influenced by either achievement motivation or fear of failure depending on their cumulative evaluation about their competence. Students who had an initially high level of performance approach goal orientation and who were able to develop a sense of competence over the semester and get support from other class members ended up with high levels of both mastery goal and performance approach goal orientation at the end of the semester. In other words, it may be possible that students' post-performance approach goal orientation is a positive predictor of post-mastery goal orientation as students gain competence across semester and the achievement motivation component is predominantly activated (Svinicki, Kim, Bush, & Achacoso, 2005). This supports Elliot

and Church's (1997) suggestion that reducing fear of failure would "purify" a performance approach goal orientation, because it would less be contaminated by fear of failure (p 229).

On the other hand, given that the assignments and the text contents become more difficult and challenging as students move through progressive levels of schooling (Brophy, 2005), students who have been exposed to continuous failure situations and who feel alienated from the class members may lose their feelings of competence. Then as time goes by, their performance approach goal, which is predominantly influenced by the fear of failure, may shift to performance avoidance goal orientation (Svinicki, Kim, Bush, & Achacoso, 2005).

There have been several research studies which suggested that students' performance approach goals are likely to shift to performance avoidance goals if they experience difficulties in meeting task demands (Brophy, 2005; Middleton, Kaplan, & Midgley, 2004; Midgley, Kaplan, & Middleton, 2001; Senko & Harackiewicz, 2004). Midgley, Kaplan, and Middleton (2001) suggested that students would be at risk for shifting from performance approach goal orientation to performance avoidance goal orientation if students' success rates began to drop as they encountered more challenging tasks. Senko and Harackiewicz (2004) provided further evidence of shifts in college students' goal orientations in a semester. Although students' goal orientations were stable over time, there was a tendency that students who emphasized performance-approach goals early in the semester shifted their goals to performance-avoidance goals once they did poorly on midterm exams.

Overall, the SEM model indicated that each goal orientation changed throughout the semester, dynamically interacted with one another, and had unique relationship with self efficacy and sense of classroom community. For example, performance approach goal orientation was influenced by sense of classroom community but not by self efficacy whereas performance avoidance goal orientation was influenced by self efficacy but not by sense of classroom community. These results support the multiple goals perspective which emphasizes the unique and interactive nature of goal orientations. According to multiple goals perspective, students may endorse mastery and performance goals at various levels and may adopt both goals simultaneously in the classroom (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz, Barron, & Elliot, 1998; Midgley et al., 1998; Pintrich, 2000b; Pintrich & Garcia, 1991). Students may match their goal orientations to the contingencies of the situations and coordinate their goal striving so as to pursue multiple goals efficiently (Brophy, 2005).

Research questions from # 6.1 - # 6.2: Mastery goal orientation, self efficacy, and the factors of sense of classroom community

This section discusses the findings of the second SEM analysis which investigated the influence of sense of classroom community, pre- and post-self efficacy, and pre-mastery goal orientation on post-mastery goal orientation.

The results showed that mastery goal orientation, self efficacy, and each factor of sense of community are closely related to each other, and each factor of the sense of classroom community has a different role in predicting self efficacy and post-mastery goal orientation.

First, pre-mastery goal orientation positively predicted each factor of the sense of classroom community at the end of the semester. Students who had high level of mastery goal orientation at the beginning of the semester tended to feel engaged in the course content, to feel support from the instructor, and to feel connected with the other class members. These students may regard the other class members as cooperators who pursue the same goals together rather than as competitors. Research has shown that the more a student feels classroom community, the more he/she interacts with the teacher and classmates, and these interactions provide students with more opportunities to acquire a better understanding of the content (Goodenow, 1993) and lead to deeper learning (Chapman, Ramondt, & Smiley, 2005).

Second, factor 1 (engagement with the content) of the three community subscales seemed to have an important role in maintaining and increasing the level of mastery goal orientation over the semester. In this study, factor 1 (engagement with content) partially mediated the relationship between the pre-mastery goal orientation and the post-mastery goal orientation. That is, the pre-mastery goal orientation influenced the post-mastery goal orientation directly and indirectly through factor 1 (engagement with the content).

This relationship, which shows that factor 1 is a necessary step in enhancing mastery goal orientation seems quite conceivable, because factor 1 is closely associated with learning, understanding, and broad knowledge construction, all of which are emphasized in mastery goal orientation (Svinicki, Kim, Bush, & Achacoso, 2005). In addition, this result supports the assertion that students with stronger sense of community are more likely to adopt mastery goal orientation (Bransford, Vye, & Bateman, 2002).

Third, factor 2 (student-instructor interaction) of the three community subscales had a significant role in predicting self efficacy. Although the data of this study did not provide specific information about the role of factor 2, it is inferred that the factor 2 could have contributed to the development of self efficacy by influencing the four factors of self efficacy: mastery experiences, vicarious experiences, social persuasions and emotional or physiological states. For example, students might be persuaded to feel a sense of accomplishment by helpful and positive feedback from their instructor. Sometimes, students might follow a model that was posted on the Blackboard system by their instructor. In addition, teachers could facilitate knowledge construction and provide some scaffolding for the students by using debates, problem solving, and case study analysis. Sometimes, teachers might provide emotional support for risk taking behaviors that are essential for intellectual growth. These inferences were partially supported from the responses on the open ended question regarding the aspects of the Blackboard system that contributed to sense of classroom community. Students responded that their communication with instructor through discussion board, email, grade-book, course documents, etc. allowed them to check their progress, keep them motivated to learn the materials, and helped them to feel more connected to the class.

