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Changes and Stability in Individual Achievement Goals Based on Instructional Components of a College Classroom and Relations between Individual Goals and Class Goals

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Dedication

I want to dedicate this dissertation to my supportive wife, Haejoung Kim, our exuberant and sweet boy, Bryan Han, and the most beautiful little girl, Claire Han. I also dedicate my dissertation to my amazing parents, Bokyoung Han and Byoungsook Kim whose words of encouragement and push for tenacity ring in my ears. My sister Jiyoun Han has been a great supporter and one of my best friends.

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Learning motivation plays a principal role in predicting desirable outcomes such as academic success and engagement in school (Elliot & Dweck, 2005; Spence & Helmreich, 1983). Among several relevant motivational variables, the achievement goal construct currently has received the most research attention in the area of competence-relevant motivation. Theorists are interested in studying achievement goals because goal orientation can influence cognitive processes through key motivational processes and eventually lead to improvement in learning achievement and attitudes (e.g., Ames, 1984; Elliot, 2005). Little is known, however, about regulations in achievement goals over time. In the present study, I want to address this oversight, focusing primarily on the foundational question of how students' achievement goals are changed and the relations between individual goals and perceptions of classroom structures.

Based on previous literature, the current quasi-experimental study focused on the research hypothesis that instructional components of a course which are focused on competence (e.g., exam, in-class quiz, writing a paper, in-class activities) influence differentially the adoption or regulation of students' achievement goals in a real classroom. A total of 173 college students from an introductory educational psychology course participated in this study. I adopted five statistical approaches to investigate changes and stability in achievement goals and used multiple regression analyses to verify the relations between achievement goals and perceptions of class goals. Overall, the results of the current study provide clear and consistent evidence for the presence of both stability and change. All achievement goals had high stability for each instructional task through differential and ipsative continuity. Mean-level change analyses showed a considerable decline in the tendency in each individual goal pursuit. Interestingly, students' mastery goals toward an exam increased significantly whereas performance-avoidance goals decreased. Finally, cluster analysis suggested changes in cluster memberships between the pre- and post-measure of achievement goals toward each instructional task and participants' perceptions of classroom goals.

The results and findings of the current study provide important implications for both research methodology used to investigate achievement goals and instructional design in the classroom. Limitations of the current investigation and suggestions for future studies are discussed.

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Chapter 1: Introduction

Statement of the problem

As educators and/or administrators, we want to help students engage in their learning and succeed in their academic life. However, data from the U.S. Census Bureau revealed in 2010 that only 56 percent of the students who enter colleges and universities graduate within six years and over 28% of students leave school after their first year. What variables are important to predicting and increasing college students' success and academic performance? And, how can students achieve academic outcomes? Previous studies have identified some cognitive variables like ability, typically measured in terms of nation-wide tests like the SAT or ACT as key predictors of student success (e.g., T & Jones, 2006; Kohn, 2001). Many researchers believe that another important indicator of success in education is the development of interest in a school or a specific topic, and that a broader definition of success requires consideration of a wider range of predictors (Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Hidi & Harackiewicz, 2000).

Among the diverse predictors, motivational variables and learning motivation itself may play a principal role in predicting success in college. Researchers have demonstrated that students with high motivation show higher academic performance than students with low motivation (Senko & Harackiewicz, 2005; Spence & Helmreich, 1983). Motivation is a complex part of human psychology and behavior that influences how individuals choose to invest their time, how much energy they exert in any given task, how they think and feel about the task, and how long they persist at the task. At different points in the history of research on motivation, and in different sub-disciplines of psychology, motivation has been conceptualized in various ways. Some theories of motivation have focused on factors within the individual, such as their drives, needs, and beliefs (McClelland, Atkinson, Clark, & Lowell, 1953; Mills, 2004). Some contemporary theories of motivation have been explained in terms of a social-cognitive perspective. This view is represented in attribution theories of motivation, which link achievement striving to how individuals interpret their success and failures in achievement situations (Weiner, 1979).

Theoretical framework

Even in the same schooling context, some students may be intrinsically motivated, whereas others may not be motivated or only extrinsically motivated. Why do they show different motivational status? Many different psychological constructs (e.g., achievement motivation construct, the perceived competence construct, achievement goal construct) have been used over the years to explain and predict the energizing and direction of the classroom, the workplace, and the sports-field. One of the major reasons is that each student has different beliefs and goals about their performance. Learning motivation is especially mediated by individuals' goals and beliefs about their learning in schools (Pintrich & de Groot, 1990). The learners' belief, value, or pursuit of different goals toward their learning tasks should be considered as one of the important factors that make students academically motivated. These learner characteristics are referred to as '*achievement goals*' or '*goal orientations*'. Achievement goals were characterized as networks or patterns of beliefs and feelings about success, effort, ability, errors, feedback, and standards of evaluation. These various beliefs, values, and feelings were presumed to be inter-related within each type of goal, and were thought to provide a wide-ranging framework, or schema, labeled "orientation" (Elliot, 2005). Both have been investigated by developmental, motivational, and educational psychologists, especially in relation to learning gains or achievement motivation (Pintrich & Schunk, 2002). The concept of achievement goals has proven to be a particularly robust motivation construct and demonstrated by the majority of educational research. Achievement goals predict key outcomes variables, such as performance (Elliot & Church, 1997; Elliot & McGregor, 1999; Harackiewicz & Elliot, 1993), learning strategies use (Barzegar, 2012; Wolters, Yu, & Pintrich, 1996), feedback-seeking behavior (VandeWalle & Cummings, 1997), academic anxiety (Pekrun, Elliot, & Maier, 2006; Putwain & Symes, 2012), help-seeking behaviors (Middleton & Midgley, 1997), and ability to retain knowledge (Bell & Kozlowski, 2002). Thus, the achievement goal construct currently has received the most research attention in the area of competence-relevant motivation. In fact, achievement goal theory has inspired over 1,000 published papers and dissertation in the past 25 years (Hulleman, Schrager, Bodmann, & Harackiewicz, 2010).

In educational motivation research, achievement goal theory has evolved within the social-cognitive framework. According to the social-cognitive perspective, the cognitions of individuals regarding academic work (e.g., beliefs about their academic ability, expectations about outcomes of engaging in the task, goals for the task) are influenced by social-contextual factors, such as messages from the teacher about the difficulty of the task, the perceived abilities of classmates, the information about how students will be evaluated, and so on (Urdan & Schoenfelder, 2006). Goals provide a framework within which individuals interpret and react to events, and result in different patterns of cognition, affect, and behavior. From this perspective, motivation does not reside entirely within the individual or entirely within the context. Rather, motivation emerges from the interaction between individuals within the social context of the classroom and school. That is, students' achievement motivational constructs are likely to vary based on the situations that they're in and their current goal orientations.

Recent years have seen a convergence of theory and research around the construct of goals, which can be generally defined as cognitive representations of the things we wish to accomplish (Harackiewicz, Barron, & Elliot, 1998). There has been some dispute in the literature, however, regarding which achievement goals lead to the best combination of outcome variables, causing confusion regarding which achievement goals employees should be selected on and encouraged to endorse (Harackiewicz et al., 2002). Generally, two types of goal orientations have received the most attention: the mastery goal orientation, which involves engagement for the purpose of improvement or mastery; and the performance goal orientation, which involves engagement for the purpose of demonstrating ability or avoiding the demonstration of lack of ability (Dweck, 1986; Elliot & Moller, 2003). Research has provided a big picture of how achievement goals relate to academic beliefs and behaviors (C. Ames & Archer, 1988; Dweck & Leggett, 1988). From the perspective of achievement goal theory, students who adopt mastery goals are expected to persist in the face of difficult events, seek challenging activities, and have high intrinsic motivation (C. Ames, 1992a; Dweck, 1986). In comparison, students who adopt performance goals are expected to minimally persist in the face of difficult events, avoid challenging activities, and have low intrinsic motivation. Mastery goals have consistently been linked to a positive set of processes and outcomes; however, the effects of pursuing performance goals are less clear. A trichotomous goals framework has been suggested as a better explanation, but it still has some problems, which will be discussed in the literature review. Researchers have been interested in studying achievement goals because goal orientation can influence the cognitive processes through some motivational processes and eventually lead to differences in learning achievement and attitudes (e.g., Ames, 1984; Duda, 2005; VandeWalle & Cummings, 1997).

Achievement goal theory also places great emphasis on the classroom context (e.g., teachers, peers, and task) in relation to students' goal adoption and pursuits. Ames and Archer (1988; 1992a, b) introduced the idea that the achievement goal construct could be applied at the classroom level as well as the individual level of analysis. In their research, they assessed students' perceptions of their classrooms in terms of an emphasis on mastery goals and performance goals, and linked these goal perceptions to students' learning strategies, task choices, attitudes, and attributions. Subsequently, theorists have studied relations between classroom structure and individual pursuit of achievement goals. In sum, students' personal goal orientations correspond with their perceptions of the classroom goals. When students perceive their classroom as mastery-oriented structures, they are more likely to pursuit individual mastery goals in the class. In contrast, students are more likely to adopt performance goals when they perceive their classroom as more performance-oriented structures.

Significance of the study

Little is known, however, about the relations or regulations among achievement goals over time. Only a few studies have explicitly explored changes and stability in goal orientations (Fryer & Elliot, 2008; Muis & Edwards, 2009a; Senko & Harackiewicz, 2005). In addition, most studies have investigated whether students alter their achievement goals in response to feedback on their competence. Results from the studies indicated that although there were general tendencies toward stability in students' goal orientations, there also was a tendency for students to switch from one goal to another. However, there is no research about relations between classroom structures and students' goal orientations. According to social-cognitive theory, as discussed above, we can expect that students' goal adoption and goal pursuit can be altered based on their classroom context. For example, how might certain tasks or instructional settings (treatments) provide a basis for the adoption or change of future achievement goals? This question is especially important with the recent controversy concerning the facilitative nature of performance goals (Midgley, Kaplan, & Middleton, 2001; Urdan & Mestas, 2006).

Although the issue of achievement goal change and regulation is clearly important, it has received little empirical attention in the achievement motivation literature. Furthermore, most studies have investigated the goal changes at the sample level with referencing summary statistics such as simple correlation and group mean differences. However, it is also important to explore differences in a learner's goal endorsement. In the present study, I addressed this oversight, focusing primarily on the foundational question of how students' goal orientations are changed by different instructional tasks they receive in classrooms. In addition, the present study explored new methodological approaches that can investigate each individual's changes in achievement goals and the relations between students' perceptions of classroom goal and their individual goal endorsement.

Chapter 2: Review of the Literature

The study intended to examine the relations between instructional components and regulation of achievement goals. The following literature review begins with a discussion of achievement goal orientation and its regulation, and later moves to mention about analytic methods which are proper for this issue. First, an overview of achievement goal theory is presented, outlining its definition and classification. After providing this basis for understanding the construct, the effects and role of goal orientation in classroom will be discussed. This will be followed by a brief review about how individual achievement goals can be regulated and the relations between perception of classroom structures and goal orientations. The literature review will end with an analysis of goal orientation research in an educational settings and uses.

Achievement goals

Definition of achievement goals

Achievement goal orientation is a motivational construct that affects how an individual approaches and interprets tasks (e.g., Dweck 1986). Goal orientation is associated with beliefs in the controllability of personal attributes such as intellectual ability (Dweck & Leggett, 1988), how individuals view effort expenditure (C. Ames, 1992a), and how individuals respond to task difficulties or task failure (Dweck & Leggett, 1988). Elliot and Fryer (2008) distilled five basic features of goals. Goals are (a) focused on an object, (b) used to direct or guide behavior, (c) focused on the future, (d) internally represented (cognitively or otherwise), and (e) something the organism is committed to approach or avoid. Achievement goals generally have been considered to be cognitive representations, rather than implicit needs or drives, with an end state that is centered on competence –either developing (mastery) it or demonstrating (performance) it.

Types of achievement goals

Recent research has focused on identifying different types of goal orientations among students, the motivational processes that are associated with theses different goals, and the conditions that elicit them. Initially, achievement goal orientations were divided into two types by most researchers: mastery goal and performance goal (C. Ames & Archer, 1988), learning goal and performance goal orientations (Dweck & Leggett, 1988), mastery goal and ability focused goal (Ames & Ames, 1981), and task involvement and ego involvement goal (Nicholls, 1984). Subsequent researchers have each used their own terms for the very similar ideas (learning goal and performance goal orientations (Dweck & Leggett, 1988), mastery goal and ability focused goal (Ames & Ames, 1981), task involvement and ego involvement goal (Nicholls, 1984)). In the present study, achievement goal orientation is defined as the behavioral intentional system that decides learning style and is described based on Ames and Archer's achievement goal orientation term. Despite the different terminologies, some similarities among these constructs exist. First, most conceptualizations were articulated in the context of a literature emphasizing motives and achievement attributions as explanatory constructs. Competence was viewed as an important component to form the achievement goal construct. Most researchers proffered a comparable achievement goal dichotomy, and the hypothesized effects of each goal were presumed to be quite similar in nature. They tend to view performance/ego involvement goals and learning/mastery/task involvement goals as opposite poles on a single continuum. Second, the two goals derive in part from different perspectives of ability. Mastery goal-oriented students tend to regard their ability as a malleable attribute and something to be developed by effort, whereas students with performance goal tend to regard ability as a fixed attribute (Dweck, 1986). Consequently, students might perceive differently their task challenges and requirements for completion. Third, the two goals have different definitions about success and failure. Successful attainment of a performance goal requires outperforming peers. In contrast, mastery goal's success requires meeting either task-based criteria (e.g., answering 80% of questions correctly) or self-defined criteria (e.g., feeling that you have learned). Consequently, mastery-oriented students have relatively high resistance to failure experiences in comparison to others. Finally, achievement goals are portrayed as applicable to both situational and dispositional aspects. Although some researchers tended to focus on situation-specific aspects of goals (e.g., Elliot & Dweck, 1988), others tended to focus on dispositional goal orientations (e.g., Nicholls, Cheung, Lauer, & Patashnick, 1989).

The major difference between mastery and performance goals is the approach taken by the learners in their learning activities. In the case of mastery goal orientation, learners focus on developing ability, seeking task mastery and learning itself. However, demonstrating ability and seeking normative competence characterize the performance goal and they tend to focus on the negative processes and outcomes. In other words, mastery goal orientation learners attach great importance to the efforts made for result and try to understand novel knowledge and skill acquisition (C. Ames, 1992a; Meece, Blumenfeld, & Hoyle, 1988), whereas performance goal learners focus on just their outcome result and demonstrate comparable competence, and hence regard learning activities as a method which can accomplish the previously planned aims (Dweck & Leggett, 1988; Elliot & Dweck, 1988). Therefore, when the mastery goal oriented learners are confronted with task-related difficulties they overcome the problems through the attributes of effort rather than ability (Ames, 1992a; Ames & Archer, 1988). However, performance goal learners tend to avoid challenging tasks because of the secure success, and attribute task failure to their low ability rather than effort. Even worse, continuous failure experiences trap them in learned helplessness. These differences between mastery and performance goal are summarized in Table 1.

Table 1: Differences with mastery and performance goal orientations (Elliot, 2005)

Characteristics	Mastery goal	Performance goal
Sense of success	Developing ability, progress, mastery, creativity, innovation, skill acquisition	Relatively high grade and achievement, competence
Evaluation criterion	Absolute inner standards Amount of progress	Normative and Social Comparison
Reason of endeavor	Development of intrinsic value and mastery of skill	Demonstrating comparable competence
Challengeable task	Pursuit	Avoidance
Failure attribution	Insufficient efforts	Insufficient ability
Failure experience	Do not harm to competence, Sustained motivation and expectancy	Attack self-efficacy easily, Seeking other tasks

Elliot (1997) and his colleagues (Elliot & Church, 1997; Harackiewicz et al., 1998) proposed a trichotomous hierarchical model of achievement goals that serves as an extension of the mastery-performance dichotomy. In their model, the performance goal construct is divided into separate approach and avoidance components, while the mastery goal is left unchanged. Whereas a performance-approach goal refers to the individual attainment of competence relative to others, a performance-avoidance goal focuses on avoiding the demonstration of incompetence relative to others. Mastery and performance-approach goals are both approach orientations while performance-avoidance goal is an avoidance orientation. This trichotomous goal framework has become the most popular in academic domains (Duda & Nicholls, 1992) and has been widely used in the related literature.

More recently, Elliot and McGregor (2001) conceptualized a "2 x 2 achievement goal framework", in which four types of goal orientation are derived from two different dimensions: competence and valence. In their framework, individuals have different referents for gauging their competence on an achievement-relevant task. Using absolute or self-referential competence evaluations are linked to mastery achievement goals, whereas using other-referential (normative) competence evaluation is linked to performance achievement goals. That is, competence may be evaluated according to the individual's value and interpretation of task. The other dimension of this model is valence (approach and avoidance distinction) that is common with the trichotomous framework. While the performance goal split into approach and avoidance is retained, the mastery-approach goal now focuses on attaining competence and the mastery-avoidance goal focuses on avoiding incompetence when competence is defined in an absolute standard, such as requirement of the task or one's own past attainment or maximum potential attainment. Elliot and McGregor developed a questionnaire to measure these four goals and used theoretically related constructs to show that these four types of goal have different antecedent and consequent variables, suggesting that the 2 x 2 goals have different meanings in achievement motivation.