In addition to the influence on self efficacy, factor 2 indirectly influenced post-mastery goal orientation through self efficacy. That is, students' self efficacy was influenced by the student-instructor interaction and the enhanced self efficacy positively influenced post-mastery goal orientation. These results support previous findings which show a positive relationship between self efficacy and mastery goal orientation (Anderman & Midgley, 1997; Anderman & Young, 1994; Duda & Nicholls, 1992;

Midgley, Anderman, & Hicks, 1995; Midgley & Urdan, 1995; Vrugt, Oort, & Zeeberg, 2002; Wood & Bandura, 1989).

Research questions from # 6.3 - # 6.4: performance approach goal orientation, self efficacy, and the factors of sense of classroom community

This section discusses the findings of the third SEM analysis which investigated the influence of sense of classroom community, pre- and post-self efficacy, and pre-performance approach goal orientation on post-performance approach goal orientation.

The results showed that only factor 1 (engagement with content) among three factors of sense of community showed significant relationship with performance approach goal orientation. Although pre-performance approach goal orientation did not influence any of the factors of sense of classroom community, factor 1 (engagement with content) directly influenced post-performance approach goal orientation. This result supports the assertion that the performance approach goal orientation has similar characteristics to mastery goal orientation; both goal orientations are focused on attaining competence, and these orientations commonly engender a functionally similar set of processes that facilitate optimal task engagement. However, their standards are different; performance approach goal orientation is focused on the demonstration of competence relative to others, while mastery goals are focused on developing and improving competence (Elliot, 1999; Elliot & Church, 1997; Elliot & Harackiewicz, 1996).

Research questions from # 6.5 - # 6.6: peformance avoidance goal orientation, self efficacy, and the factors of sense of classroom community

This section discusses the findings of the fourth SEM analysis which investigated the influence of sense of classroom community, pre- and post-self efficacy, and pre-performance avoidance goal orientation on post-performance avoidance goal orientation.

First, it was interesting to see that there was a positive relationship between pre-performance avoidance goal orientation and factor 1 (engagement with content). The results showed that pre-performance avoidance goal orientation positively influenced factor 1 (engagement with content) while it did not influence factor 2 (student-instructor interaction) or factor 3 (respect, connectedness). That is, students with performance avoidance goal orientation at the beginning of the semester tended to have high level of factor 1 of the sense of community at the end of the semester. This was an unexpected result. However, it was understandable since the students with performance avoidance goal orientation could have used the Blackboard system as a help seeking tool to compensate for their lack of competence. It might be possible that students' use of the Blackboard system helped them to feel engaged more in the course materials.

Another interesting finding was that among the three factors of community, factor 3 (respect, connectedness) directly influenced post-performance avoidance goal orientation. However, the relationship was positive. That is, factor 3 (respect, connectedness) was positive predictive of post-performance avoidance goal orientation. This trend might be related with the peer pressure that was further strengthened through the interaction on the Blackboard system. Contrary to traditional face-to-face courses where students rarely receive feedback on their academic work from their peers, hybrid courses can provide students with frequent reactions from classmates through the

asynchronous discussions and group emails as they participate in class activities online. Although the data gathered in this study did not provide specific information regarding peer pressure, students' open ended responses to the aspects of the Blackboard system that contributed to sense of classroom community suggested that students are influenced by communication with their peers on the Blackboard system. For example, some students responded that they were required to read others' papers which were posted on the Blackboard, comment to the papers, and have discussions online critiquing papers. Students might feel a kind of obligation to contribute and participate somehow to give and receive feedback each other. Students might use the continuous feedback of their peers to make judgments about the quality of their own work (Whipp & Chiarelli, 2004). More qualitative research about students' emotion and cognition may further explain this phenomenon.

Research question #7: students' use of the blackboard functions and its relationship to self efficacy, sense of classroom community and goal orientation

This section discusses the findings from descriptive statistics of the use of the Blackboard functions and correlations between the use of the Blackboard functions, self efficacy, sense of classroom community, and goal orientations.

First, overall, the results of the student survey of usage support previous findings that students typically use the Blackboard system to check the class assignments or announcements, communicate with their classmates, access the course materials, take an exercise quiz, and retrieve their grades (Yi & Hwang, 2003). In this study, students responded that they use grade-book more often than any other functions.

Second, students' sense of community was more influenced by the interaction with their instructor than the interaction with classmates, both in-class and online. In addition, there were significant differences in relative contribution of in-class contacts and online contacts to the students' sense of community. Students attributed their sense of community more to in-class contacts with the classmates or in-class contacts with the instructor than online contacts with the classmates or online contacts with the instructor.

Third, students' use of the blackboard system was correlated with their goal orientations. Students might try to maximize their learning and thus benefit differently from their environment by using the Blackboard system. For example, use of the course materials function was positively correlated with performance avoidance goal orientation. The course materials composed of various forms of materials, including text, sound, graphics, and video, might meet varying student learning preferences such as visual orientation or verbal orientation (Carmean & Haefner, 2002). With these course materials, students could work at their own pace whenever they want and could be involved in self directed learning which increases learner control and promotes planning, managing, and organizing of the course materials (Brockett & Hiemstra, 1991). This might be a positive help seeking mechanism that performance avoidance students could adopt and use in hybrid courses. This flexible use of the course management system might allow students who have performance avoidance goal orientation to engage more on course contents, to catch up missed classes, to reflect on their learning, and to get help from the course materials without worrying about asking the classmates or instructor. However, these possible explanations need to be supported by more qualitative research.

On the other hand, the use of the information delivery function and collaborative function was positively correlated with mastery goal orientation. It seems that students who have mastery goal orientation might keep monitoring their learning by looking at the syllabus and calendar. In addition, students might deepen their learning and get mastery experiences through the use of collaborative functions such as asynchronous discussion board and small group pages that allow students more time to read messages posted by others, reflect on them, and compose thoughtful responses (Griffin & Lewis, 1998; Poole, 2000).

Research question #8: the influence of the use of the blackboard functions on sense of classroom community

This section discusses the findings from the hierarchically ordered regression analysis which examined how students' use of the Blackboard system influenced their perception about classroom community and the responses on the open-ended question which asked the aspects of the Blackboard system that contributed to sense of classroom community.

The result of the hierarchically ordered regression analysis showed that the use of the Blackboard system influenced the sense of classroom community. Among the four categories of functions (information delivery, external links, course materials, and collaborative function), the collaborative function (factor 4) most significantly contributed to the sense of classroom community in hybrid courses. In addition, course materials (factor 2) influenced the sense of classroom community after factor 4 was taken into account. However, neither information delivery (factor 3) nor external links (factor1) influenced the sense of classroom community after factor 4 and factor 3 were taken into

account. The collaborative function might provide the students with many opportunities to collaborate with other classmates, share ideas, and learn from peers and as a result influence community building.

According to open-ended responses relating the contribution of the Blackboard functions to the sense of classroom community, corresponding feedback/comments between class members through collaborative functions (Discussion Board, Group Pages, Email, etc.) seemed to the most important aspect that influences students' perception about classroom community. For example, students responded that they became aware of and value how other students are thinking and approaching the class by reading comments and suggestions from other students and their teacher, by working together on the projects, and by sharing questions and concerns which were posted on the discussion board. In addition, students mentioned that they could contact each other easily and frequently for seeking help. These communications through the collaborative functions might lead to cohesiveness and connectedness between students and their teacher that promotes further development of the sense of classroom community.

LIMITATION OF THE STUDY

This study investigated students' motivation changes over time as a sense of classroom community develops within their hybrid courses, which used the Blackboard system.

One limitation of this study is the decision not to include all possible classroom characteristics that might influence the main variables. In this study, classroom variables such as class size, discipline, and teaching methods were not included in SEM models, because more variables mean larger sample sizes and they were not available. However, previous findings suggested that the nature of community is context (setting) specific (Brown, 2001) and may be influenced by classroom characteristics such as instructors' teaching style, class size, course organization, etc. (Rovai, 2002). A sense of community in one class may have unique characteristics that cannot be found in other classes.

Second, instructors who participated in this study did not use all categories of the Blackboard system, and the students' use of the Blackboard system was generally assigned by instructors rather than chosen by students. For instance, the rates of using discussion board and group pages were relatively low compared to the uses of course materials. Initially I hypothesized that students' use of the Blackboard system would be different depending on their level of self efficacy and goal orientations and that students' different needs would influence students' perception on classroom community. However, these mandatory uses of the Blackboard system might limit students' voluntary uses of the Blackboard system, might lower the chances of interactions with other classmates, and could not contribute much to the development of the sense of classroom community. More qualitative research is needed to investigate why and under what circumstances the

students choose specific functions and how these uses of the Blackboard functions influence students' self efficacy and the sense of classroom community.

A third limitation is related to the deletion of items. There have been disagreements about the deletion of items that is required when a structural equation modeling (SEM) analysis is performed. In this study, I deleted items to get better fit for the structural equation modeling analyses. One disadvantage of deleting items is the possibility that constructs measured in this study are a little bit different from the original constructs used by the developers.

Another limitation of this study is related to data analysis of structural equation modeling (SEM). To investigate the possibility that each factor of sense of classroom community might have a different role in predicting each post-goal orientation, three separate SEM analyses for mastery goal orientation, performance approach goal orientation, and performance avoidance goal orientation were used. However, these three separate SEM models could not be compared to each other because each SEM model was independent. For example, I could not compare the relative influence of factor 1 on mastery goal orientation with the influence of factor 1 on performance avoidance goal orientation. Therefore, the relationship between each factor of the sense of classroom community, self efficacy, and each goal orientation was interpreted based on a specific SEM model.

IMPLICATIONS FOR FUTURE RESEARCH

Findings from this study provide useful implications for the future research in the area of student motivation and learning at college level. This study contributes to a better understanding of how goal orientations dynamically interact with other variables in hybrid courses at college classrooms where a CMS is used. Pintrich (2003) suggested that "future research needs to move beyond a simplistic mastery goal (good) versus performance goal (bad) characterization to consider multiple goals, multiple outcomes, and multiple pathways to learning and achievement in multiple contexts (p.676)". In line with this direction, this study shows that mastery and performance goal orientations along the approach-avoidance dimension changed over time in a semester and that each goal orientation interacted with interconnected variables such as self efficacy and sense of classroom community in hybrid classroom contexts.

The following are some prominent research areas that could be expanded from this study. First, in this study, I looked at a specific context: undergraduate-level hybrid courses, which used the course management systems. The results confirmed a promising role of the CMS environment in affecting the students' motivation and engagement with the contents at college level. However, I did not test specifically how and how much the online components (the characteristics of hybrid courses) contributed to the model or sense of classroom community. Although we admit that hybrid courses are useful for students' motivation and learning, simply incorporating online components using course management systems (CMS) in traditional classrooms does not guarantee higher level of learning or desirable environment for students. For example, there may be a lot of variances on the level of the uses of CMS depending on whether teachers count on

students' online activities on grading or not, whether teachers are actively involved in online discussion or not, whether students are required to work in group projects online or not, and so on. Developing an actual measure of indications about the online interaction and after that, investigating how those interactions are actually structured into the courses, and how those interactions are related to students' motivation and learning would be a promising research area.