However, mastery-avoidance goals have been a target of debate for being conceptually problematic (Pugh & Bergin, 2006). Scrutiny of the mastery-avoidance literature reveals competing conceptions, operational definitions, and methods of measurement. Indeed, the finding that mastery-avoidance and performance-avoidance goals are indiscriminable constructs challenges repeated factor analytic and path analysis findings that demonstrate the two concepts to be theoretically relevant variables (Baranik, Barron, & Finney, 2007; Cury, Elliot, Da Fonseca, & Moller, 2006; Finney, Pieper, & Barron, 2004) . In addition, the goals are very rare for students to adopt as their primary goal orientation. For instance, Sideridis and Mouratidis (2008) conducted two studies that allowed nearly 400 elementary and middle school students to select their most prominent achievement goal. Remarkably, out of the 2 x 2 goals, only 14 students selected mastery-avoidance as their primary goal. Since the 2 X 2 goals framework does not have strong consistency among previous research, this proposed study adopts the trichotomous goal orientation framework.

Effects of achievement goals in classrooms

Achievement goal orientations not only influence cognitive participation through the motivational process but also produce performance differences and attitudes in learning situations. Duda (2005) asserted that the achievement goals, conceptualized either as mental dispositions or as perceived environmental influences, may have direct impacts on students' learning behaviors and their learning outcomes. For example, Church, Elliot and Gable (2001) conducted two studies to examine the relationship between undergraduates' perceptions of their classroom environment, their adoption of achievement goals for the course, their graded performance in the course, and intrinsic motivation for the chemistry course material. The results from two studies showed that mastery goal adoption was linked to lecture engagement and the absence of an evaluation focus, performance-approach goal adoption was linked to evaluation focus, and performance-avoidance goal adoption was linked to harsh evaluation. That is, students with mastery goals tend to follow and enjoy their learning itself but performance goal oriented students focus on the external evaluations and experience higher level of stress. Elliot and McGregor (1999) demonstrated that performance-approach goals are positive predictors of students' in-class psychology exam performance and that performance-avoidance goals are linked to test anxiety while taking an exam through meditational analyses. Likewise, performance-avoidance goals proved deleterious to both intrinsic motivation and graded performance (Elliot & Church, 1997). Performance-approach goals manifested no relationship with intrinsic motivation, but a positive relationship with graded performance. McGregor and Elliot (2002) identified a differential predictive pattern for each of the achievement goals by conducting 3 experimental studies. Mastery goals were positive predictors of numerous positive processes such as challenge appraisals, absorption during preparation, and calmness of preparation at the exam. Performance-approach goals were linked to a more limited set of positive processes (e.g., challenges appraisals, grade aspirations) whereas performance-avoidance goals predicted negative processes (e.g., threat appraisals, anticipatory test anxiety).

In addition, some research reported that mastery and performance goal constructs in the classroom could affect students' perceptions of their classroom experiences and learning motivation differently. For example, when students perceived their class as emphasizing a mastery goal, they were more likely to report using effective learning strategies (information processing, self-planning, self-monitoring), prefer tasks that offer challenge, like their class more, and believe that effort and success are related (Ames & Archer, 1988).

The trichotomous goal framework to achievement motivation has been tested empirically in the education context. Elliot and Harackiewicz (1996), for example, conducted two experiments which manipulated achievement goals and examined the influence of the three achievement goal conditions on intrinsic motivation to solve hidden word puzzles called "Nina Puzzled", which have been used in previous intrinsic motivation research (Harackiewicz & Elliot, 1993). The object of the puzzle is to find the word 'Nina', which is hidden a number of times throughout a drawing. Participants solved four puzzles in one of four experimental conditions: performance-approach, performance-avoidance, performance neutral and mastery goals. Based on each condition participants were given a different instruction for the task. For example, performance-approach participants were informed: In our previous work, we have found that most UW [University of Wisconsin] students are fairly comparable in their ability to solve Nina puzzles, but some students stand out because they do quite well on the puzzles. This session will give you the opportunity to demonstrate that you are a good puzzle solver. The results of two experiments indicated that the performance-avoidance instruction condition undermined intrinsic motivation. In addition, participants tended to report less enjoyment of the Nina puzzles than those in the performance-approach condition. In contrast, the effect of performance-approach condition on intrinsic motivation was equivalent to that of the mastery condition, and significantly higher than that of the performance-avoidance condition.

Similarly, Elliot and Church (1997) showed mastery goals predicted intrinsic motivation, performance-approach goals predicted academic performance, and performance-avoidance goals undermined both intrinsic motivation and performance. These findings provide further support to Elliot's (1997) argument that mastery and performance-approach goals are more adaptive than performance-avoidance goal. This argument is also corroborated by a meta-study by Rawsthorne and Elliot (1999) of the experimental literature that has examined the effects of performance and mastery achievement goals on intrinsic motivation. This analysis addresses the question of whether performance goals overall undermine intrinsic motivation relative to mastery goals. Furthermore, the analysis tended to clarity the hypothesis that performance goals might have different effects on intrinsic motivation based the valence that goals have.

The results of the meta-analysis showed that performance-avoidance goals, relative to mastery goals, had a significant undermining effect on free-choice persistence and self-report of interest and enjoyment. However, no evidence of an undermining effect was found for comparisons of performance-approach and mastery goals. The mixed findings suggest that the differentiation of the performance goal combining approach and avoidance tendencies offered a better explanation for the educational data as opposed to construing performance goal as an omnibus construct.

Performance-avoidance goals

Maladaptive processes of performance-avoidance goals

Previous research has shown that there has been remarkable consistency regarding the relation between mastery goals and adaptive learning patterns. Students who pursue mastery goals often find their classes interesting, persist when facing challenges, seek help when confused, use more effective learning strategies, and perceive tasks as valuable. Although there is not obvious consistency about effects of performance-approach goal orientation on achievement and motivation, many investigations have shown its adaptive patterns of learning (Midgley, Arunkumar, & Urdan, 1996; Pajares, Britner, & Valiante, 2000; Rawsthorne & Elliot, 1999; Roeser, Midgley, & Urdan, 1996; Skaalvik, 1997). Two studies examined achievement goals as predictors of self-reported cognitive/metacognitive and motivational study strategies and tested these study strategies as mediators of the relationship between goals and exam performance in the normative college classroom. The results supported hypotheses of the trichotomous goal framework: Mastery goals were positive predictors of deep processing, persistence, and effort; performance-approach goals were positive predictors of persistence, effort and exam performance; and performance-avoidance goals were negative predictors of deep processing and exam performance. Similarly, Barzegar (2012) investigated the relationships between goal orientation and learning strategies use. The results showed positive effects of mastery and performance-approach goals on the use of metacognitive and deep cognitive strategies. Further, performance-approach goals positively affected the use of surface cognitive and resource management strategies. Wolters et al. (1996) found a positive association between performance-approach goals and use of adaptive learning strategies in English, social studies, and mathematics. In addition, Elliot and McGregor (1999) found that performance-approach goals were positively related to grades on an exam in an introductory psychology course. That is, performance-approach goals might have positive and adaptive effects on learners based on their individual characteristics and/or circumstances (Midgley et al., 2001).

In terms of performance-avoidance goals, there is no doubt that these goals are more maladaptive than others. Actively avoiding failure leads to a decrease in intrinsic motivation. For example, even though Elliot and Harackiewicz's (1996) research incorporates rather low levels of competence such as finding hidden figures in Nina puzzles, the performance-approach and mastery goals participants evidenced similar levels of motivation for it. This suggests that the approach forms of motivation allow individuals to intellectually match the lesson's level and engage themselves in it. Two other experimental studies showed that performance-avoidance goals undermined intrinsic motivation (e.g., enjoyment and interest in an activity) relative to both mastery and performance-approach goals (Elliot & Harackiewicz, 1996). In another example of the detrimental effects of performance avoidance, performance-approach goals were positive predictors whereas performance-avoidance goals were negative predictors of exam performance (Elliot & McGregor, 1999), and that performance-avoidance goals were also linked to test anxiety while taking the exam (Pekrun, Elliot, & Maier, 2006; Putwain & Symes, 2012) and higher avoidant help-seeking behaviors (Middleton & Midgley, 1997).

Middleton and Midgley (1997) tried to find relations among goal orientations and between goals and motivational relevant constructs. They conducted survey research with 703 sixth-grade students in mathematics classroom, and the results showed that students with high performance-avoidance goals were likely to have low self-efficacy and self-regulation. These students also struggled with high avoidant help-seeking behaviors and test anxiety. In another classroom study, Elliot and Church (1997) found that performance-avoidance goals undermined intrinsic motivation and performance. Participants in this study were asked to assess their fear of failure, competence expectancies, achievement goals, competence perceptions, and intrinsic motivation in a series of questionnaires. Path analyses revealed that competence expectancies were validated as an independent antecedent of achievement goal adoption; mastery and performance-approach goals were linked to high competence expectancies, whereas the performance-avoidance goals were linked to low competence expectancies. Furthermore, the consequences of performance-avoidance goals adoption were detrimental to intrinsic motivation and graded exam performance in classroom.

As briefly discussed above, performance-avoidance goals have been systematically linked to anxiety, hopelessness, low ability-related self-esteem, unwillingness to seek help with schoolwork, and negatively related to self-determination, perceptions of control, and feeling calm during evaluation process. With this in mind, it is surprising that, as far as we know, no study has directly addressed the question of which instructional components could alleviate the maladaptive performance-avoidance goals and change them into approach goals in class.

Regulation of achievement goals

Is an individual's achievement goal stable or unstable? Both perspectives may be right, depending on the learning situation or task which students confront. One reason to anticipate goal orientation stability is that achievement goals represent concrete aims that emerge from personality characteristics such as achievement motives and temperaments (Harackiewicz et al., 1998). As a human's personality is not changed easily, it is likely that the individual achievement goal orientation should also be stable for a long time. Recent studies, however, have reported evidences that the individual adoption of achievement goals could be occurring in a classroom.

Multiple goal perspectives

Mastery and performance goals have been considered mutually exclusive so far. When instructors give students an academic task, such as writing a paper or studying for a quiz, students might have just one goal: to develop abilities for the specific task or to get relatively better scores. However, this is too simplistic a view of academic tasks and goals. As discussed above, there is a clear consensus about the adaptive patterns of mastery goals, and several studies have found positive performance goal effects in some situations and for certain individuals and/or domains (Midgley et al., 2001). For this reason, a number of theorists endorse a multiple goal perspective in which adopting both types of achievement goals simultaneously is considered most adaptive (e.g., Butler & Winne, 1995; Harackiewicz, Barron, & Elliot, 1998). Harackiewicz et al (1998) proposed an achievement goals framework to determine whether particular types of achievement goals are optimal in promoting success in college. They began by expanding a definition of success to include both academic performance and intrinsic motivation, and believed that consideration of both outcome measures afforded a richer analysis of the role of goals in promoting success in college classroom. Basically, they hypothesized that strong conclusions about negative and maladaptive effects of performance goals might be premature. Unlike the consistent pattern of findings for mastery goals, i.e. a positive and adaptive link to important educational outcomes, the pattern of findings for performance goals is more complex, revealing some negative, some null, and some positive results on outcomes. For this reason, they argued that mastery and performance goals are relatively independent, such that some students may be characterized as pursuing one predominant goal, but others may endorse both.

To date, researchers who endorse a multiple-goals perspective have suggested that students with mastery and performance goals together can be more adaptive in terms of cognition, emotions, and achievement than students endorsing either goal separately and exclusively (Pintrich, 2000). Pintrich collected data in three waves from 8^{th} to 9^{th} grade students in math classrooms using both self-report questionnaires and actual math grades. The results for the multiple goals were discussed in terms of the four different groups or patterns (high/low mastery and high/low performance goals) of students' profiling. We could easily expect that the high-mastery/low-performance group should have the most adaptive learning patterns based on previous theories and studies. However, Pintrich (2000) reported that the high-mastery/high-performance group was better on some outcomes. For all dependent variables (self-efficacy, task value, test anxiety, cognitive strategies, and actual performance), these two groups either did not differ significantly from one another, or when they did differ, the comparison favored the high-mastery/high-performance group. In contrast, the low-mastery/high-performance group did not have an adaptive pattern of motivation, affect, or strategy use. The low-mastery/low-performance group also struggled in their math classrooms on almost all the outcomes examined in this study. These students felt less efficacious about their ability to do their math work, and they were less interested and viewed math as less useful and important. Thus, students who were concerned with performance and doing better than others while also being focused on mastery and learning were not at risk for maladaptive pathways.

According to Barron and Harackiewicz (2001), there are different patterns of goal adoptions; additive, specialized, selective, and interactive goal patterns, which could account for the benefits of multiple goals endorsement. They also found that both mastery and performance goals have independently positive main effects on a given outcome (e.g., exam performance) in two experimental studies. The results indicated that both types of achievement goals could be advantageous because each goal was positively associated with unique achievement outcomes (i.e., each goal had a positive main effect but on different measures). Put simply, goal endorsement is not a matter of either choosing or not choosing to pursue a particular goal. Rather, Fryer and Elliot (2008) reported that individuals could have varying levels of commitment to many different achievement goals at the same time. More recently, some studies demonstrated that not only performance-approach and performance-avoidance goals but also mastery goals were related to social comparison orientation (Darnon, Dompnier, Gilliéron, & Butera, 2010; Régner, Escribe, & Dupeyrat, 2007). Régner et. al. (2007) tested whether each type of goal significantly predicted social comparison information. In a classroom context, they observed that not only performance goals (approach and avoidance) but also mastery goals predicted social comparison orientation. Even though the effects of mastery goals on the social comparison are lower than performance goals, the result challenges the existing literature on achievement goals. Subsequently, Darnon et. al. (2010) tested whether the link between mastery goals and social comparison could be moderated by the level of performance-approach goal endorsement. They argued that the link should increase when associated with high performance-approach goals and observed an interaction between mastery and performance-approach goals. The results indicated that individuals have a stronger association between mastery goals and social comparison orientation when they have higher level of performance-approach goals adoption. These studies can support a multiple goal perspective and the assertion that very often in class students do not actually pursue "pure" goals but multiple goals and these goals can interact with one another. If this is true, then students must have a way of regulating the competing goal impacts. This recognition is related to the work on self-regulation of goals described in the next section.

Self-regulation of achievement goals

Recent studies have proposed that learners might adjust their achievement goals in ways similar to how they adjust goals within a self-regulation context. The self-regulated learning process refers to self-generated thoughts, feelings, and behaviors to achieve students' goals. (Zimmerman, 2000). Even though the 'goal regulation' concept from Locke and Latham (1990) has been a major concept in achievement goal research, theorists have recently proposed that goal orientations are regulated like other motivational concepts through self-regulation theory. For instance, Muis (2007) and Pintrich (2000) proposed that achievement goals may be regulated during task engagement and/or over the course of several tasks.

Some studies suggest that although achievement goals are somewhat stable, there is less stability when students move from one learning environment (i.e., classroom, grade, or teaching methods) to another. This is compatible with a social-cognitive model of self-regulation perspective which proposes that as contexts change, individuals reevaluate and reconstruct their goals and actions (Zimmerman, 2002). Thus, several factors or individual perceptions can influence goal changes. Some researchers, for example, have suggested that self-efficacy is an important determinant of goals (e.g., Schunk, 1991). Schunk insisted that students are likely to experience an initial sense of self-efficacy for attaining goals. They also are apt to make a commitment to attempt reaching the goal, which is necessary for goals to affect performance. As they work at the task, they engage in activities they believe will lead to goal attainment: attend to instruction, rehearse information to be remembered, expend effort, and persist. Self-efficacy is substantiated as learners observe goal progress, which suggests they are becoming skillful. Anderman and Maehr (1994) suggested that goals contribute to perceived efficacy, and that these perceptions mediate outcomes such as performance. More often, however, achievement goal theorists have treated self-efficacy as a moderator between goals and outcomes rather than an antecedent, consequence, or mediator of goals. For example, Elliot and Harackiewicz (1996) showed in the laboratory that perceived ability moderated the relations between performance goals and outcomes, whereas this was not found for the relations between mastery goals and outcomes.

In a similar vein, I propose that students might regulate their achievement goal pursuit based on instructional components and/or classroom goals that they confront. For instance, after doing an in-class group activity, a student might change his or her pursuit of a performance-avoidance goal into a performance-approach or mastery goal while an in-class exam might increase students' performance-avoidance and/or performance-approach goals. If so, we need to illuminate how goals might be changed or regulated. The most current research about this issue was done by Senko & Harackiewicz, (2005) and Muis & Edwards (2009). Both studies proposed two ways in which achievement goals may be regulated over a series of tasks in real classroom- goal switching and goal intensification.

Goal switching and Intensification

In goal switching, individuals may switch from one goal to another. One such possible switch is from a performance-approach goal to a performance-avoidance goal (or vice versa). Elliot and Church (1997), for example, suggested that people might switch from a performance-approach goal to a performance-avoidance goal after receiving negative competence feedback, or vice versa after receiving positive feedback, because perceived competence should determine whether one frames comparisons against others in an approach or avoidance manner.

Another goal switching possibility is between the two distinct types of approach goals – for example, mastery and performance-approach goals. There is no study which has directly targeted the topic, but we can expect possible reasons for such a switching, for example, a desire to hone the skills needed to eventually compete effectively or a desire to protect one's ego from failure by shifting focus to developing skill. Also, we can easily expect that individuals' perceptions of class goals affect their adoptions of achievement goals (Meece, 1991). More detail descriptions about the relations between class goals and individual goal adoptions will be discussed in the next section. According to self-regulation models, these two approach goals might also be switched if the individual successfully fulfills the initial goal and seeks a new challenge. For example, a student might begin with a goal of mastering a skill and, once fulfilled, shift attention to competing against peers and vice versa.