Second, future research might be extended to investigate whether the proposed structural model developed in this study is also applied in different settings in an attempt to expand and elaborate the research on contexts which may shed light on understanding goal orientations in depth. One interesting context is hybrid courses at the graduate level; compared to the undergraduate students, the graduate students are more motivated, more mastery oriented, and have more opportunities to collaborate and communicate with other class members. This context specific nature of graduate courses could provide further interesting characteristics that can be used to gain deeper understanding regarding the relationship between a sense of community, self efficacy, and goal orientations.

Another interesting research area in relation to context is the collaborative group work environments. Although I did not distinguish the participants based on whether the class uses collaborative group work or not, previous research suggested that the use of group work facilitates development of the sense of classroom community among class members (Barab, Thomas, & Merill, 2001; Lee, 2004; Summers, Beretvas, Svinicki, & Gorin, 2005) and tends to lead to mastery goal orientation (Ames, 1992; Maehr & Midgley, 1991). It may be possible that the students' self efficacy in collaborative group work environment is somewhat different from self efficacy in individual learning

environment, because a group's outcomes inevitably influence each group member's personal outcomes. Thus, in the consideration of the fact that there are not many research studies in goal orientation in the collaborative group work environment and that the collaborative group learning has been emphasized more and more in school contexts, it would be important to look at the students' goal orientation and its relationship with the sense of classroom community and other motivational constructs in this context.

Third, an important factor that needs further exploring is the interplay between individual level and group (class) level of self efficacy, sense of classroom community, and goal orientations. This study used an individual student as the unit of measure. However, previous research suggested the possible relationship between classroom goal structure and individuals' goal orientations, between group efficacy and personal self efficacy, and between group community at classroom level and personal sense of community.

For example, previous research suggested that the use of group work may influence overall classroom goal structure and that classroom goal structure, in turn, may influence students' personal goal orientations which are emphasized in the classroom (Ames, 1992; Blazevski, McKendrick, & Hruda, 2005; Urdan & Midgley, 2003; Urdan, Midgley, & Anderman, 1998). Urdan and Midgley (2003) found that students were more likely to pursue personal mastery goals when they perceive a strong mastery goal structure in their classroom (Urdan & Midgley, 2003). Urdan, Midgley, and Anderman (1998) found that students were likely to adopt personal performance goals when they perceive a performance goal structure in their classroom (Urdan, Midgley, & Anderman, 1998). Blazevski, McKendrick, and Hruda (2005), who found goal orientation changes

through the collaborative process, supported the assertion that the students' perception of group goal orientations is interacting with their perception of personal goal orientations.

For the sense of community, we assume that the meaning of community connotes "we" instead of "I". Depending on situations, a person in a community remains as a fragment in the community or the person coalesces into the community. Sometimes group levels of community (ex, "as a whole there is strong community in my classroom") is congruent with the sum of individual levels of community (ex, "I feel community in the classroom because I feel I am a member of community"), and sometimes it is not (ex, "I do not think there is community in the classroom because I feel I am not accepted by others"). Brown (2001) showed that although many of the group members describe the group as a cohesive community, that does not mean that all participants in the community may feel the same sense of community. Thus, it seems logical that community perceptions would be influenced by the group or classroom as a whole, although there is little empirical research on group community compared to personal sense of community. Similarly, students' self efficacy may be influenced by group efficacy at the classroom level. It may be possible that the development of the sense of classroom community may influence the overall classroom goal structure and group efficacy, and these changes may influence students' goal adoption processes. To investigate these possibilities and to differentiate individual level and classroom level, it would be good to use Hierarchical Linear Modeling in the future research.

Fourth, this study was limited to achievement goal orientations. However, the results implied that other goal orientations beyond the three main goal orientations, need to be explored. More specifically, the results of this study showed that each pre-goal

orientation was predictive of each-post goal orientation. In addition, students responded that they used grade-book most often than any other Blackboard functions. This might imply that no matter the level of mastery goal orientation and performance goal orientations, students were concerned about their outcomes. It is predictable that students are worried about their final exams and feeling pressure from that. Several researchers tried to address this problem by differentiating the concept of performance goal orientations into subtypes. For example, Grant and Dewek (2003) identified three types of performance goal orientations: outcome goals that are simply focused on obtaining positive outcomes, ability goals that are linked to validating ability, and normative goals that include social comparisons. Brophy (2005) suggested moving on from performance goals and proposed a potential solution which phases out the term "performance goals" altogether and use other types of goal orientations: learning-mastery goals, validation goals, and outcome goals. Outcome goals characterize the target attainment in criterion-referenced rather than norm-referenced (peer comparison) terms, and the outcome goals orient the students toward achievement rather than competition. On the other hand, Wentzel (1999) commented that in addition to mastery and performance goals, students may want to pursue social goals such as pleasing parents and teachers and maintaining their social reputations and friendships. It would be interesting and valuable to see how these alternative goal orientations are related to the students' self efficacy and the sense of classroom community. Especially, in classrooms where cooperation over competition is emphasized and communities are developed, there may be low incidence of performance goals and a higher incidence of social goals (Brophy, 2005). Exploring these

relationships will provide more thorough understanding about underlying mechanisms of goal orientation and its related constructs.

Fifth, the results of this study raised an issue in self efficacy. That is, self efficacy at the beginning of the semester negatively predicted factor 1 (engagement with content) of the sense of community. It seems that students' self efficacy at the beginning of the semester is a little bit overestimated by themselves. The issue of overconfidence has been discussed for a long time. Overconfidence refers to the individual's overestimation of his or her own ability in contrast to actual competence. It may be possible that highly overconfident students do not have strong needs to engage into content, because they think they already have enough knowledge or skills relative to others. As a result, the overconfidence may lead to poor subsequent performance. For example, past findings in research on the math subject area suggested that many students were overconfident about their capability to solve math problems (Hackett & Betz, 1989; Pajares & Miller, 1994; Pajares & Kranzler, 1995). Pajares (1996) argued that students could not accomplish tasks beyond their capabilities simply by believing that they could. In this sense, some researchers wonder if strong self efficacy beliefs ultimately do lead to beneficial results. However, it is uncertain as to when overconfidence may be characterized as excessive and maladaptive in an academic area (Pajares & Kranzler, 1995). Bandura (1986) argued that some overestimation of capability is useful because it increases effort and persistence. According to his theory, the stronger the perceived self-efficacy is, the more likely students are to select challenging tasks. The longer they persist, the more likely are they to perform successfully. Therefore, this argument needs to be cleared up in the future research.

Sixth, the results of this study showed that there was no gender difference in the sense of classroom community. This result is not consistent with previous research findings which showed gender differences in the sense of classroom community (Rovai, 2002; Summers, Beretvas, Svinicki, & Gorin, 2005). In addition to gender differences, other individual difference variables such as ethnicity difference and cognitive styles need to be studied more.

IMPLICATIONS FOR EDUCATIONAL PRACTICE

Findings of this study showed that students' use of Blackboard functions predicted their sense of classroom community. Among four factors of the use of the Blackboard system, the collaborative function was the most influential predictor of the sense of community. In addition, the structural equation modeling shows that students who have high mastery goal orientation tend to have high sense of community, and high sense of community positively influences post-mastery goal orientation at the end of the semester. These results show that sense of community is an important component in maintaining and increasing the level of mastery goal orientation.

Given that collaborative function is the most significant predictor of the sense of community which contributes to mastery goal orientation, instructors' interest and strategies for using a course management system have potential to change the classroom environment and student motivation and learning. For example, instructors can use collaborative functions such as discussion board and small group pages to help students to be involved in the active construction of knowledge (Jonassen, Campbell, & Davidson, 1994) through the exchange of feedback (Kaye, 1995). Similarly, teachers may create and

maintain caring relationships in the classroom, challenge the students to set high expectations, and support student interactions to facilitate the development of the sense of community (Gould, 2000). In particular, encouraging the students to participate in group work seems to be a good way to create a sense of classroom community (Summers, Beretvas, Svinicki, & Gorin, 2005). Small groups within a classroom can be small communities where students' learning is supported. Once a sense of community is established through group work, students are likely to develop camaraderie with their group members, a great sense of responsibility, and trust in their group members. This established sense of community may in turn, further facilitate sense of community later when they participate in another group work or in the class as a whole (Lee, 2004).

Second, the findings of this study also suggest that the students' self efficacy can be enhanced by factor 2 (student-instructor interaction) of the sense of community. This shows how students value their relation to their instructor and want to receive care and attention from their instructor (Noddings, 1984; Noddings, 1992). Learning or teaching processes are inherently relational and imply that learning requires a high degree of interpersonal connection between individuals working together in the process (Goldstein, 1999). Previous research showed that teacher comments or prompts strongly influenced the communication rates of students (Pena-Shaff, Martin, & Gay, 2001) and that students want to be in touch with the instructor to maintain their confidence about their learning and need the reassurance from their instructor when they encounter new ideas even in online environments (Burford & Gross, 2000). Given that course management system (CMS) is becoming an increasingly integral part of courses providing students with more opportunities to interact with instructor and peers at college level (Collis & De Boer,

2004; Morgan, 2003), this mechanism is considered as a potential for building relationship between students and their instructor and influence student motivation. There are many possible ways that teachers can use the Blackboard system or any course management system for a caring purpose. Most of all, the Blackboard allows for the electronic transmission of feedback as quickly as teachers consider desirable. A teacher can send comments and grades on student assignments via email or by postings. In addition, teachers can provide personalized, question by question feedback to each student in a timely manner (Newlin & Wang, 2002). Several studies indicated that students appreciate helpful and positive feedback from the teacher (Whipp & Chiarelli, 2004).

CONCLUSION

While there are remaining issues to be explored, the findings of this study provide useful information in understanding the student goal orientation changes over a semester and how goal orientations dynamically interact with self efficacy and sense of community in hybrid courses at college level. In addition, this study expands the knowledge and understanding of the nature of classroom community in hybrid courses by identifying CMS functions which facilitate a sense of classroom community.

The results provide empirical support that goal orientations change and interact with each other over time, and self efficacy and sense of classroom community play different roles in the process of these goal orientation changes. A sense of classroom community, one of the environmental variables, acts as a significant antecedent of goal orientation and a necessary component that mediates the relationship between pre-

mastery goal orientation and post-mastery goal orientation. That is, pre-mastery orientation positively predicted sense of classroom community and in turn, sense of classroom community was predictive of post-mastery goal orientation. On the other hand, self efficacy, another antecedent of goal orientation, mediates the relationship between pre-performance avoidance goal orientation and post-performance avoidance goal orientation. It seems that students who had high performance avoidance goal orientation at the beginning tend to have low self efficacy, and this low self efficacy leads to higher level of performance avoidance goal orientation at the end of the semester.

As students gain or lose their feelings of competence and develop sense of classroom community over time, the nature of performance approach goal orientation seen at the beginning of the semester seems to change throughout the semester. At the beginning of the semester, students' goal orientations are likely to be unstable, because students are faced with new situations which may lead to either success or failure. At this time, students' performance approach goal orientations are undergirded by both fear of failure and uncertain evaluation about their own competence for the course. It seems that developing competence over time has a vital role in explaining the changes of performance approach goal orientation. Students who gained competence over the semester are likely to maintain their performance approach goal orientation or change their goal orientation into mastery goal orientation. On the other hand, students who loose their competence across semester are likely to remain performance approach goal orientation or change their goal orientation into performance avoidance goal orientation at the end of the semester.