The other possible way for goals to change is goal intensification, which is a simpler form of goal regulation. Individuals might simply intensify or reduce their pursuit of one goal without any concurrent adjustments to their pursuit of other goals (Senko & Harackiewicz, 2005). For instance, a student might enter a class with a strong desire to master the material but later, after taking an exam or getting feedback on a paper, lessen that desire without necessarily adopting a new goal in its place. Additionally, with this simpler intensification model of goal regulation, if one pursues multiple goals for an activity, those goals would be regulated independently of one another. A reduction in desire to develop skills or master something new may lead to a reduction in the pursuit of a mastery goal but not a complete abandonment of that goal. To date, few studies in the achievement goal literature have directly examined to what extent goals remain stable or change over various tasks. At this time, I found only four studies that have explicitly examined the nature of stability and/or change in achievement goal orientations in classroom settings (Fryer & Elliot, 2007; Muis & Edwards, 2009a; Schwinger & Stiensmeier-Pelster, 2011; Senko & Harackiewicz, 2005).

Class goals

Classroom effects on students

Substantial research and theorizing have addressed not only how classroom environments affect students' learning and relevant outcomes, but also how learning environments influence students' views and purposes of learning. Ames and Archer (1988) showed that students' perceptions of classroom climate were related to the adoption of individual goal orientation and use of learning strategies. After that finding, considerable research has focused on describing how classroom goal structures elicit different motivational patterns and how these goals are reflected in the classroom context (e.g., Ames, 1992a, 1992b; Church, Elliot, & Gable, 2001; Ciani, Middleton, Summers, & Sheldon, 2010; Meece, Anderman, & Anderman, 2006; Urdan & Schoenfelder, 2006). Research on achievement motivation has shown that situational demands can affect the salience and adoption of specific goals, which leads to differential patterns of cognition, affect, and behavior (e.g., Ames & Archer, 1988; Covington & Omelich, 1984; Ryan, Gheen, & Midgley, 1998). For example, Phan (2008) examined the effects of classroom learning environment on students' achievement goals and reflective thinking practices for a sample of 298 secondary school students in Australia. Results showed that the different facets of the classroom environment in terms of involvement, students' cohesiveness, task orientation, and satisfaction exerted direct and indirect influences on students' achievement goals, reflective thinking practices, and academic performance. Anderman and Midgley (1997) examined changes in personal achievement goals, perceptions of the classroom goal structure, and perceived academic competence during the transition from elementary to middle school with 341 students. Data were collected when the participants were in the fifth grade in elementary school and again the following year when they were in the sixth grade in middle school. Results indicated that students were more oriented to mastery goals, perceived a greater emphasis on mastery goals during instruction, and felt more academically competent in the fifth grade than in the sixth grade. The students perceived a greater emphasis on performance goals in middle school classrooms than in elementary school.

Goal structures refer to messages in the learning environments (e.g., classroom or school) that make certain goals salient. Most research in goal structures has referred specifically to the classroom goal structures, which have commonly been assessed with surveys that ask students to report their perceptions of the salience of messages that are believed to reflect a mastery (an emphasis on learning) or performance (an emphasis on competition or social comparison) goals (E. M. Anderman & Midgley, 1997a; Maehr & Midgley, 1991). These messages are often assumed to come from teachers' practices and techniques or students' shared values in classroom. In addition to quantitative research, some studies have adopted qualitative methods including classroom observations, student and teacher interviews, and stimulated recall methods to examine the presence and effects of classroom goal structures (Patrick, Anderman, Ryan, Edelin, & Midgley, 2001; Turner et al., 2002). The research on goal structures has generally tried to identify relations between goal structures and personal goals, performance, and motivation-relevant variables. Ames (1992a, b) developed the TARGET system for identifying key instructional practices associated with a mastery or performance orientation in the classroom.

TARGET

Ames and Archer (1988) first adopted a student-report measure to assess the salience of mastery and performance goals in the classroom. Then, they tried to analyze classroom dimensions in terms of their impact on student adoption of an individual goal orientation. Subsequently, Ames (1992a, b) described how aspects of classroom structure that are related to tasks, authority, recognition, grouping, evaluation and time (TARGET) influence the salience of a mastery goal orientation in classroom (Table 2). Recent studies have used the TARGET dimensions to create survey instruments to assess students' perceptions of the goal structure of high school (Greene, Miller, Crowson, Duke, & Akey, 2004) and college classes (Church et al., 2001).

Among the dimensions, the ways in which students are evaluated in classroom is one of the most salient factors that can affect students' motivation and adoption of goals (C. Ames, 1992b). Students may be oriented toward different goals and display different patterns of motivation depending on evaluation structures in classroom (C. Ames & Archer, 1988). Church et al. (2001) investigated the relationship between undergraduates' perceptions of their classroom environment, their adoption of achievement goals, and their graded performance in Chemistry courses and intrinsic motivation for the course material. Two studies examined the relationship between three perceived classroom environment variables –lecture engagement, evaluation focus, and harsh evaluation- and their individual achievement goal adoption using the trichotomous goal framework. The results showed that evaluation focus was a positive predictor of both performance-approach and performance-avoidance goals whereas harsh evaluation was a positive predictor of performance-avoidance goals and a negative predictor of mastery goals. Through the studies such as these, we can expect that types or levels of in-class evaluation might induce students' achievement goals adoptions differently.

Table 2: Dimensions of the TARGET system (Ames, 1992a, b)

Dimensions	Characteristics of a Performance Goal
Task	Variety, challenge, organization, and interest level of learning activities
Authority	Opportunities to take responsibility for learning and to make decisions
Recognition	Incentive and reward focused on effort, improvement, accomplishments
Grouping	Grouping structures that promote collaboration, cooperation
Evaluation	Systems that are varied, private, and assess individual progress
Timing	Opportunities to plan schedules and complete work at optimal rates

Relations between classroom structures and achievement goals

As discussed above, researchers have been considering the relationship between students' perceptions of the goal structures in their classrooms, their personal goal orientations, and their approaches to learning (C. Ames & Archer, 1988; C. Ames, 1992b; Church et al., 2001; Meece & Miller, 2001; R. Roeser, Arbreton, & Anderman, 1993). For example, Ryan et al (1998) investigated how classroom goal structure was related to avoidance help seeking for 516 students across seventh grade math classrooms. Results indicated that students' perceptions of a mastery classroom goal structure were associated with a lower level of help avoidance, whereas their perceptions of a performance classroom goal structure were associated with a higher level of avoiding help. Clearly, these results imply that students are less likely to avoid seeking help with their work when they need it in classrooms where students perceive the focus it on understanding, mastery, and intrinsic value of learning compared to classrooms where the focus is on competition and proving one's ability. With the same manner, Urdan (2004) reported that performance goal structures were positively associated with self-handicapping. Achievement goal theory is useful for not only providing a framework for studying individual differences in motivation but also analyzing the influence of classroom environments' on students' motivation and learning.

Many studies have suggested that classroom goal structures play a large role in shaping students' personal goals and are related to students' motivation and achievement (e.g., Meece et al., 2006; Wolters, 2004). These studies find that students' individual goal orientations correspond with their perceptions of the classroom goal structures (E. M. Anderman & Midgley, 1997a; Urdan, 2004). When students perceive their classroom or schools as emphasizing effort and understanding, they are more likely to adopt mastery-oriented goals (Meece et al., 2006). Conversely, students are more likely to adopt performance-oriented goals when they perceive their classroom environment as focused on competition for grades and social comparisons of ability. In the same manner, positive correlations between goal structures and individual goal orientation have been found at the classroom level in the domains of English and mathematics, and across the elementary, middle, and high school levels (E. M. Anderman & Midgley, 1997a; R. W. Roeser et al., 1996; Wolters, 2004). The general findings are that classroom mastery goal structures are related to adaptive outcomes, and classroom performance goal structures are related to maladaptive outcomes, although variations exist depending on the specific outcomes under investigation (Meece et al., 2006; Urdan, 2004). Some current studies have suggested that perceptions of the classroom goal structures may exert a direct effect and/or interaction effect with personal goals on outcome measures as well (Lau & Nie, 2008; Linnenbrink, 2005; Murayama & Elliot, 2009).

Murayama and Elliot (2009) explored the joint influence of personal achievement goals and classroom goal structures on achievement-relevant outcomes. They identified three models –direct effect model, indirect effect model, and interaction effect model- with a sample of 1,578 Japanese junior high and high school students from 47 classrooms. A *direct effect model* posits that classroom goal structures directly influence achievement-relevant outcomes such as intrinsic motivation and academic self-concept. Several studies in the class goal literature have utilized this model. Some of them have examined the effects of classroom goal structures alone (e.g., Ames & Archer, 1988; Midgley et al., 1998; Patrick et al., 2001; Ryan et al., 1998; Turner et al., 2002) or measured individual goals but conducted separate sets of analyses (e.g., Gutman, 2006). Second, an *indirect effect model* posits that classroom goal structures indirectly influence achievement-relevant outcomes through their impact on the adoption of personal achievement goals. That is, goal structures are thought to prompt the adoption of personal goals, and personal goals are considered as having a proximal influence on outcomes. Most of studies in the literature have used this model to examine relations from goal structures to individual goals and outcomes (e.g., Bong, 2005; Church et al., 2001; Greene et al., 2004; Roeser et al., 1996). The last model is *an interaction effect model*, which suggests that classroom goal structures moderate the influence of individual achievement goals on outcomes. Only a few studies have explored directly the relations between goal structures and personal goal adoptions, moderations, and mixed effects on achievement-relevant outcomes (see Lau & Nie, 2008; Linnenbrink, 2005; Wolters, 2004). Linnenbrink (2005) conducted a quasi-experimental study in which she measured 237 upper elementary students' goals and manipulated classroom goal structures by controlling teachers with specific guidelines and suggestions for class. She did not find any significant interaction effect between classroom goals and individual goals on achievement-relevant outcomes. The study being proposed in this dissertation adopts the indirect model examining logical paths between classroom goal structures and the pursuit of individual achievement goals.

Other motivation relevant variables

As discussed above, there are motivational variables which relate to individual achievement goals and perceptions of class goals. Among them, I decided to collect two individual variables that are related to achievement goals, but not investigated with the perception of class goals. The first one was the implicit theory of intelligence (TOI), which is based on the assumption that an individual's main beliefs have the power to determine the ways he or she responds to various situations including challenges and setbacks (Blackwell, Dweck, & Trzesniewski, 2007). In this theory, there are two governing beliefs of individuals about their intelligence, the entity theory and the incremental theory of intelligence. The entity theory of intelligence is described as beliefs that intelligence is fixed, whereas incremental theory is characterized as beliefs that intelligence is malleable and therefore can be improved. Previous studies have reported that the individuals with the incremental theory of intelligence are more likely to have mastery (or learning) oriented goals (e.g., Elliot, et al, 2009). People with the entity perspective toward their intelligence tend to have performance-oriented goals and easily give up challenging academic tasks when performing poorly. However, there is little research on relations between the theory of intelligence a person adopts and the perceptions of class goals he or she holds.

The other individual student variable included in the study was academic help-seeking behavior, which can be viewed as an adaptive strategy of self-regulated learning. Academic help-seeking behaviors can be classified into three different levels; instrumental, executive, and avoidant help-seeking. Among them, the avoidant is the most maladaptive learning behavior in classroom. Despite the obvious important of help-seeking in school, students often do not ask questions or avail themselves of help when it is needed (Newman, 1998). Previous research has shown that academic help-seeking is strongly related to the use of learning strategies, self-esteem, teacher's autonomy support, social comparisons and, important for the present study, individual goal adoption (e.g., R. Ames & Lau, 1982; Karabenick & Knapp, 1991; Rosen, 1983). The goal here was to determine whether these two variables affected the relations between the adoption of students' individual achievement goals and their perception of class goal structure.

Methodological approaches

So far, I have described the importance of achievement goals in the classroom, their regulation, and how classroom structures might affect an individual's goal adoption. This then raises a substantial question about how we can test or measure changes and/or stability in each individual goal orientation. Most research on achievement goals and stability/change of goals has been primarily investigated with two indexes: mean-level change and differential continuity (rank-order stability). These two methods have been used to measure stability and change in personality and its development over time and mainly focus on measurement at the group level (e.g., Samuel et al., 2011; Wortman, Lucas, & Donnellan, 2012). Recently, two additional indexes of stability and change – individual-level change and ipsative continuity (profile consistency) – have been used in areas of human personality research (e.g., Caspi & Roberts, 1999; Roberts, Caspi, & Moffitt, 2001; Specht, Egloff, & Schmukle, 2011). A third, person-centered approach, cluster analysis, has been used to explore intra-individual differences by examining the various learner profiles that emerged within one classroom (Alexander & Murphy, 1998). Particularly, the use of person-centered analytic techniques is important for goal orientation researchers interested in an increasingly popular notion in achievement goal theory, the multiple goal perspective described earlier, because there is still debate regarding which combination of goals leads to the most adaptive outcomes. Each of these indexes yields somewhat different yet complementary data on the questions of stability and change, and the combined use of all indexes can provide a more accurate assessment of goal change and stability. In the following section, I will briefly review each of the five statistical approaches to the stability and change of achievement goals.

Traditional approaches

Rank-order stability (differential continuity). In most of the research on personality, stability or consistency is operationalized as rank-order stability, which refers to the relative placement of individuals within a group over time (Roberts, Walton, & Viechtbauer, 2006). Two different measures (e.g., pre- and post-test) have been used to predict the continuity of same traits. Developmental-oriented personality researchers often evaluate whether individuals maintain their rank-ordering on an attribute over an interval of sufficient length for change to occur meaningfully (e.g., Hopwood et al., 2011; Wortman, Lucas, & Donnellan, 2012). They evaluate the extent to which individual differences persist over time through investigating rank-order stability. Correlation coefficients are commonly used to index whether personality dispositions exhibit trait-like properties – that is, whether they are consistent across time and circumstances.

Some achievement goal studies have adopted the differential continuity position to examine change and stability in goals (e.g., E. M. Anderman & Midgley, 1996; L. H. Anderman & Anderman, 1999; Meece & Miller, 2001). These studies showed positive correlations between scores from two different collection times, which suggests that there is a strong stability among goal orientations. However, the above studies included many different variables such as academic GPA, other motivational variables such as self-esteem, and cognitive variables such as learning strategies. Those research findings cannot be easily generalized in terns of change and stability in achievement goals because the relations might have mixed effects, and there were different patterns between measures found. In the same manner, the hierarchical model of achievement motivation predicts that achievement goals should exhibit relatively high levels of stability, in part, because they are derived from students' enduring temperamental characteristics (Elliot, 2006). A recent review of studies conducted with participants ranging from early elementary school age to college students suggests that achievement goals are relatively stable over time (Senko, Hulleman, & Harackiewicz, 2011).

Mean-level changes. In personality studies, change is most often defined as mean-level change, which refers to whether a group of people increases or decreases on trait dimensions over time (e.g., Roberts et al., 2001). Developmental researchers also evaluate whether there are mean-level changes for individual attributes. Such studies investigate the question of how the average individual in a sample changes over time and are often thought to shed light on normative patterns of development. This type of stability and change is also commonly analyzed with a paired-samples *t* test, within-subject analyses of variance (ANOVA), or multivariate analyses of variance (MANOVA) (E. M. Anderman & Midgley, 1996; Bong, 2005) . This index moves beyond rank-order stability by providing information regarding the absolute amount of change in a construct across multiple assessments, and it is not uncommon for there to be a high degree of differential continuity and considerable mean-level change within the same sample (Gottfried, Fleming, & Gottfried, 2001; Roberts & Pomerantz, 2004).

In the achievement goal literature, each of the studies that have discussed rank-order stability has also examined mean-level change (e.g., E. M. Anderman & Midgley, 1996; L. H. Anderman & Anderman, 1999; Meece & Miller, 2001). Studies found some increases and decreases in each goal's level, and researchers in the achievement goal orientation area have referred to this type of goal change as goal intensification (Muis & Edwards, 2009b; Senko & Harackiewicz, 2005). Upward changes reflect increased endorsement of a particular goal type, whereas downward changes reflect reduced endorsement of that goal type.

Alternative approaches

Individual-level change. Thus far, most theorists have considered stability and change in achievement goal constructs at the level of the sample by referencing summary statistics –retest correlation and mean-level differences. It is also important, however, to investigate individual differences in change. Some individuals may increase endorsement of a particular goal whereas others show a decrease. In addition to being tracked with rank-order stability and mean-level change, change also can be tracked in the structure of trait covariances and in individual differences in change (Mroczek & Spiro, 2003). The existence of individual differences in change qualifies the inference that the individual changes his or her characteristics regardless of in-group property. Furthermore, sample-level stability and change can often be unrelated to person-level stability and change

(Roberts et al., 2006). For example, when there is no mean-level change for a particular achievement goal, there may still be robust individual differences in increases or decreases in the adoptions of goals. With the same manner, substantial rank-order stability can be present for an achievement goal at the sample level, while considerable change is apparent at the person level.

Individual-level change represents the magnitude of increase or decrease in a construct over time exhibited by an individual. This measurement examines stability and change at the level of the single person within the sample, whereas differential continuity and mean-level change examine stability and change at the level of the sample. This type of stability and change has received considerable attention in the clinical psychology literature (e.g., Jacobson & Truax, 1991; Zahodne et al., 2009)), but has been overlooked in educational studies.