Among four categories of functions (information delivery, external links, course materials, and collaborative function), collaborative function (factor 4) most significantly contributed to the sense of classroom community in hybrid courses. The results also showed that students with performance avoidance goal orientation may use the Blackboard system as a help seeking tool which provides many opportunities to compensate for their lack of competence and thus reduce their fear of failure.

Lastly, the study suggests ways for instructional designers and college teachers to identify and design courses which promote motivation and a sense of classroom community using various CMS functions, thereby enhancing teachers' teaching and student learning.

Appendices

APPENDIX A. SELF EFFICACY

Please read each question carefully in the context of the class you are taking at this time. Indicate the degree to which you agree to the statement with regards to your class. Each question has a scale from 1 (Not at all true of me) to 7 (very true of me).

1. I believe I will receive excellent grades in this course.
2. I'm certain I can understand the most difficult material presented in this course.
3. I'm confident I can learn the basic concepts taught in this course.
4. I'm confident I can understand the most complex material presented by the instructors in this course.
5. I'm confident I can do an excellent job on the assignments and tests in this course.
6. I expect to do well in this course.
7. I'm certain I can master the skills being taught in this course.
8. Considering the difficulty of the study, the teachers, and my skills, I think I will do well in this course.

APPENDIX B. ACHIEVEMENT GOAL ORIENTATION

Please answer each question in the context of the class you are taking at this time. Each question has a scale from 1 (strongly disagree) to 7 (strongly agree). Read carefully and respond carefully each question that is most appropriate to you.

1. It is important to me to do better than the other students.
2. I want to learn as much as possible from this class.
3. I often think to myself, "what if I do badly in this class?"
4. It is important for me to understand the content of this course as thoroughly as possible.
5. My goal in this class is to get a better grade than most of the students.
6. I worry about the possibility of getting a bad grade in this class.
7. I hope to have gained a broader and deeper knowledge of this course when I am done with this class.
8. I am striving to demonstrate my ability relative to others in this class.
9. My fear of performing poorly in this class is often what motivates me.
10. I desire to completely master the material presented in this class.
11. I am motivated by the thought of outperforming my peers in this class.
12. I just want to avoid doing poorly in this class.
13. In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn.
14. It is important to me to do well compared to others in this class.
15. I'm afraid that if I ask my TA or instructor a "dumb" question, they might not think I'm very smart.
16. In a class like this, I prefer course material that really challenges me so I can learn new things.
17. My goal for this class is to avoid performing poorly.

18. I want to do well in this class to show my ability to my family, friends, advisors, or others.

(Note: Mastery goal orientation: 2, 4, 7, 10, 13, 16;

Performance Approach Goals: 1, 5, 8, 11, 14, 18;

Performance Avoidance Goals: 3, 6, 9, 12, 15, 17)

APPENDIX C. SENSE OF CLASSROOM COMMUNITY

The following statements are intended to measure your classroom attitudes and perceptions about the course that you are taking this time. Please rate the statements as to how strongly you agree or disagree with each statement in the context of your class, using a 7 point Likert type scale from 1 (strongly disagree) to 7 (strongly agree).

1. Students are genuinely interested in the topics in the course.
2. I feel as though my instructor respects each student in this class.
3. Students value other's opinions.
4. The course content is not very interesting to me personally (R).
5. The instructor gives me positive feedback when I make a comment in class.
6. The other students in class make me feel welcome.
7. I do not see the value of learning about this course content (R).
8. The relationship between the instructor and students is comfortable.
9. I respect my classmates.
10. In this class everyone seems to be interested in the discussion topics.
11. Interactions with my instructor are generally positive.
12. Students in this course treat each other with respect.
13. I value each student's contribution to the class.
14. Students do not seem engaged in class (R).
15. The instructor supports student comments.

(Note: Engagement with content: 1, 4, 7, 10, 14; Student-instructor interaction: 2, 5, 8, 11, 15; Respect, Connectedness: 3, 6, 9, 12, 13)

* (R) means reverse-coded items.

APPENDIX D. AN EXPERIMENTER-DEVELOPED QUESTIONNAIRE FOR THE INFLUENCE OF THE BLACKBOARD ON CLASSROOM COMMUNITY

1. In your class, do you use Blackboard? Please indicate how much you use each function with 7 point Likert type scale.

		Degree of using each function						
Function	**Sub function**	**1** (Never)	**2**	**3**	**4**	**5**	**6**	**7** (Very often)
Syllabus	Syllabus							
Calendar	Calendar							
Course Material	Class notes							
	PowerPoint slides							
	Assignments/practice exams							
	readings							
Discussion Board	Group pages for a project							
	Small group discussion							
	Live chat							
Email	To faculty/instructor or TA							
	To Classmates							
	To submit assignments							
External Links	Course content related resources							
	UT Resources							
	Simulation							
Grade book	Check grades							

* The following questions are intended to measure your perceptions in this class.

2. How much do you think there is a sense of community in your class (**Sense of classroom community may be defined as feelings of connectedness among students and your instructor and commonality of learning expectations and goals)?*

1(Not at all) 2 3 4 5 6 7(Very much)

3. How much do you think your use of the Blackboard system make you more engaged in the course materials?

1(Not at all) 2 3 4 5 6 7(Very much)

* The following questions are intended to measure your perceptions about your classroom environment.

4. Please indicate how your **in-class contacts with your classmates** influence your sense of community in this class.

1(Very negative) 2 3 4(Neutral) 5 6 7(Very positive)

5. Please indicate how your **in-class contacts with your instructor** influence sense of community in this class.

1(Very negative) 2 3 4(Neutral) 5 6 7(Very positive)

6. Please indicate how your **online contacts with your classmates** using the Blackboard system influence sense of community in this class.