In this study, I focused on the reliable change index (RCI) to examine individual level changes, which can be calculated by dividing the difference in Time 1 (T1) and Time 2 (T2) scores by the standard error of the difference score. About 50 years ago, McNemar (1962) suggested that a pre- and post-test change score obtained from a scaled measure was dependable if the absolute value of the observed difference, divided by the standard error of measurement of the difference, exceeded 1.96. Two decades later, Jacobson and Truax (1991) developed a ratio they called the RCI as a means of judging if the observed difference between a pre-test and post-test score for an individual receiving psychotherapy is greater than the difference that would be expected by measurement error, under the null hypothesis of no true change. The RCI is usually presented at the

95% level of confidence, so that if an individual's RCI score exceeds 1.96 in either direction they are judged to be 'reliably improved' or 'reliably decreased'. If an individual's index score falls short of this cut-off, they are categorized as 'unchanged'.

Ipsative continuity. The next approach to studying individual change is ipsative continuity, which represents the level of stability and change exhibited in an individual's configuration of constructs over time. In much the same fashion as individual level change, this method has received attention in the personality psychology literature (e.g., De Bolle, 2009; De Fruyt, Van Leeuwen, Bagby, Rolland, & Rouillon, 2006). In contrast to *rank-order stability* and *mean-level change*, the ipsative continuity is an individual measure of the relative salience of different components over time. To examine the relative position of components, Fryer and Elliot (2007) suggested that ipsative change and stability of a construct can be indicated by shape and scatter. They refer to shape as *profile consistency* and to scatter as *profile dispersion*. In the present study I used both. First, to investigate the profile shape I used Q-correlation, which is a within-person correlation across the achievement goals. This is similar to a Pearson product-moment correlation, but it focuses on the person level rather than the sample level and on configurations of constructs rather than a single construct. A large Q correlation indicates that rank ordering of attributes were consistent over time. On the other hand, a small or negative Q correlation coefficient indicates a change in the relative salience of attributes over time. Second, within-individual standard deviation for each assessment point was used to assess profile scatter. For each individual, the difference score in standard deviation between prior assessment and subsequent assessment reveals the change in dispersion. A positive difference score in standard deviation indicates an increase in profile dispersion over the assessment period. A negative difference indicates that the profile dispersion decreases over time (Fryer & Elliot, 2007).

Cluster analysis. The use of person-centered analytic techniques such as cluster analysis is particularly important for achievement goal researchers interested in the increasingly popular notion in the multiple goals perspective discussed earlier. Cluster analysis is used to identify discriminable, homogeneous groups of students with similar characteristics, that is, to determine the number of clusters that best differentiate groups in a meaningful way (Karabenick, 2003). A large variety of clustering methods have been developed over the last four decades. Unlike correlation and regression procedures, clustering methods can be used to analyze individuals' responses across goal measures and combine individuals into homogeneous subgroups on the basis of their pattern similarity (Meece & Holt, 1993).

Cluster analysis methods have several advantages. First, correlation and experimental studies assess relations between single goals and criterion measures under the assumption that the individuals represent a single population. For example, a number of early studies (e.g., Miller, Behrens, Greene, & Newman, 1993) were limited to simple, correlation approaches that just evaluated the bivariate correlations of each goal with different types of educational outcomes. However, it may be more informative to study how certain combinations of achievement goals related to other variables rather than how each goal relates separately. Cluster analysis methods provide a way to examine the underlying structures of the data and to determine empirically the degree to which the assumption of homogeneity has been achieved.

Second, many past investigations have examined the prevalence and influence of different motivational patterns with a median split procedure. Using the median split techniques, participants are first categorized as 'high' if their score falls above the median on a goal factor or 'low' if their score falls below the median. Although easy to implement, many achievement goals studies reported its limitations and supplemented their median splits with additional analyses (e.g., Kaplan & Midgley, 1997; Meece & Holt, 1993). The most serious problem with median split procedures is an issue with the questionable homogeneity of the cases classified in each profile as well as the problematic use of labels such as 'low' and 'high' to characterize cases falling below and above the median split. Cluster analysis methods go beyond median split procedures to identify structural groupings that provide a satisfactory fit with the data set (Abraham et al., 2007). Much like factor analysis techniques, clustering methods organize the data into the fewest number of units that explain the most variance on the basis of the clustering algorithm selected. The resulting clusters can then be evaluated the basis of theory and prior research.

While some previous studies of learner profiles have used only motivational variables as clustering measures (e.g., Meece & Holt, 1993), others have used both motivational and cognitive variables (e.g., Alexander & Murphy, 1998; Pintrich, 1989). For example, cluster analyses with different achievement goals showed that the patterning of goals within individuals can explain perceived ability and self-reports of strategy use (Meece & Holt, 1993), academic delay of gratification and reported use of motivational regulation strategies (Bembenutty, 1999). Alexander and Murphy (1998) used knowledge, personal interest, and strategic processing as clustering variables. A longitudinal study of Daniel et al. (2010) showed four clusters, representing different goal combinations. Also, the four clusters demonstrated different adaptive profile across all outcomes: cognitive appraisals, achievement-related emotions and objective measures of academic achievement.

Overall, the learner profiles reported in previous studies encompassing not only different clustering variables but also varied student populations and domains seem to indicate at least some measure of consistency, in that they contrast profiles characterized by adaptive levels of motivational beliefs and cognitions with profiles characterized by low levels of motivations and cognitions. In addition, research on learner profiles should move beyond one-time point designs. This is because administering the clustering measures at different points in time makes is possible to examine the malleability or stability of learner profiles over time. However, little has been done about changes or stability of students' profiles over time.

Chapter 3: Method

Statement of Purpose

Diverse theorists and researchers have investigated achievement goals as very important and useful to explain human performance and motivation. And yet, to date, there has been little research about relations between instructional components and change of achievement goals. Most studies have tried to identify motivational and cognitive variable differences related to each goal type separately. In an attempt to understand the complex relationships of tasks and goals in a real classroom, the current study focused on the effects of different instructional components (quizzes, in-class activities, writing assignments, and exams) on students' achievement goals within the trichotomous framework. This research studied the instructional component as an independent variable, using elements of the most wide-used instructional methods in normal school settings, and end of course goals as the outcome variables. This study also examined how an individual's adoptions of achievement goals predicted and related to students' perception of classroom goals.

Research questions

This study addressed the following research questions:

Individual Achievement goals

1. Would students' achievement goals change significantly after exposure to each different type of instructional component in a class?

The first goal of the study was to investigate whether participants' achievement goals would be changed differentially after exposure to instructional components across the semester.

a. Do a student's experiences of in-class quizzes influence the stability or increase the level of each achievement goal toward in-class quizzes?

b. Do a student's experiences of group activities influence the stability or increase the level of each achievement goal toward group activities?

c. Do a student's experiences of writing assignments influence the stability or increase the level of each achievement goal toward writing assignments?

d. Do a student's experiences of taking a major exam influence the stability or increase the level of each achievement goal toward exams?

2. Will each instructional component be associated with an individual's goal switching (changing from one type of goal orientation to another) process?

   a. Are in-class quizzes associated with goal switching from one type of achievement goal to another?

   b. Are group activities associated with goal switching from one type of achievement goal to another?

c. Are writing assignments associated with goal switching from type of achievement goal to another?

d. Are exams associated with goal switching from one type of achievement goal to another?

3. How many clusters can be extracted for individual achievement goals of each instructional component?

    a. Are there any differences between the pre- and post-cluster configurations associated with each instructional component?

    b. Which instructional component shows the steepest increase or decrease in the clusters extracted from the related data?

    c. Are there significant differences between the clusters in terms of other motivational variables?

Perceptions of classroom goals

4. Will students' achievement goals toward each instructional component predict their perception of class goal structures? Is there any difference in the predictions between the beginning and end of semester?

    a. What is the relationship between individual achievement goal adoptions toward each instructional component and perception of a mastery-oriented classroom structure?

b. What is the relationship between individual achievement goal adoptions toward each instructional component and perception of a performance-oriented classroom structure?

Participants

A total of 186 college students (76 males, 110 females) from a lower division educational psychology course (EDP 310 Individual Learning Skills) at a large Southwestern university participated in this study. Each participant was taking one of seven different sections during the fall semester of 2013. In the course students learned effective and efficient learning strategies for successful college life and had multiple opportunities to think about themselves as a learner through diverse learning activities and tasks. More detail information about the class structures will be discussed at following section. Ages of the participants ranged from 18 to 41 (M=19.66, SD=2.19) and their majors were also diverse.

The students were asked to participate in this study with the approval of the university's Institutional Review Board, and they received course credit for their participation, which is one of the requirements for completing the course. For those who did not want to participate in this study, an alternate assignment for course credit was provided. Using G*Power program (Faul, Erdfelder, Buchner, & Lang, 2009), a power analysis was conducted to determine the proper sample size for this study. Cohen's medium effect size (d=.50), power of .95, and the alpha level of .05 showed that the required sample size is 54 for mean-level changes and 89 for multiple regression analyses. Data from 13 of the respondents were excluded from the analysis due to participants' drop or missing data. Thus, 173 participants' set of pre- and post-measures were used to test the research hypotheses.

Measures

Demographic variables

Participants were asked to respond to questions providing information about their demographics, including age, sex, ethnicity, years in school, estimated GPA, major, academic standing (e.g., academic probation), current academic goal(s), and UT EID for purposes of course credit (see Appendix A).

Achievement goals

The student's individual achievement goals were measured using Elliot and Church's (1997) questionnaire to assess participants' adoption of mastery, performance-approach, and performance-avoidance achievement goals in their class. This scale consists of 18 items, six for each achievement goal. Example items are: 'I want to learn as much as possible from this class' (mastery goal); 'My goal in this class is to get a better grade than most of the students' (performance-approach goal) and 'I just want to avoid doing poorly in this class' (performance-avoidance goal). All questions about achievement goals for each instructional component were provided with a proper leading passage based on each instructional task (see an example in Appendix B). When participants were responding to a questionnaire about in-class quizzes, for example, their introductory passage was worded "Here are some questions about yourself in terms of in-class quizzes in this class. Respond to each of the following statements by indicating how true each statement is for your perception toward the quizzes in this class so far." All participants were asked to respond to achievement goal measures with different instructions for different instructional components. All questionnaires were gathered with Likert type self-report measures for pre- and post-assessment. (1= totally disagree; 5= totally agree).

In terms of using achievement goals measures, there is disagreement in the literature about the core element of performance approach goals (Senko, Hulleman, & Harackiewicz, 2011). Some believe it is the desire to demonstrate competence (e.g., Grant & Dweck, 2003; Kaplan & Maehr, 2007). Others believe it is the desire to outperform peers (e.g., Duda, 2005; Senko & Harackiewicz, 2005). Accumulating evidence reveals that the two types of performance approach goals can be differentiated and in fact may yield different effects (Grant & Dweck, 2003). For example, Hulleman et al. (2010) reviewed 98 studies of performance approach goals and systematically coded the content of items. The average correlation between performance approach goals and academic achievement was positive when the majority of the items emphasized normative comparisons but negative when they emphasized competence demonstration. Elliot and Church's achievement goal measures (1997) are positively associated with achievement, whereas competence-demonstration goal measures like the Patterns of Adaptive Learning Scales (Midgley et al., 2000) are not. Thus, I adopted Elliot and Church's achievement goals questionnaire for this study.

Perception of classroom goals

To investigate how students perceived their classroom goal structures, I used 12 items assessing students' perceptions of classroom mastery and performance goals. Urdan (2004) developed the questionnaire based on existing class goal measures (Midgley et al., 2000) and it showed acceptable internal reliability (α=.87 and .89). Sample items from the classroom mastery and performance goal structure scales included respectively "In this class, it is important to understand concepts, not just memorize them." and "In this class, getting a good grade is the main goal." All of the items are presented in Appendix C. Confirmatory factor analysis (CFA) was conducted with the perceptions of classroom goals items in order to confirm that these items differentiated between two distinct factors with minimal cross-factor loadings.

Individual theory of intelligence (TOI) and Academic help-seeking (HS)

To measure individual theories of intelligence and academic help-seeking, I adopted Abd-El-Fattah and Yates (2005)'s 14 items and Newman(1990)'s 12 items each. The items for theories of intelligence were developed with two different perspectives on intelligence, entity (or fixed) intelligence and malleable (or incremental) intelligence. Sample questions were "You can develop your intelligence if you really try" for incremental theory, and "You are born with a fixed amount of intelligence" for entity theory. The two scales proved to be appropriate with a satisfactory goodness of fit and internal reliability.

The academic help-seeking questionnaire consists three types of relevant help-seeking behaviors, instrumental, executive, and avoidant help-seeking. Sample items for each behavior were "If I ask other students for help with something I do not understand, I want them to help me find the answer myself and not give the answer to me" for instrumental, "When I ask the instructor for help on something I do not understand, I want the instructor to give me the answer rather than explain it to me" for executive, and " "If I am having difficulty completing an assignment for class, I do no ask for help" for avoidant help-seeking behavior. All items of the theory of intelligence and academic help-seeking behaviors are presented in Appendix D and E respectively.

Class setting

All participants were enrolled in one of the 7 EDP 310 – Individual Learning Skills- sections. The course consists of 7 sections of approximately 28 students each, each section led by one of five instructors. This class is designed to help students become more strategic learners. Thus, the class provides students with knowledge and skills that they can use immediately to help them be more successful at college. This course has the following objectives: 1) develop awareness of students' current learning and study strategies and methods in order to identify and assess their personal strengths and areas, 2) set learning goals and use these goals to guide students' studying, and monitor their progress toward achieving their goals, 3) build a repertoire of learning strategies and skills useful for a variety of learning tasks, and 4) become a more strategic learner who is motivated to learn, understands how to study and learn effectively and efficiently, and understands how to manage his/her studying and learning activities.

In this course, students are assigned four major types of tasks (each task is worth 150 points except for the in-class activities, which total 100 points) as follows:

1. Three exams – Two exams have 14 multiple-choice and 4 short-answer questions for 50 min and the cumulative final exam, which consists of only multiple-choice items completed in class for approximately 3 hours. (For more detail information about each instructional task, please refer to the syllabus for the course found in Appendix F).
2. Four writing assignments - For the writing assignments, students were asked to finish a long individual project, which was an opportunity to apply the systematic approach to setting and achieving their goals. This project was broken up into four writing parts, which were a learning autobiography, a goals and strategies proposal, an implementation, monitoring, and modification report, and a final summative evaluation paper. All students were given a scoring rubric as a guide for completing the assignments, and all instructors shared responsibility for all the grading.
3. Ten in-class quizzes - Brief quizzes were administered at the start of class on days marked in the course schedule. These quizzes were designed to help students prepare for the class, guide how they should read to comprehend their textbook, and help them consolidate the information they get from class.

4. Eight or more in-class activities - This course is interactive and requires students' active and thoughtful participation in class activities, small and large group discussions, and group work. There is either an individual or a group in-class activity or discussion each period, and participation points are earned by actively taking notes during class and by thoughtfully contributing to in-class activities and discussions.

All participants from 7 sections were exposed to exactly the same content at the same pace in each class, and details for teaching the class were discussed and determined during a weekly instructor meeting to ensure continuity.

Procedure

During the first three days of the class, students received a detailed syllabus with course instruction and expectations from their instructor. On the last day of introduction week, participants were asked to respond to their first measure, which was the pre-assessment of their beginning perceptions of the classroom goals. The procedures were approved by the Institutional Review Board for obtaining informed consent and all measures for the study. Participants were told that the experiment would be ongoing for the whole semester but they could withdraw without penalty if they were unable or reluctant to participate. Informed consent and demographic information were obtained from participants before the beginning of the experimental procedures. Collection of achievement goals were spread throughout the semester as follows (Figure 1):

Pretest of Classroom Goal Perceptions - Once the preliminary information had been collected, the perceptions of classroom goal survey was administered. Students were asked to respond to 12 items about their perceptions of the classroom goals based on the course syllabus, the first week classes, and other possible information.

Pre-assessment of individual achievement goals toward each instructional component The pre-assessment of individual achievement goals surveys were administered one or two classes before the first time the class experienced each component task (quiz, in-class activity, paper, and exam) so that the responses would not be influenced by any performance feedback.

Post-assessment of individual achievement goals toward each instructional component With the same logic as above, post-assessment of individual achievement goals surveys were administered to students after each task (quiz, in-class activity, paper, exam) was completed for the last time in the semester during their regularly scheduled course.

Post-Classroom Goal Perceptions were collected with the final course evaluation during the last week of the class.

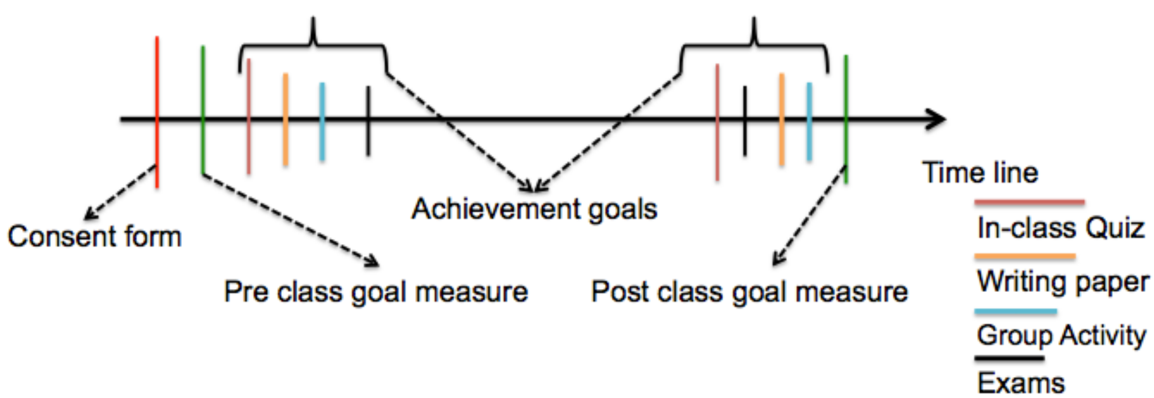


Figure 1: Research time line

Research hypotheses and rationales

Hypothesis 1. It was hypothesized that participants' level of each achievement goal orientation would change over time and the mean-level changes in goals would be different based on specific instructional tasks being evaluated.

Hypothesis 1(a). The level of performance-avoidance goal toward writing a paper and the in-class activities would be significantly decreased.

Hypothesis 1(b). The level of performance-avoidance goal toward taking an exam would be significantly increased, but there would not be significant change in performance-avoidance in taking short quizzes.

Hypothesis 1(c). There would be no change in the adoption of performance-approach goals toward writing a paper and participating in-class activities.

Hypothesis 1(d). The adoption of performance-approach goals for both taking an exam and in-class quizzes would be increased significantly.

Hypothesis 1(e). There would be no change in mastery goal adoptions except toward taking an exam. Participants' level of adopting mastery goal for exams would be significantly decreased.

Rationale 1. The main goal for this study was to examine if participants' individual achievement goals for the various instructional tasks would be changed by engaging in them. The investigation of the analysis for the mean-level changes was conducted with series of paired t-tests and/or simple correlations. As past research suggested, participants might simply intensify or reduce their pursuit of one goal without any concurrent adjustments to their pursuit of other goals (Senko & Harackiewicz, 2005).

In addition, various aspects of the classroom environment, such as evaluative structure, the frequency of performance evaluation, and the skill of the instructor, represent stable factors that influence achievement goal adoption (Ames, 1992; Urdan & Turner, 2005). Most classroom-based research has shown that mastery goals are decreased and performance-avoidance goals are increased significantly over time (Fryer & Elliot, 2007; Muis & Edwards, 2009a; Senko & Harackiewicz, 2005). But, I suggest that there might be different patterns of changes in goal adoptions for different activities in the class. For example, taking an exam in class is likely to increase performance-avoidance and decrease mastery goals because the task is relatively related to test-anxiety, and students will perceive the task as a more normative situation. However, writing a paper, doing in-class activities, and even taking an in-class quiz might not decrease students' pursuit of mastery goals in their learning because these instructional tasks have a lighter pressure on students. That is, even though all instructional tasks are competence-relevant and important to students in terms of having better grades in the registered course, some tasks would not produce increases in performance-avoidance goals and decreases in mastery goals.

Hypothesis 2. It was hypothesized that many participants would show reliable changes in individual goal endorsement for each instructional component between pre- and post-assessment.

Hypothesis 2(a). Even though the analyses of mean-level change would show consistent decreases in mastery goal adoptions, RCI would identify that there were no changes and some increases in mastery goals toward writing a paper and participating in in-class activities.

Hypothesis 2(b). The level of performance-avoidance goals toward taking an exam would be increased overall, whereas participants would show no change in RCI of performance-avoidance goals toward other tasks.

Hypothesis 2(c). Many students would show increases in RCI of performance-approach goals toward all instructional task conditions except engaging in in-class activities.

Rationale 2. This is an exploratory hypothesis, as there is no current research on effects of instructional tasks on the changes and stability in achievement goals. The few research studies on individual (or person-perspective) changes in achievement goals have shown that there is strong research consistency on decreases in mastery goals (e.g., Fryer & Elliot, 2007; Muis & Edwards, 2009). However, the results of these studies were strongly influenced by competence-relevant feedback, such as "good" or "bad". If students got positive feedback on a task, for example, they showed no change or not significant changes in mastery goal adoption. However, if they got negative feedback on the same task, their RCI in mastery goals showed significant decreases. In addition, there is not research consistency on changes and stability in both performance-relevant goal orientations.

Hypothesis 3. It was hypothesized that a series of cluster analyses could identify groups of students who endorse theoretically meaningful combinations of trichotomous achievement goals.

Hypothesis 3(a). Many participants would show changes in their clusters of achievement goals between pre- and post-assessment. Some of them would show different results with traditional analytic approaches or individual-level analytic approaches.

Hypothesis 3(b). Regardless of instructional components, I expected that participants' achievement goals would have the same numbers of cluster analysis solutions.

Hypothesis 3(c). Based on the extracted combinations of achievement goals, I hypothesized that a low-motivation cluster (i.e., low mastery and low performance-avoidance) would have low mastery classroom goal perceptions. However, I expected high-motivation or moderate-motivation clusters to have different perceptions of classroom goal structures.

Rationale 3. Even though there are some investigations of achievement goals through cluster analysis, no one has focused on changes in clusters with a longitudinal approach. Most of past studies have relied on finding which combination(s) of the multiple-goal perspective was the most or least adaptive for learning process (or strategies) and achievement outcomes (e.g., Alexander & Murphy, 1998; Daniels et al, 2007; Wang, Biddle, & Elliot, 2007). And, the previous research has used only one-time measures with domain-general questions. However, in the current research I attempted to illuminate changes in goal clusters toward specific instructional tasks during a full academic semester. Also, I would be able to determine whether each individual has different goal clusters toward different instructional tasks.

Hypothesis 4. It was hypothesized that participants' perceptions of classroom goals would be predicted with their individual goal pursuit of instructional tasks, and each class goal would have different significant predictors.

Rationale 4. This is also an exploratory hypothesis, as there is no current research on relations between individual goals and perceptions of classroom structures. As discussed above, the *indirect effect model* posits that classroom goal structures indirectly influence achievement-relevant outcomes through their impact on the adoption of personal achievement goals. For example, the previous research on the *indirect effect model* indicated that a mastery goal structure was a positive predictor of students' adoption of personal mastery goals, but that a performance goal structure (particularly, performance-approach) was not related to achievement goal adoption of any sort (Murayama & Elliot, 2009). Still, there was reason to believe that individual goal adoption toward each classroom task could predict a student's perceptions of classroom goals.

Chapter 4: Results

Preliminary data analysis

Before submitting these data to statistical analysis procedures, I inspected the univariate distributions of all variables, to ensure that they were approximately normal. The reliability of the instruments was calculated by a common psychometric measure of test and scale reliability, Cronbach's alpha, which was calculated for each measure in the study to assess internal consistency of the instruments. The measures' reliability coefficients range from .71 to .90, which are strong. However, the coefficients for instrumental help-seeking behavior and fixed theory of intelligence questionnaires were somewhat low, .67 and .67 respectively. An inter-correlation matrix was used to assess the linearity assumption, determining if the dependent variable measures (individual trichotomous goals and perceptions of classroom goal structures from PALS) were independent. I found some significant correlation coefficients among the dependent variables, but those correlations make sense within the theoretical foundations of the study (e.g., students with high mastery goals toward specific instructional tasks are likely to have high perceptions of mastery goal orientation toward their classroom.) According to Keith (2006), for trustworthy results and reliable interpretations of regression coefficients, the assumptions underlying multiple regression analysis should be checked and met (i.e., multivariate normality, linearity, homoscedasticity and homogeneity of variance). There was no violation found for this study.

CFAs were conducted using the M*plus* (version 6) statistical program (Muthen & Muthen, 2010). Maximum likelihood estimation was chosen based on the normality of the univariate statistics, and model fit was evaluated using the following indices: Chi-square statistics (χ^2), Comparative Fit Index (CFI), Root Mean Squared Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). The χ^2 goodness-of-fit statistic is the traditional measure for evaluating overall model fit and assesses the magnitude of discrepancy between the sample and fitted covariance matrices (Hu & Bentler, 1999). All measures' associated *p*-values were significant at values of less than .001, which means the overall model fit is not great. However, other fit indices showed acceptable fit. Specifically the values for this statistic range between 0.0 and 1.0 with values closer to 1.0 indicating good fit. A cut-off criterion of CFI is .90. All measures showed acceptable fit for CFI except pre-measures for class goals and paper. The RMSEA tells us how well the model, with unknown but optimally chosen parameter estimates, would fit the population's covariance matrix (Byrne, 2013). Recommendations for RMSEA cut-off points have ranged from .05 to .10. This range was considered an indication for fair fit and all measures were in the range. More recently, a cut-off value close to .08 or .07 seems to be the general consensus choice (Hooper, Coughlan, & Mullen, 2008). Finally, the SRMR is the square root of the difference between the residuals of the sample covariance matrix and the hypothesized covariance model. Values for the SRMR also range from 0.0 to 1.0 with well fitting models obtaining values less than .05 (Byrne, 2013); however values as high as .08 are acceptable (Hu & Bentler, 1999).

Table 3: Confirmatory factor analysis results

Pre-measures	χ^2	CFI	RMSEA	SRMR
Class Goal	119.38^{***}	.86	.08	.07
Activity	260.53^{***}	.90	.08	.08
Paper	271.20^{***}	.85	.08	.08
Quiz	274.02^{***}	.90	.08	.08
Exam	192.21^{***}	.95	.05	.06
Post-measures	χ^2	CFI	RMSEA	SRMR
Class Goal	92.42^{***}	.93	.06	.07
Activity	295.76^{***}	.90	.09	.07
Paper	292.43^{***}	.92	.08	.08
Quiz	253.73^{***}	.92	.07	.07
Exam	202.04^{***}	.95	.06	.07

Note. $^{***}p < .001$

Primary Data Analyses

Descriptive statistics for pre- and posttest achievement goals toward each instructional component and perceptions of classroom goals were obtained for the entire sample. In order to investigate goal intensification and goal switching, I adopted five complementary statistical analytic procedures: differential continuity, mean-level change, reliable change index (RCI), profile consistency, and cluster analysis.

Differential continuity – Which instructional component(s) shows stability on individual achievement goals adoption?

First, differential continuity was measured with a Pearson product-moment correlation, which is the most common type of analysis used to assess stability. Table 4 shows that there were moderate or high correlations between pre- and post-achievement goals for each instructional component, and all coefficients were significant at the .01 level. This means that each achievement goal for each student was stable regardless of the instructional component and across an entire academic semester.

Table 4: Correlation coefficients between pre- and post-measures

	Activity	Paper	Quiz	Exam
MAS	$.58^{**}$	$.67^{**}$	$.71^{**}$	$.69^{**}$
PAP	$.69^{**}$	$.67^{**}$	$.78^{**}$	$.77^{**}$
PAV	$.63^{**}$	$.55^{**}$	$.62^{**}$	$.65^{**}$

Note. MAS = mastery; PAP = performance-approach; PAV = performance-avoidance, $^{**}p < .001$.

Mean-level changes – Which instructional component shows significant changes in each achievement goal?

Next, mean-level changes over time were tested with a series of paired-sample *t*-tests. Structural stability needs to be tested before any mean-level changes are interpreted, because it is critical to know that the construct being studied was measured consistently across occasions. As discussed above, all scales had acceptable fit. A series of paired *t-tests* were used to calculate mean-level change in achievement goal endorsement between the two time points of each instructional component. Table 5 displays mean-level change of achievement goals over time. All achievement goals showed significant decrease in each level except goals toward the exams.

I did not find statistically significant decrease for the performance-avoidance goal toward in-class quizzes, but the measure still showed decrease in the performance-avoidance goal. With regard to the exam in this study, more interestingly, mastery goals increased significantly whereas performance-avoidance goals decreased. Participants' performance-approach goals toward exams increased slightly, but not significantly.

Table 5: Descriptive statistics and mean-level change

	T1		T2	
	Goals	M(SD)	M(SD)	*t* (Cohen's d)
Activity	MAS	4.10(.68)	3.95(.84)	-2.72^{*}(.21)
	PAP	2.98(.97)	2.74(1.08)	-3.77^{**}(.29)
	PAV	2.75(.75)	2.49(.78)	-5.19^{**}(.39)
Paper	MAS	4.09(.59)	3.75(.88)	-6.38^{**}(.51)
	PAP	2.98(.94)	2.83(1.09)	-2.27^{*}(.18)
	PAV	2.93(.78)	2.73(.86)	-3.41^{**}(.26)
Quiz	MAS	3.97(.67)	3.77(.85)	-4.39^{**}(.34)
	PAP	2.99(1.06)	2.84(1.10)	-2.68^{*}(.21)
	PAV	3.04(.75)	2.95(.84)	-1.80(.14)
Exam	MAS	3.87(.73)	3.98(.78)	2.43^{*}(.19)
	PAP	2.82(1.06)	2.90(1.11)	1.46(.11)
	PAV	3.12(.83)	2.81(.84)	-5.89^{**}(.45)

Note. T = time; MAS = mastery; PAP = performance-approach; PAV = performance-avoidance. $^{*}p < .05$, $^{**}p < .001$.

Reliable change index (RCI) – At the individual-level perspective, how many students changed their achievement goal adoption toward each instructional component?

Both procedures discussed above allow for an examination of group level change in goal intensity and the magnitudes of those changes, which can be compared across the various contextual changes. RCI and profile consistency allow for an assessment of whether an individual showed a significant increase, decrease or no change in scores from one time to the next. First, I calculated RCIs (dividing differences by each standard error of the difference score) to determine whether individual participants showed reliable change in goal endorsement between time points across instructional components. Table 6 shows the percentages of participants who showed a reliable decrease (RCI values smaller than -1.96), a reliable increase (RCI values greater than 1.96), or no reliable change for each comparison of conditions. It can be seen that 90% or above of participants showed individual-level stability in trichotomous goals for all instructional components except mastery goals for quizzes (88% shows stability for this last component).

Table 6: Reliable changes index in achievement goal endorsement

	T2 – T1			
	Goals	% decrease	% same	% increase
Activity	MAS	6.9	91.3	1.7
	PAP	9.2	90.2	.6
	PAV	5.2	93.6	1.2
Paper	MAS	8.7	91.3	.0
	PAP	6.9	91.3	1.7
	PAV	6.4	91.9	1.7
Quiz	MAS	10.4	88.4	1.2
	PAP	5.2	93.6	1.2
	PAV	4.6	92.5	2.9
Exam	MAS	2.9	92.5	4.6
	PAP	3.5	92.5	4.0
	PAV	5.8	92.5	1.7

Note. T = time; MAS = mastery; PAP = performance-approach; PAV = performance-avoidance.

Ipsative continuity - Through individual-level perspective, how many students show stability in individual achievement goal adoption toward each instructional component?

Finally, in order to explore goal switching, I examined each individual's goal profile consistency and profile dispersion across each of the instructional components. To examine overall profile consistency, descriptive statistics of profile consistency were computed. Table 7 presents the estimates of profile consistency for each comparison of the four instructional components. The mean profile consistency was generally high, ranging from .81 to 91. This means that the configuration of achievement goal dimensions in most participants remained stable over the academic semester. To test whether the sample of profile consistency differed significantly from zero, *t* tests were conducted for each achievement goal of the four conditions. The null hypothesis was rejected for all comparisons (all *p*-values less than .001 level), suggesting that the mean level of profile consistency for each achievement goal is significantly different from zero.

Table 7: Profile consistency for each instructional component

	T2 – T1			
	Goal	Observed min	Observed max	Observed mean
Activity	MAS	-.69	1.00	.73
	PAP	-.85	1.00	.89
	PAV	-.95	1.00	.87
Paper	MAS	-.96	1.00	.85
	PAP	-.99	1.00	.90
	PAV	-.85	1.00	.82
Quiz	MAS	-.89	1.00	.85
	PAP	-.96	1.00	.91
	PAV	-.1.00	1.00	.84
Exam	MAS	-.93	1.00	.81
	PAP	-.97	1.00	.82
	PAV	-.86	1.00	.83

Note. T = time; MAS = mastery; PAP = performance-approach; PAV = performance-avoidance.

To determine whether the profile dispersion increased over time, the standard deviation for each individual within a time point was subtracted from the standard deviation for the subsequent time point over each achievement goal for the four instructional components. Table 8 presents the estimates of the profile dispersion for adoptions of each goal orientation. Although the observed profile dispersion revealed a wide range, all profile dispersions were close to zero. This result indicates that the overall profile dispersion remained stable over time.

Table 8: Profile dispersion for each instructional component

	T2 – T1			
	Goal	Observed min	Observed max	Observed mean
Activity	MAS	-1.21	1.37	.10
	PAP	-1.66	1.97	.04
	PAV	-1.78	1.60	.10
Paper	MAS	-1.22	1.52	.03
	PAP	-1.55	1.60	.08
	PAV	-1.42	1.17	.09
Quiz	MAS	-2.04	1.03	.02
	PAP	-1.67	1.63	.02
	PAV	-1.21	1.33	.06
Exam	MAS	-1.42	1.03	.10
	PAP	-1.67	1.63	.02
	PAV	-1.22	1.22	-.01

Note. T = time; MAS = mastery; PAP = performance-approach; PAV = performance-avoidance.

Cluster analysis – Which students have similar patterns of achievement goals for class goals or instructional components and do the patterns change pre- to post-test?

In order to facilitate the interpretation of clusters, the scales were standardized through Z-transformation before being entered into the cluster analysis. The standardization prevents variables measured in larger units from contributing more towards the distance measured than the variables utilizing smaller units in the cluster analysis. Generally speaking, there are two different types of cluster analysis, hierarchical and k-means cluster analysis. Hierarchical cluster analysis identifies groups of students with similar achievement goal characteristics using Ward's method and squared Euclidean distances. This method can minimize the within-cluster differences but is sensitive to outlier values (Aldenderfer & Blashfield, 1984). On the other hand, K-means cluster analysis lets users assign the number of expected clusters based on relevant theory or research questions. For this study, hierarchical cluster analysis with Ward's method was performed, and then, k-means cluster analysis was conducted with the cluster information found. The combination technique of using two methods was recommended by recent theorists because it could have better validity for data structures and fulfill criteria (e.g., Panitz, 2010). Based on existing theory, and in order to retain reasonably large and even sample sizes in each cluster (Alexander & Murphy, 1998; Braten & Olaussen, 2005; Bembenutty, 1994), I selected different cluster solutions for each analysis as the most meaningful. Then, I tracked changes in cluster memberships from pre- to post-test.