1(Very negative) 2 3 4(Neutral) 5 6 7(Very positive)

7. Please indicate how your **online contacts with your instructor** using the Blackboard system influence sense of community in this class.

1(Very negative) 2 3 4(Neutral) 5 6 7(Very positive)

8. Please specify what aspects (e.g., discussion board, email) of the Blackboard contribute your sense of community in this class.

APPENDIX E: DEMOGRAPHIC INFORMATION

Please answer the following information:

1. What is your UT EID? (This is just for matching between pre and post tests)

_____

2. What is your Gender? _____M _____F

3. What is your class rank?

Freshman _____ Sophomore _____ Junior _____ Senior _____

Other_____

4. What is the course name are you taking as the basis for your responses to the surveys?

_____

5. What is the course name are you taking as the basis for your responses to this survey?

_____

6. Which category is suitable for the course you mentioned above?

Statistics ____Natural Sciences _____Fine arts _____Education _____

Liberal Arts _____ Other (specify) _____

7. Please pick a response which best describes your class.

a) Lecture oriented class _____

b) Discussion oriented class _____

c) Mixed of lecture and discussion oriented class _____

8. Have you worked in a group in this class?

Yes_____ No_____

9. If you answered "Yes" in above question, please select one which best describes your group activities.

a) Formal cooperative group work: I have participated in the same group over the entire semester, a large project as the outcome of group efforts.

b) Informal collaborative work: I have participated in group discussions, collaborative tasks, and having inconsistent or unassigned groups, with small short-term projects as the outcome of group efforts.

c) No group work: traditional lecture style with no opportunity for student interaction.

d) Other (please specify)

10. Is this a required class?

Yes _____ No_____

11. Is this a big class or small class?

_____ Big class (over 100 students) _____ Medium class (31-99 students)

_____ Small class (less than 30 students)

APPENDIX F: STUDENTS' OPEN-ENDED RESPONSES ABOUT THE ASPECTS OF THE BLACKBOARD THAT CONTRIBUTED TO THEIR SENSE OF CLASSROOM COMMUNITY

1. The Blackboard system as a source of communication about the class

Examples

It was used a lot for communication to the class about announcements and up-coming events.

It allowed me to be connected to what is going on in my class, like the latest updates, and changes to syllabus/assignments etc.

I get to more informed because I read all the announcements and I try to do my work.

The professor uses blackboard as her primary source of communication for the class including various announcements.

Blackboard allows for me to get the notes for class that help me follow along with lecture. It also allows for students to e-mail each other and the professor which allows for a sense of community in the class.

We receive at least 2 emails a week from our instructor and our grades are posted every week so we can check our progress.

It is helpful in keeping up with all the class work and assignments.

Help me understand what is going on in the class and keep up the professor's work load given the class.

It helps us let us know what's due and when.

I think it helps me do things quicker

I am more aware of what is going on

2. The Blackboard system as a source of communication among students and also between students and their instructor

a. Providing and getting feedback mainly through the Discussion Board function

Examples

We reply to everyone's papers and have discussions online critiquing papers. It facilitated sense of community.

The feedback we leave each other on blackboard definitely adds to the sense of community in this class.

Reading my classmates' comments concerning the assigned readings makes me think about the course and the material differently than I may otherwise have.

The feedback we receive from the other students in the class definitely promotes a sense of community in the classroom.

Commentaries to readings are posted on discussion board, so there is a strong sense of community due to students reading each others' comments. Occasionally students send out email to others, which furthers a sense of community.

The discussion board was helpful with projects where an individual would post a link to their project on blackboard, and then the other students would use blackboard to comment on the project after having clicked on that link.

The discussion board allows students to read comments, suggestions and input from other students. You become aware of how other students are thinking and approaching the class. There is a section in which students can post questions, comments and concerns which is very helpful.

The email system allows for the ease of locating other students and the professor for timely feedback.

Our professor keeps us very motivated to learn the material through the Blackboard.

The opportunity to email the teacher or classmates with questions or comments led to sense of community.

The postings by the instructor pretty much keep everyone connected.

I think the discussion board helps with a sense of community because you are relying on other people to help you with whatever you need.

b. Corresponding/contacting each other mainly through Email function

Examples

All of the communications from the professor and the teaching assistant, as well as having the ability to communicate with my classmates in the class and having their e-mail addresses available facilitated sense of community.

I get a lot of group e-mails that are mainly questions or requests for notes for a class they missed. I thought that most people ignored those e-mails but when I e-mailed my classmates once I got a lot of responses which really surprised me and made me feel a lot more connected with my classmates.

If you needed to contact people in class for instance to get notes you missed or ask questions about a certain topic when studying for your exams, you could ask someone.

It helps to have easier contact with the instructor and makes it easier for students to communicate with each other.

We can always contact someone in the class because of Blackboard if we have questions or problems and that is immensely helpful. Also, my class uses the discussion board for many of our writing assignments and it is an interesting, new way to get things done.

It's easier to get in touch with classmates and with professor, especially when the office hours are in conflict with other classes.

Email helps me contact people in the class easily when we are working on group projects.

I believe that the sense of community in a classroom that is created by blackboard is determined by the professor's usage - meaning that if the professor institutes programs that keep students more connected or if they are in a class mandating lots of group discussion facilitated or aided by blackboard, then that would constitute Blackboard's contribution to the sense of community. My instructor’s usage of blackboard mostly includes posting of the calendar, the notes, the reviews, syllabus, and other documents. In her own way, she facilitates a positive community between herself and the students because she provides lots of information, and even duplicates of information, via blackboard.