Perceptions of class goals. Final cluster centroids for the pre- and post-class goals are presented in Table 9. Each centroid represents the physical "center" of the cluster and is identified by the average of all the scores constituting the cluster. The interpretation of clusters membership should be grounded in achievement goal theory discussed in the literature review chapter. Aiding the interpretation and labeling of each cluster, I inspected centroids to consider the distribution of mastery and performance goals within each cluster and relative to the other clusters.

Table 9: Cluster centroids for class goals

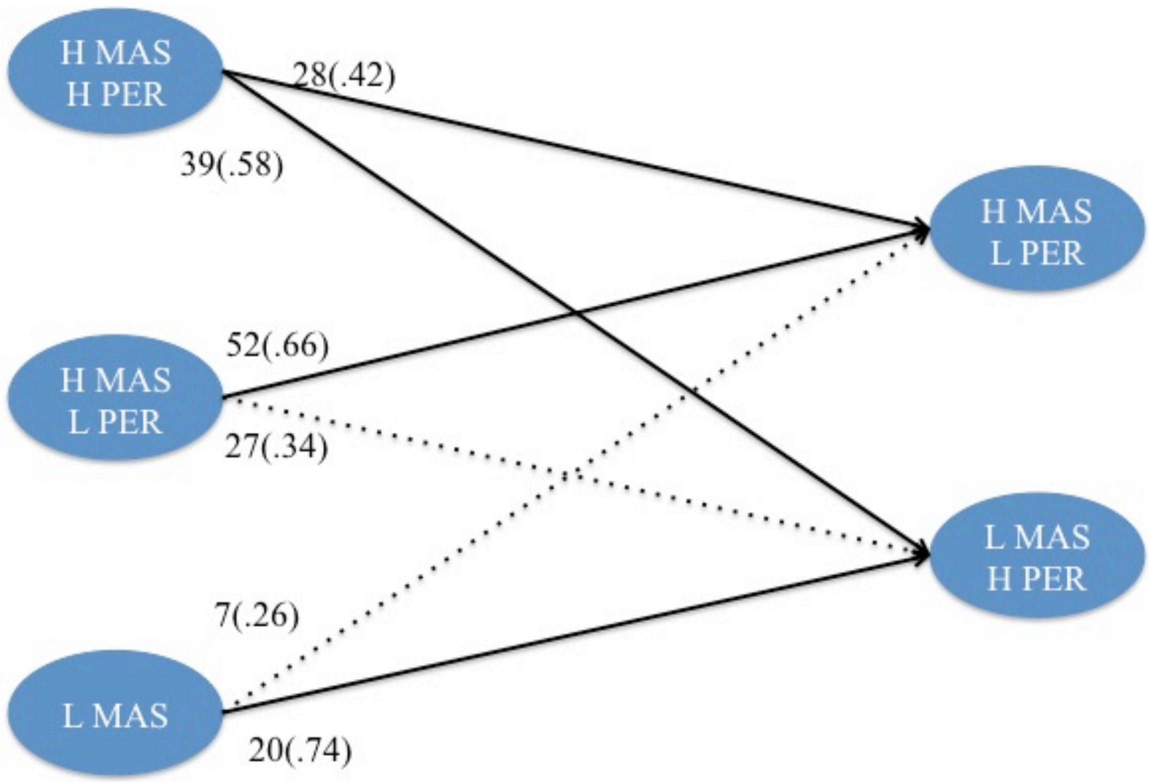
Pre-class goals	Cluster 1: High MAS High PER	Cluster 2: High MAS Low PER	Cluster 3: Low MAS
Mastery	.32	.36	-1.84
Performance	.91	-.80	.08
n	67	79	27
Post-class goals	**Cluster 1: High MAS Low PER**	**Cluster 2: Low MAS High PER**	
Mastery	.50	-.51	
Performance	-.72	.72	
n	87	86	

Note. MAS = mastery; PER = performance.

For the perceptions of pre-class goals, I found three clusters. The first cluster was characterized by students who perceived high mastery and performance goals for their class, and hence was labeled as a "*high mastery, high performance class goals*". The second cluster suggested endorsement of "*high mastery, low performance class goals*". The final cluster for pre-class goals suggested endorsement of predominantly low mastery, named as a "*low mastery class goals*".

In the case of post-class goals, students were categorized into only two clusters; cluster 1 consisted of students with a "*high mastery, low performance class goals"* profile and cluster 2 had a "*low mastery, high performance class goals*" profiles. I was also interested in the shifts that occurred in individual participants who constituted the different clusters at pre- and post-test. For instance, what happened to those students who began the semester with a high level of multiple goals or a high level of only performance goals perceptions? Figure 2 showed changes and stability in cluster membership of perceptions of class goals. Students who perceived their class at the beginning as high mastery and high performance oriented moved to either high mastery and low performance (*n*=28, 42.8%) or low mastery and high performance (*n*=39, 58.2%). If students had high mastery and low performance class goals at the beginning, 65.8% of them maintained their class goal perceptions (*n*=52) while 27 students (34.2%) switched their class goal perceptions to low mastery and high performance. Finally, students with low mastery oriented class goals remained as low mastery but high performance class goal cluster (*n*=20, 74.1%). Only a few students (*n*=7, 25.9%) changed to high mastery and low performance class goals cluster at the post-test.

Figure 2: Representation of changes in cluster membership for class goals, with number (and relative proportion) of students moving from pre- to post-cluster.



Achievement goals toward in-class activities. Table 10 shows the final cluster centroids for the pre- and post-achievement goals for in-class activities. I found four clusters for each pre- and post-measure of achievement goals toward activities. For the pre-measures, cluster 1 was characterized as a "*high mastery, low performance goals*" profile and cluster 2 consisted of students with a "*all low goals*" profile, in which all achievement goal scores are less than -.40. Cluster 3, labeled "*all high goals*", consisted of students who adopted all high achievement goals toward in-class activities. Finally, cluster 4 was characterized by students who reported "*high performance-approach, low* *performance-avoidance goals*". The cluster analysis results for post-measures kept three same cluster profiles, which were "*all high goals*", "*all low goals*", and "*high mastery, low performance goals*". However, I found a slightly different cluster, which consisted of students with "*high mastery, high performance-approach, low performance-avoidance goals*". Then, I investigated changes in clusters from pretest measures to posttest measures for individual achievement goals in activities.

Table 10: Cluster centroids of achievement goals for in-class activities

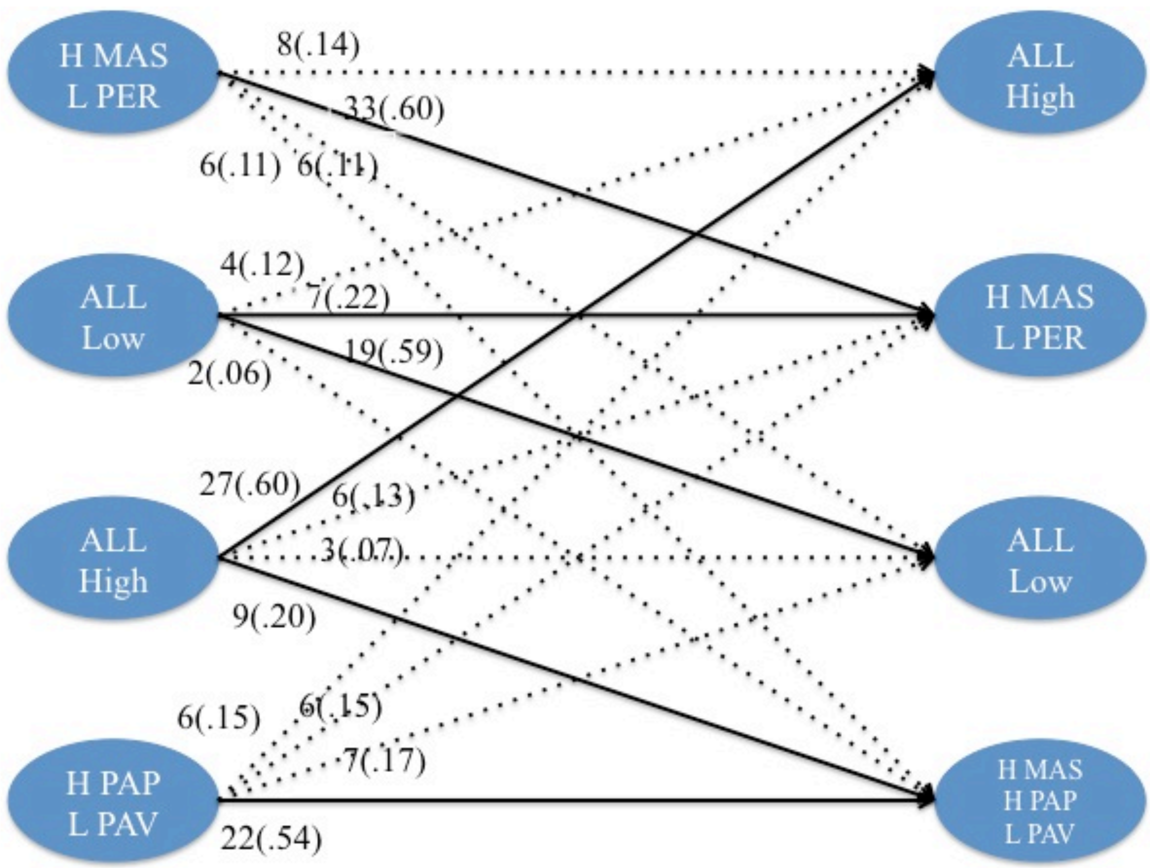
Pre-measures	Cluster 1: High MAS Low PER	Cluster 2: ALL Low	Cluster 3: ALL High	Cluster 4: High PAP Low PAV
MAS	.60	-1.51	.31	.02
PAP	-.79	-.57	.63	.82
PAV	-.53	-.40	1.22	-.31
n	55	32	45	41
Post-measures	**Cluster 1: ALL High**	**Cluster 2: High MAS Low PER**	**Cluster 3: ALL Low**	**Cluster 4: High MAS High PAP Low PAV**
MAS	.22	.52	-1.42	.32
PAP	.32	-.86	-.48	1.15
PAV	1.19	-.79	-.14	-.27
n	45	52	35	41

Note. MAS = mastery; PER = performance; PAP = performance-approach; PAV = performance-avoidance.

Figure 3 shows changes in cluster membership for achievement goals toward in-class activities. Students with “*all high goals*” and “*all low goals*” for in-class activities at the beginning of the class were likely to keep their goals profile at the posttest (*all high* *goals* = 27 (60%), *all low goals* = 19 (59%)). However, nine students (45%) of "*all high goals*" reduced only performance-avoidance goals after a series of in-class quizzes, whereas six students (13.3%) reduced both performance goals but continued holding high mastery goals toward in-class quizzes.

In the case of changes in "*all low goals*" students, seven students (22%) increased only their mastery goals and continued holding low performance goals and only a few students (*n*=4, 12.5%) shifted to "*all high goals*" at the post-measures of activity achievement goals. Similarly, most of students (*n*=33, 60%) in "*high mastery, low performance goals*" didn't change their goal profile at the posttest. However, I found that some students shifted from "*high mastery, low performance goals*" profile to "*all high goals*" (*n*=8, 14.5%) and "*high mastery, high performance-approach, and low performance-avoidance goals*" (*n*=8, 14.5%). Finally, a large number of students (*n*=22, 53.7%) in "*high performance-approach, low performance-avoidance goals*" cluster increased only mastery goals holding their performance goals profile toward in-class activities. Also, six students (14.6%) of this cluster moved to "*high mastery, low performance goals*" and another six students shifted to "*all high goals*" at the post-measures. However, seven out of 41 students moved to "*all low goals*" profile.

Figure 3: Representation of changes in cluster membership for achievement goals toward in-class activities, with number (and relative proportion) of students moving from pre- to post-cluster.



Achievement goals toward papers. Table 11 shows the final cluster centroids for the pre- and post-achievement goals toward writing a paper. The analysis used four clusters for pre-measures and five clusters for post-measures of achievement goals. For the pretest, cluster 1 was characterized as a "*high mastery, high performance-approach, low performance-avoidance goals*" profile, in which mastery and performance-approach goals scores are greater than .60 but performance-avoidance goals are less than -.30.

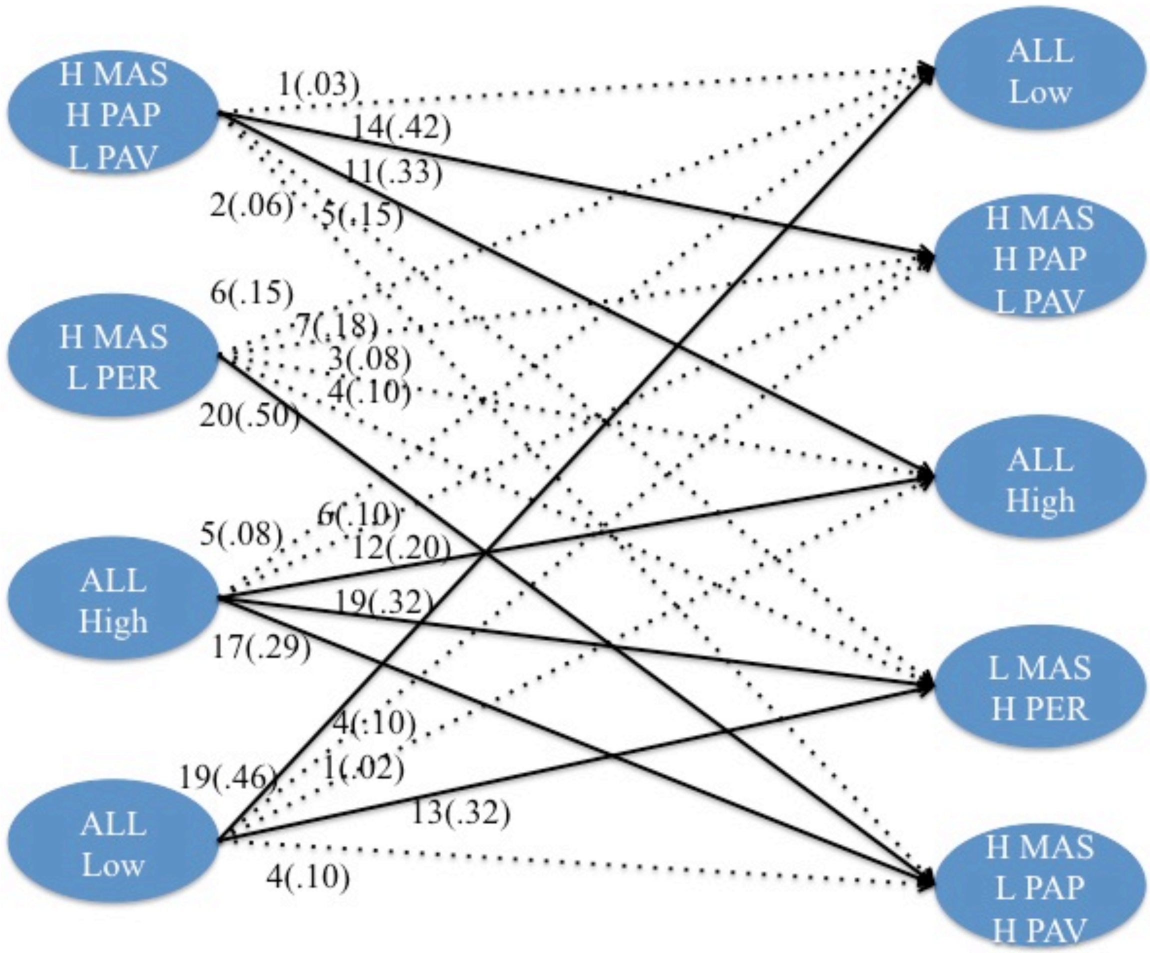
Cluster 2 consisted of students with a "*high mastery, low performance goals*" profile, in which mastery goal scores are greater than .50 whereas two types of performance goals are less than -.80. Cluster 3 and 4 were named as "*all high goals*" and "*all low goals*" profile respectively. For the post-measures, I found three of the same profiles (cluster 1 – 3); "*all high goals*", "*high mastery, high performance-approach, low performance-avoidance goals*", and "*all low goals*". Cluster 4 was characterized by students who reported low mastery but high performance-approach and performance-avoidance goals, hence was labeled a "*low mastery high performance goals*". Finally, cluster 5 suggested endorsement of mastery and performance-avoidance goals and hence was labeled a "high mastery, low performance-approach, high performance-avoidance goals".