I really feel more connection to the instructor than the class. The class is too big to feel a sense of community, but my instructor works very hard to keep in contact with her students through Blackboard.

3. The Blackboard system as a place to meet together online and share resources and concerns

Examples

> Being able to find all the needed class information in one place was very important. I would not have been able to email the whole class otherwise.
>
> The discussion board is what hosts our journals that we discuss in class. From there we also talk about our semester long projects and help critique each other.
>
> I guess receiving mail from classmates fairly often (especially around test times) makes me feel connected to them. It makes me feel like we're all in it together and that if I needed to really know something I could contact them as well.
>
> We all have to get our readings from Blackboard, so I guess we're all a community in that aspect.
>
> You know everyone is looking at the same information.

APPENDIX G: SURVEY INFORMATION EMAIL

1. Survey Invitation Email

Dear student

This is Myoungsook Kim, a graduate student, of Educational Psychology.

I would like to invite you to participate in my study. The purpose of this study is to examine the relationship between motivation and perception about the classroom environment where the Blackboard system is used. Specifically, I hope to understand how students' various uses of the Blackboard functions influence student self efficacy, goal orientation, and feeling of classroom community.

Participation in this study is entirely voluntary and your acceptance or refusal to participate will not affect your grade in the course. Strict confidentiality will be maintained according to the policies and regulations of the University of Texas at Austin regarding the personally identifying information. Only aggregate responses will be made public and identifying information will be deleted.

I am planning to gather data using an online survey tool (survey monkey) instead of using paper version survey. This survey will take less than 20 minutes to finish and I will invite your participation one more time at the end of this fall semester. If you are willing to begin the survey, please click on the following URL link and follow the directions of survey.

http://www.surveymonkey.com/Users/94896501/Surveys/915661312497/

If you click the link, you may see the online consent form. You can click 'I accept' or 'I decline' icon. If you click 'I accept' icon, it will be assumed that you have put your signature indicating consent on the digital consent form (and that you have understood the information regarding the study). If you click on the 'I decline' icon, it will be assumed that you do not wish to participate.

Thank you for your help.

Questions? If you have questions or want additional information regarding this study please contact me by e-mail (kms0707@mail.utexas.edu) or phone (512-905-2322).

2. Survey Reminder Email

Dear student

This is Myoungsook Kim who invited you to participate in "Blackboard and motivation (Time 1)" for my dissertation.

If you have already completed the survey, I would like to express my gratitude and appreciate your input. If you have not yet had a chance to participate in the survey, please take a few minutes to complete the online survey at:

http://www.surveymonkey.com/Users/94896501/Surveys/915661312497/

This pre-survey (at the beginning of the semester) needs to be **done by Wednesday (21st of September**) to minimize response time range among participants.

I am writing to you specifically because every respondent plays an important role in making the information collected as complete and representative as possible.

If you have any question about the survey, or have any difficulty accessing the survey on the Web, please call me at 512-905-2322 or send e-mail to kms0707@mail.utexas.edu

Thank you very much for your help.

Sincerely,

Myoungsook Kim

APPENDIX H: INFORMED CONSENT FORM

You are being asked to participate in a research study. This form provides you with information about the study. Please read the information below and if you have questions or want additional information regarding this study please contact me by e-mail or by phone before deciding whether or not to take part. The contact information is at the bottom of this page. Your participation is entirely voluntary and you can refuse to participate without penalty or loss of benefits to which you are otherwise entitled.

Title of Research Study

The influence of self efficacy and sense of classroom community on goal orientation in hybrid courses

Principal Investigator and Telephone Number

Myoungsook Kim 481-0202

What is the purpose of this study?

The purpose of this study is to investigate how self efficacy and sense of classroom community influence goal orientation changes across the semester in hybrid courses which use the Blackboard system.

What will be done if you take part in this research study?

You will access the online consent form and click on 'I accept' or 'I decline' icon. If you click on 'I accept' icon it will be assumed that you have put your signature indicating consent on the digital consent form (and that you have understood the information regarding the study). You will be asked to complete 4 online survey questionnaires regarding self efficacy, goal orientation, sense of community in the web based class, and how the uses of the Blackboard system influence your feeling of community. You will also be asked to provide demographic information such as gender, department, class rank, and UT EID to match pre and post tests. You will again be invited to fill out the survey questionnaires at the end of the semester. It will take less than 20 minutes to finish each time.

What are the possible discomforts and risks?

The risks associated with this study are no greater than those of everyday life. All information collected will be kept confidential. Digital information and data will be secured and protected according to The University of Texas at Austin's Policies. Data collected in this study will be retained for presentation in Conferences, research seminars, journals and for future studies or analysis.

If you do not want to take part in this study, what other options are available to you?

Participation in this study is entirely voluntary. You are free to refuse to be in this study, and your refusal will not influence current or future relationships with The University of Texas at Austin.

How can you contact and ask questions regarding this research study?

If you have questions or want additional information regarding this study, please contact: Myoungsook Kim (kms0707@mail.utexas.edu; 512-481-0202). If you have questions about your rights as a research participant, please contact Clarke A. Burnham, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, (512) 232-4383.

How will your privacy and the confidentiality of your research records be protected?

Authorized persons from The University of Texas at Austin and the Institutional Review Board have the legal right to review your research records and will protect the confidentiality of those records to the extent permitted by law.

If you have questions about your rights as a research participant, please contact Clarke A. Burnham, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, (512) 232-4383.

Instructions if you "decline" to participate.

Thank you for visiting the survey site. You have indicated that you do not wish to participate in the study. That is your right. Thank you again.

Instructions if you “accept” to participate

I have read and understood the conditions of this study and agree to participate as described above.

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