Table 11: Cluster centroids of achievement goals for papers

Pre-measures	Cluster 1: High MAS High PAP Low PAV	Cluster 2: High MAS Low PER	Cluster 3: ALL High	Cluster 4: ALL Low	
MAS	.67	.59	.14	-1.32	
PAP	1.21	-.85	.25	-.51	
PAV	-.34	-.81	.97	-.33	
n	33	40	59	41	
Post-measures	**Cluster 1: ALL Low**	**Cluster 2: High MAS High PAP Low PAV**	**Cluster 3: ALL High**	**Cluster 4: Low MAS High PER**	**Cluster 5: High MAS Low PAP High PAV**
MAS	-1.04	.51	.49	-.81	.84
PAP	-1.03	.59	1.31	.17	-.67
PAV	-.95	-.92	.72	.59	.33
n	31	31	27	41	43

Figure 4 shows changes and stability in cluster membership for achievement goals toward writing a paper. Most of students in the "*high mastery, high performance-approach, low performance-avoidance goals*" profile kept their goals (*n*=14, 42.4%) or increased their performance-avoidance goals while holding the others steady (*n*=11, 33%). In the case of the "*high mastery, low performance goals*" profile, half of the students (*n*=20) increased their performance-avoidance goals while holding the other goals constant, and some students (*n*=7, 17.5%) increased only performance-approach goals, or shifted to "*all low goals*" profile (*n*=6, 15%) at the post-measures. Only 20 percent (*n*=12) of students in the "*all high goals*" profile remained at the same cluster, whereas 19 students (46.3%) of "*all low goals*" kept their all low achievement goals at the posttest. On the other hand, many students in the "*all high goals*" cluster decreased only the level of mastery goals (*n*=19, 32.2%) or performance-approach goals (*n*=17, 28.8%) while holding the others constant. Finally, 13 students (31.7%) of "*all low goals*" profile increased performance-approach and performance-avoidance goals at the post-measures of achievement goals.

Figure 4: Representation of changes in cluster membership for achievement goals toward papers, with number (and relative proportion) of students moving from pre- to post-cluster.



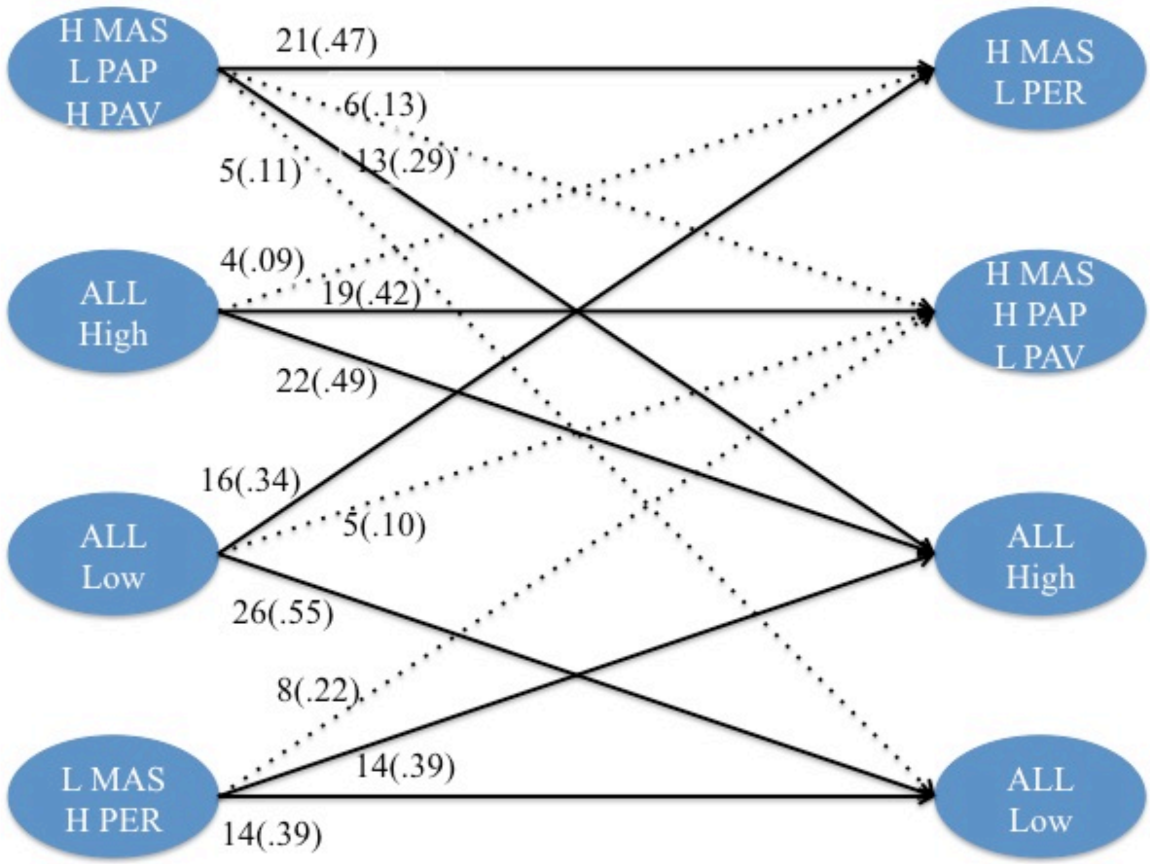
Achievement goals toward quizzes. Table 12 shows the final cluster centroids for the pre- and post-achievement goals toward quizzes. The result shows that pre- and post-achievement goal orientation toward quizzes can be clustered with four profiles each. For the pretest of achievement goals, cluster 1 was labeled as a "*high mastery, low performance-approach, high performance-avoidance goals*" and cluster 2 consisted of students with high levels of all achievement goals (*all high*) toward taking a quiz in class. Cluster 3 was characterized as "*all low goals*" profile, in which all achievement goal scores are less than -.50. Cluster 4 consisted of students who adopted low mastery goals but high performance-approach and performance-avoidance goals toward quizzes. Thus, it was labeled as a "*low mastery, high performance goals*" profile. Post-measures of achievement goals also had "*all high goals*" and "*all low goals*" profiles at the cluster 3 and 4. Cluster 1 was defined as "*high mastery, low performance goals*" profile because mastery goals were greater than .80 and the two performance related goals were less than -.50. Finally cluster 2 was named a "*high mastery, high performance-approach, low performance-avoidance goals*" because this cluster had high values on mastery and performance-approach but low values on performance-avoidance goals.

Table 12: Cluster centroids of achievement goals for quizzes

Pre-measures	Cluster 1: High MAS Low PAP High PAV	Cluster 2: ALL High	Cluster 3: ALL Low	Cluster 4: Low MAS High PER
MAS	.52	.85	-.50	-1.05
PAP	-.45	1.07	-.93	.44
PAV	.50	.23	-1.05	.45
n	45	45	47	36
Post-measures	**Cluster 1: High MAS Low PER**	**Cluster 2: High MAS High PAP Low PAV**	**Cluster 3: ALL High**	**Cluster 4: ALL Low**
MAS	.83	.38	.14	-1.23
PAP	-.87	.96	.53	-.59
PAV	-.52	-.36	1.05	-.37
n	41	38	49	45

Figure 5 shows changes in cluster membership for achievement goals toward taking a quiz. Many students (*n*=21, 47%) in the "*high mastery, low performance-approach, high performance-avoidance goals*" profile decreased their performance-avoidance goals while holding high mastery and low performance-approach goals. Some students (n=13, 29%) increased their performance-approach goals and belonged to "*all high goals*" profile. Others in the "*high mastery, low performance-approach, high performance-avoidance goals*" profile shifted to "*high mastery, high performance-approach, low performance-avoidance goals*" (n=6, 13%) or "*all low goals*" (n=5, 11%) profile. As with the same manner with in-class activities, students with "*all high goals*" and "*all low goals*" for pretest were likely to keep their goals profile at the posttest (*all high goals* = 22(49%), *all low goals* = 26(55%)). However, 19 students (42%) in the "*all high goals*" profile decreased only performance-avoidance goals holding the others high whereas 16 students (34%) in the "*all low goals*" profile increased only mastery goals holding other goals low. Finally, most of the students in the "*low mastery, high performance goals*" profile changed to "*all high goals*" (n=14, 39%) or "*all low goals*" (n=14, 39%) profiles. Eight students (22%) of this profile increased mastery goals but decreased performance-avoidance goals at the post-measures of achievement goals.

Figure 5: Representation of changes in cluster membership for achievement goals toward quizzes, with number (and relative proportion) of students moving from pre- to post-cluster.



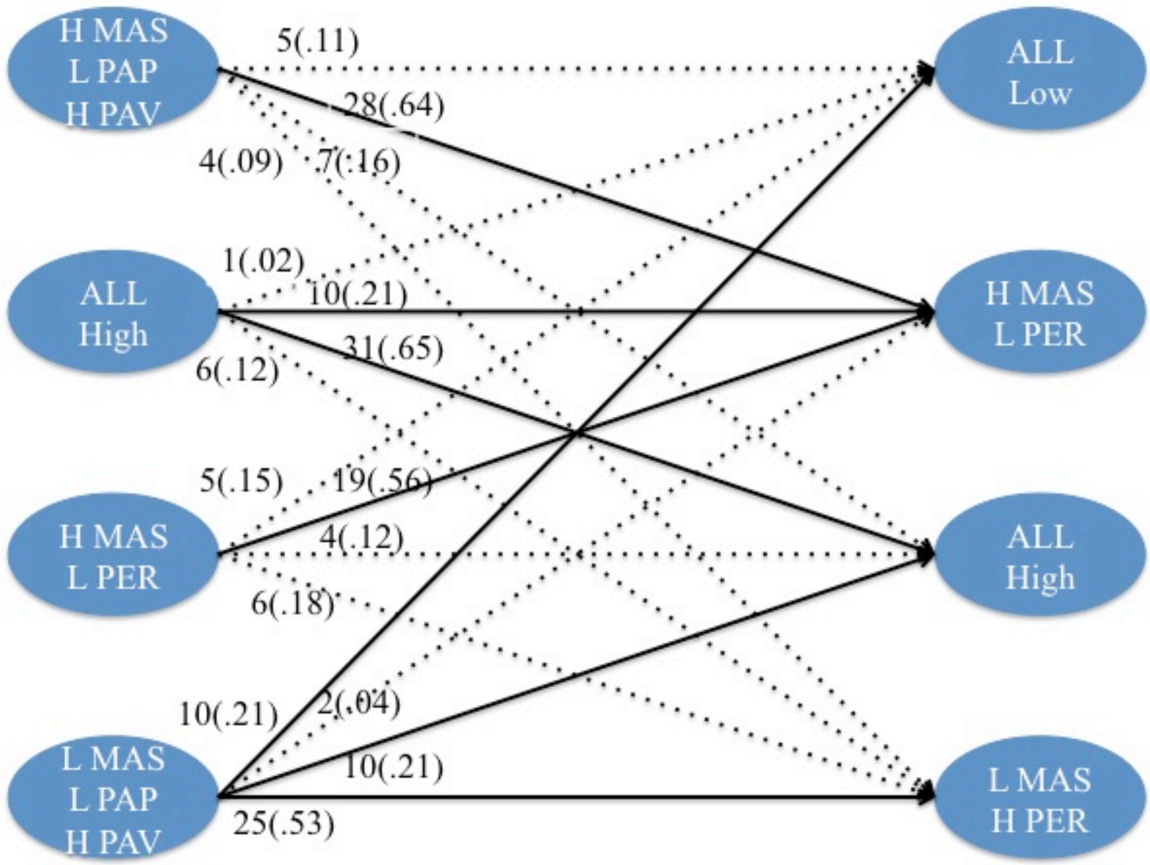
Achievement goals toward exams. Table 13 shows the final cluster centroids for the pre- and post-achievement goals toward taking an exam. I found four clusters for each of pre- and post-measures of achievement. For the pre-measures, cluster 1 was characterized as a "*high mastery, low performance-approach, high performance-avoidance goals*" profile and cluster 2 consisted of students with a "*all high goals*" profile, in which all achievement goal scores are greater than zero. Cluster 3, labeled "*high mastery, low performance goals*", consisted of students who adopted high mastery goals but low performance-related goals toward exams. Finally, cluster 4 was characterized by students who reported only high performance-avoidance goals for taking an exam, thus named as "*low mastery, low performance-approach, high performance avoidance*". The cluster analysis results of post-measures kept two of the same cluster profiles, which were "*all high goals*" and "*high mastery, low performance goals*". But the others that I found were slightly different from the pre-measures; specifically these were "*all low goals*" and "*low mastery, high performance goals*" profiles.

Table 13: Cluster centroids of achievement goals for exams

Pre-measures	Cluster 1: High MAS Low PAP High PAV	Cluster 2: ALL High	Cluster 3: High MAS Low PER	Cluster 4: Low MAS Low PAP High PAV
MAS	.67	.48	.03	-1.14
PAP	-.56	1.15	-.80	-.08
PAV	.73	.06	-1.37	.24
n	45	45	47	36
Post-measures	**Cluster 1: ALL Low**	**Cluster 2: High MAS Low PER**	**Cluster 3: ALL High**	**Cluster 4: Low MAS High PER**
MAS	-1.29	.79	.38	-.95
PAP	-1.14	-.71	1.03	.29
PAV	-.57	-.32	.57	.04
n	21	59	52	41

Figure 6 shows changes and stability in cluster membership for achievement goals toward taking an exam. Students in the "*high mastery, low performance-approach, high performance-avoidance goals*" profile decreased only their performance-avoidance goals holding the others constant (*n*=28, 64%). Only nine students in this profile decreased mastery goals for taking an exam; "*all low goals*" (*n*=5, 11%) and "*low mastery, high* *performance goals*" (*n*=4, 9%). The remaining students (*n*=7, 16%) in cluster 1 at the pretest increased their performance-approach goals and adopted "*all high goals*" toward exams. Similarly, students in the "*all high goals*" profile at the pre-measures were likely to maintain their high goals at the posttest (*n*=31, 65%). Some students of this profile decreased only performance-related goals but kept their high mastery goals (*n*=10, 21%). Only six students (12%) of this profile decreased mastery goals toward taking an exam at the post-measures. Most of the students (*n*=19, 56%) in the "*high mastery, low performance goals*" profile didn't change their cluster membership, but five students (15%) shifted to "*all low goals*" profile and six students (17%) changed to "*low mastery, high performance goals*" profiles at the posttest. Finally, students who endorsed a "*low mastery, low performance-approach, high performance avoidance*" profile increased their performance-approach goals while holding the others constant (*n*=25, 53%), decreased only performance-avoidance goals (*n*=10, 21%), or shifted to "*all high goals*" profile (*n*=10, 21%). I will discuss the significance of the cluster analyses results in the next chapter.

Figure 6: representation of changes in cluster membership for achievement goals toward exams, with number (and relative proportion) of students moving from pre- to post-cluster.



Regression analysis – Multiple regression analysis was employed to determine whether or not students' individual achievement goals and/or motivation-related variables predicted their perceptions of classroom goals.

In order to analyze the data for perceptions of classroom goals, a regression equation was written which combined the regression coefficients and intercept:

$Y_{PREDICTED}$ = intercept + $b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4$

where $Y_{PREDICTED}$ represents the outcome measures (perception of mastery or performance class goals) being regressed onto the predictors (individual achievement goals toward each instructional task, help-seeking behaviors, and theories of intelligence) weighted with an intercept, or constant value.

Perceptions of class goals with individual achievement goals. Multiple regression analysis was used to examine whether individual achievement goals toward instructional components predicted students' perceptions of classroom goals. I conducted a series of regression analyses for predicting pre- and post-measures of class goal perceptions using the enter method. There was no significant achievement goal predictor for pre-measures of students' class goals perception. Then, I entered only individual mastery goals for each instructional component to predict the perception of mastery-oriented class goals. There was no significant individual mastery goals predictor for the classroom goals perception. Likewise, students' performance-approach and performance-avoidance goals toward each instructional component did not predict their perceptions of performance class goals.

However, the achievement goals for in-class activities are significantly associated with students' perception of class goals at the post-measures. The perception of mastery classroom goals was predicted by students' mastery goals (β =.67, t=5.71, p<.001) and performance-avoidance goals (β = -.19, t= -2.00, p<.05) toward in-class activities. Also, students' performance-approach (β =.39, t=2.81, p<.01) and performance-avoidance goals (β =.31, t=2.99, p<.01) for in-class activities significantly predicted their perception of performance-oriented class goals. Thus, as students had high mastery goals toward their in-class activities, they perceived their class as more mastery-oriented. Likewise, students with high performance goals for activities reported high levels of performance-oriented perception in class. The summary of results is presented at Table 14. In order to check multicollinearity among the predictor variables, I calculated the tolerance statistic and all values were greater than .20, thus can be inferred as no multicollinearity issue.

Table 14: Summary of regression analyses between post-class goals and activities

	B	β	t	*p*	Adj. R^2	F	*p*
Predicted variable: Perception of mastery class goals					.43	11.94	.00
Activitiy_MAS	.49	.67	5.71	.00			
Activitiy_PAP	.03	.05	.41	.68			
Activitiy_PAV	-.15	-.19	-2.00	.04			
Predicted variable: Perception of performance class goals					.37	9.53	.00
Activitiy_MAS	-.03	-.03	-.24	.81			
Activitiy_PAP	.27	.39	2.81	.01			
Activitiy_PAV	.29	.31	2.99	.00			

Note. MAS = mastery; PER = performance; PAP = performance-approach; PAV = performance-avoidance; B = unstandardized coefficient; β = standardized coefficient; Adj. R^2 = adjusted r-square value.

Perceptions of class goals with individual motivation-related variables. Another series of multiple regression analysis was employed to investigate how individual motivational variables predicted the perceptions of class goals. For the pretest of class goals, the instrumental help-seeking behavior (β =.22, t=2.55, p<.05) and incremental theory of intelligence (β =.48, t=7.24, p<.001) significantly predicted students' perceptions of mastery goals in the classroom. That is, students with high levels of instrumental help-seeking behaviors or an incremental theory of intelligence were more likely to perceive their classroom as mastery goals oriented. On the other hand, the fixed theory of intelligence variable predicted the perceptions of performance class goals (β =.30, t=3.95, p<.001). The results of multiple regression analysis for pre-measures of class goals perception are presented at Table 15 and the issue of multicollinearity was verified.

Table 15: Multiple regression analyses result for pre-measures of class goals

	B	β	t	*p*	Adj. R^2	F	*p*
Predicted variable: Perception of mastery class goals					.32	17.20	.00
HS_Instrumental	.16	.22	2.55	.01			
HS_Executive	.11	.13	1.52	.13			
HS_Avoidant	-.03	-.04	-.61	.55			
TOI_Fixed	-.10	-.10	-1.44	.15			
TOI_Incremental	.44	.48	7.24	.00			
Predicted variable: Perception of performance class goals					.22	5.66	.00
HS_Instrumental	-.06	-.07	-.71	.48			
HS_Executive	.12	.12	1.26	.21			
HS_Avoidant	-.11	-.15	-1.86	.06			
TOI_Fixed	.34	.30	3.95	.00			
TOI_Incremental	.12	.11	1.50	.14			

Note. HS = help-seeking behaviors; TOI = theories of intelligence; B = unstandardized coefficient; β = standardized coefficient; Adj. R^2 = adjusted r-square value.

Also, another multiple regression analysis revealed that the instrumental help-seeking behavior (β =.18, t=2.04, p<.05) and incremental theory of intelligence (β =.36, t=4.95, p<.001) significantly predicted students' perceptions of mastery class goals at the post-measures. For predicting posttest of performance class goals perception, students' fixed theory of intelligence was the only significant individual motivation variable (β =.26, t=3.32, p<.001). Thus, instrumental help-seeking behaviors and incremental theory of intelligence are positively associated with the perception of mastery class goals whereas fixed theory of intelligence predicted students' performance class goals perception on the post measure. All associated statistics are presented at Table 16 and the multicollinearity issue for the post-measures' regression analyses was not severe. The significance of these results will be discussed in the next chapter.

Table 16: Multiple regression analyses result for post-measures of class goals

	B	β	t	*p*	Adj. R^2	F	*p*
Predicted variable: Perception of mastery class goals					.24	11.96	.00
HS_Instrumental	.14	.18	2.04	.04			
HS_Executive	-.05	-.05	-.68	.50			
HS_Avoidant	-.08	-.10	-1.38	.17			
TOI_Fixed	.04	.04	.51	.61			
TOI_Incremental	.31	.36	4.95	.00			
Predicted variable: Perception of performance class goals					.10	4.31	.00
HS_Instrumental	-.10	-.10	-1.03	.30			
HS_Executive	.09	.09	1.01	.31			
HS_Avoidant	.03	.03	.35	.72			
TOI_Fixed	.32	.26	3.32	.00			
TOI_Incremental	.16	.16	1.93	.06			

Note. HS = help-seeking behaviors; TOI = theories of intelligence; B = unstandardized coefficient; β = standardized coefficient; Adj. R^2 = adjusted r-square value.

Chapter 5: Discussion

Achievement goal theory has been considered as one of the most important frameworks by which to view human learning, performance, and motivation in school. Although there is a great deal of research on achievement goals, only a few empirical research attempts have been made to investigate their change and stability. Also, no one has studied relations between students' individual goal adoption (a micro goal perspective) and their perceptions of class goals (a macro goal perspective). The purpose of this study was to examine whether students' achievement goals toward instructional components changed over time and to find relations between individual achievement goals and perceptions of classroom goals. A sample of 173 university students from seven coordinated lower division educational psychology classes was assessed at two different times for their achievement goals toward instructional components and perceptions of the classroom goals during one academic semester. I adopted five statistical approaches to investigate changes and stability in achievement goals and multiple regression analyses to verify the relations between achievement goals and perceptions of class goals. In particular, I was interested in the extent to which individuals engaged in goal intensification and goal switching across a series of different tasks. I was also interested in the shifts that occurred in individual participants who constituted the various clusters found at pre- and posttest data collection. In this chapter, I will begin by summarizing and discussing the findings related to my research questions. Then, practical implications of this study and suggestions for the further study will be discussed at the end of this chapter.

Discussion of the findings

Research question 1: Stability and change in individual achievement goals toward instructional components - Would students' individual achievement goals change after exposure to different instructional tasks in a class?

The hypotheses stated that the adoption of students' achievement goals toward each instructional component would significantly change across the semester. Particularly, I expected that individual-level perspective analyses (RCI and ipsative continuity) and a person-centered approach (cluster analysis) would have different results in comparison to traditional group level approaches (differential continuity and mean-level change). Overall, the results of the current study provide clear and consistent evidence for the presence of both stability and change. Differential continuity and mean-level change analyses yielded information on stability and change at the sample level. The differential continuity findings indicate a considerable amount of rank-order stability for the achievement goals whereas the mean-level change results provide further evidence of decrease in the overall endorsement of achievement goals. Also, the individual-level change and ipsative continuity analyses yielded information on stability and change at the person level. Finally, cluster analysis suggested changes in cluster memberships between pre- and post-measures of achievement goals toward each instructional task. More detailed findings will be discussed for each instructional component in the following section.

In-class activities results

Some researchers have investigated change and stability in achievement goals after assignments and exams (e.g., Fryer & Elliot, 2007; Senko & Harackiewicz, 2005), but there is no study about students' achievement goals and in-class activities. I hypothesized that in-class activities would not increase the level of students' performance-avoidance goals but hold or increase their endorsement of mastery goals because they would perceive activities as creating less pressure and/or more mastery-orientation in the actual class.

Group level analyses. Differential continuity showed that all achievement goals toward in-class activities have high stability (correlation coefficients range from .58 to .69) and mean-level changes showed that students' endorsement of the achievement goals decreased significantly from pre- to posttest. That is, students were likely to maintain their individual achievement goals toward in-class activities. The stability of achievement goals has been generally assumed by previous research (e.g., Elliot & McGregor, 1999; Harackiewicz, Barron, & Elliot, 1998). However, this assumption of goal stability has rarely been tested. A few studies have addressed the consistency in an individual's achievement goal adoptions (Elliot & McGregor, 2001; Meece & Miller, 2001; Seifert, 1996; Senko & Harackiewicz, 2005; Stipek & Gralinski, 1996). All five of these studies reported positive correlations between pre- and post-measures of achievement goals (*r*s ranged from .40 to .65), indicating moderate stability in goal pursuit. Thus, the stability results from the current investigation have a thread of connection with previous literature.

In terms of mean-level changes, Fryer and Elliot (2007) measured students' achievement goals in general for pre- and posttest. They reported significant decrease in mastery goals and increase in performance-avoidance goals through three longitudinal studies. Muis and Edwards (2009) also found decreases in mastery goals and increase in performance-avoidance goals. However, the results of the current study displayed the biggest decrease (mean changes $=-.261$, $t=-5.19$, $p<.001$) in the performance-avoidance goals toward in-class activities, whereas mastery and performance-approach goals also decreased but less. That is, students show a strong decline in their level of pursuing performance-avoidance goals for doing in-class activities, even if they also decreased mastery and performance-approach goals toward those activities. Based on these results, it is clear that students engaged in changes of adoption for all three goals. Moreover, in-class activities seem to play a role in decreasing students' maladaptive processes of performance-avoidance goals in learning.

Individual level analyses. Both reliable change index (RCI) and ipsative continuity approaches extended the findings of the mean-level changes and differential continuity. In terms of individual goal switching, results from RCI analyses revealed that individuals maintained their achievement goals (above 90% of the students did not change their goal level) endorsement for in-class activities across the semester. The ipsative continuity results provided additional evidence of goal stability, in that they indicated greater consistency and less dispersion. Although profile consistency varied over a substantial range (from .73 to .89), the overall level of profile consistency remained stable over time and consistency significantly differed from that expected by chance alone. Profile dispersion for each achievement goal also had a substantial range (from -1.78 to 1.97), but observed mean values ranged from .04 to .10, representing high stability. That is, person-centered approaches show the same pattern of results as traditional group-level approaches, specifically most of the participants showed stability in their achievement goals toward in-class activities across the semester.

Cluster level analyses. To address the research questions for changes in achievement goal profile, I tracked the movement of all 173 students from pre- to post-measures in terms of their cluster membership. Cluster analysis found four profiles for pre- and post-measure of achievement goals toward in-class activities. As described earlier, many students belonged to the same cluster membership for both the pre- and posttest (see Figure 3). Many students in the "*high mastery, low performance goals*", "*all* *high goals*", and "*all low goals*" at the pre-cluster maintained their profile at the posttest. Some of students (*n*=9, 20%) in "*all high goals*" profile only decreased performance-avoidance goals toward in-class activities. More interestingly, seven students (22%) of "*all low goals*" and 22 students (54%) of "*high performance-approach, low performance-avoidance goals*" clusters increased adoption of mastery goals endorsement while holding their pre-level of performance-approach and performance-avoidance constant. That is, even though students do not have high levels of mastery goals for doing in-class activities, incorporating such continuous activities could increase their mastery goals endorsement in class.

In terms of methodological issues, mean-level changes and differential continuity cannot detect the increase in mastery goals for activities because the traditional approaches only tracked differences in the means at the sample-level. As discussed in Chapter 2, the existence of individual differences in change is often unrelated to sample-level stability and change (Roberts et al., 2006). Cluster analysis can verify changes in students' goal profile based on their goal centroid, which is the point with coordinates equal to the average values of the variables for the observations in the cluster. Also, the cluster analysis results are strongly related to the multiple goal perspectives currently being discussed in the field. Current theorists have suggested that students could endorse multiple goals at the same time and the multiple goals (e.g., both mastery and performance high) could be more adaptive for learning outcomes and processes (Barron & Harackiewicz, 2001; Pintrich, 2000). In the perspectives of multiple goals, implementing in-class activities such as done in the classes in this study might make students with low mastery goals or only high performance goals increase their mastery goals pursuit.

Writing papers results

Group level analyses. As with in-class activities, I expected that students would not increase performance-avoidance goals but would increase mastery goals toward writing a paper in class because I believe that writing assignments make students focus on learning itself rather than competition and relative evaluation. However, this hypothesis was not supported. First, differential continuity shows high range correlation coefficients (from .55 to .66) between pre- and post-measures of achievement goals, representing high stability in all achievement goals adoption. Muis and Edwards (2009) used two essay format assignments to investigate changes and stability in achievement goals. As I did in my study (see Appendix G for an example), they provided a scoring rubric to students as a guide for completing all assignments, and the instructor was responsible for all grading. When Muis and Edwards compared students' goals between similar tasks (essay 1 VS essay 2), no statistically detectable differences were found. RCI also showed that all achievement goals in essay tasks were stable. But, the mean-level changes of the current investigation showed that all achievement goals toward writing a paper decreased significantly from pre- to posttest. More surprisingly, the level of students' mastery goals shows the biggest decline (mastery: t=-6.38, performance-approach: t=-2.27, performance-avoidance: t=-3.41, see Table 5 for more detail). One possible reason for this unexpected result might be students' perception of less connection between the paper writing and the rest of the coursework. All instructional components in this study except papers were strongly related with each other in terms of contents being taught in class. For example, when instructors taught information processing theory, students engaged in in-class activities on that topic, and had a quiz and exam questions about the information processing content. But, writing a paper did not necessarily require students to apply the concepts that they got in class. Rather, a series of four papers was constructed in terms of helping students reach their academic and life goals. Even though writing a paper also reflected one of major concepts, which was to apply a systematic approach for being a successful life-long learner, some of students could miss the significance of the papers and perceive them as just additional classwork. Or, most of participants (68%) in this study were first year or sophomores, thus they might have a little pressure to write academic papers and the papers they did write could have seemed far removed from the rest of the course content and activities. Actually, some of students complained about the additional load and burden of writing a paper at the final evaluation survey of class.

Individual level analyses. Individual-level approaches also showed high stability in all achievement goals for writing a paper. I calculated RCIs to examine whether the participants changed their levels of achievement goal endorsement between pre- and posttest. As Table 6 shows, above 91% of students did not change any of their achievement goals toward papers. In order to explore whether students engaged in goal switching over time, I estimated profile consistency (shape) coefficients by correlating each individual's scores on all three achievement goals. Overall, the mean profile consistency coefficients were high (from .82 to .90), meaning most participants remained stable over time. Profile dispersion (scatter) coefficients were also estimated and the mean of each profile dispersion was relatively small (from .03 to .09). In sum, the results of individual-level analyses provide evidence that all achievement goals toward papers are stable from pre- to post-measures.

Cluster level analyses. In order to verify changes in achievement goals profile for writing papers, hierarchical cluster analyses with the Ward method were performed and then, four and five clusters were meaningfully identified for pre- and post-measures respectively. A majority of participants evidenced a change in their goal profiles toward writing a paper, whereas, as we saw earlier, they were more likely to stay in the same cluster toward in-class activities. In the case of "*high mastery, high performance-approach, low performance-avoidance goals*" cluster, 14 students (42%) maintained at the same profile but 11 students (33%) increased their performance-avoidance goals endorsement only. Also, even if students were in the "*high mastery, low performance goals*" profile, half of them switched to the "*high mastery, low performance-approach, high performance-avoidance goals*" cluster at the posttest. More surprisingly, for students in the "*all high goals*" cluster, 19 (32%) of them decreased only their mastery goals endorsement and 17 (29%) of them decreased only performance-approach goals holding others at the post-measures.

I had been confident that participants would increase mastery goals and decrease performance-avoidance goals toward in-class activities and/or writing a paper compared to quizzes and exams. But, the results showed that participants significantly decreased their levels of mastery goals toward both activities and papers through mean-level analyses. Cluster analyses also verified a similar pattern of results with them. The findings about quizzes and exams will be discussed next.

Quizzes results

There has not been any investigation in the literature into students' pursuit of achievement goals for taking a quiz in class, despite some studies that have identified the regulation of achievement goals after/before taking an exam or getting competence feedback for an exam (Bong, 2005; Fryer & Elliot, 2007; Muis & Edwards, 2009; Senko & Harackiewicz, 2005). For example, Senko and Harackiewicz (2005) found that participants' poor exam performance predicted a significant decrease in mastery and performance-approach goals and an increase in performance-avoidance goals. To operationalize mastery and performance goals in the context of the classroom, Ames and Archer (1988) identified the theoretical distinctions between these goals perceptions in terms of actual classroom parameters. In particular, they suggested that evaluation criteria are an important source affecting the individual perceived goal orientation. That is, if a class evaluates students' learning with absolute or progress criteria, students are more likely to adopt high mastery goals while comparative normative criteria increase their performance goals endorsement. However, I predicted quizzes would have different effects on the adoption of individual achievement goals even though both quizzes and exams are strong normative evaluation components to students. To investigate whether more frequent short in-class quizzes would alleviate students' perceptions of being normatively evaluated and not increase their performance-avoidance (probably performance-approach too) in comparison to taking exams, students in the present study were given 10 quizzes about each new topic at the beginning of class and total combined scores of the quizzes had the same weighting in the overall grade as an exam on each of the three major course units.

Group level analyses. As was the case with the criterion-based evaluation tasks (activities and papers), differential continuity shows high stability in participants' achievement goals adoption for these quizzes. Particularly, correlation of performance-approach goals had the highest correlation coefficient (r =.775), indicating stability. However, the results of mean-level changes provide evidence of malleability in participants' goal endorsement as well. Mastery goals and performance-approach goals toward quizzes decreased from pre- to posttest, and the effect size for the mastery goals was larger than that for the performance-approach goals. Furthermore, for performance-avoidance goals, there was no significant change between pre- and posttest. In other words, interestingly, participants decreased their adaptive achievement goals (mastery and performance-approach) only for taking a quiz at the sample level. As discussed above, I expected that a quiz would increase (or not decrease at least) students' mastery goals but that was not the result. This specific result will be discussed more at the end of this chapter.

Individual level analyses. The individual-level change results show that most of the participants had stable achievement goals. However, for mastery goals, the results support the mean-level change finding, which showed the biggest decline. As Table 6 displays, 10.4% of participants showed reliable decreases in their mastery goals adoption. This is the biggest numerical value among all reliable change indices of this study. The ipsative continuity results provide additional evidence of goal stability, because the mean profile consistency coefficients were high (from .84 to .91), meaning most participants remained stable over time. Profile dispersion (scatter) coefficients were also estimated and the mean of each profile dispersion was very small (from .02 to .06). In sum, the results of both sample-level and individual-level analyses indicate that mastery and performance-approach goals toward taking a quiz decreased, and no change in performance-avoidance goals from pre- to post-measures.

Cluster level analyses. To address the research questions for changes in individual achievement goal profiles for quizzes, I kept track of the movement of all 173 students from pre- to post-measures in terms of their cluster membership. The results from cluster analysis revealed different patterns in individual goals' changes. I found four slightly different profiles for pre- and post-measure of achievement goals toward taking a quiz. A majority of students in the "*all high goals*" and "*all low goals*" at the pre-cluster maintained their profile at the posttest. About half of the students (n=19, 42%) in "*all high goals*" decreased only performance-avoidance goals whereas 16 students (34%) in the "*all low goals*" profile increased only mastery goals holding other goals constant.

That is, if students endorse all high achievement goals toward taking a quiz, they are likely to have even more adaptive multiple goals at the end of semester. Also, even if students have low motivation on a quiz, they can increase mastery goals through frequent quizzes in college classroom. Many students in the "*high mastery, low performance-approach, high performance-avoidance goals*" at the pre-profile decreased only performance-avoidance goals or shifted to "*all high goals*" at the post-cluster. In terms of methodological issues, mean-level and individual-level changes cannot detect the increase in mastery goals and decrease in performance-avoidance goals for quizzes, but cluster analysis can verify changes in students' goal profile based on their goal centroid. Also, the cluster analysis results extended the multiple goal perspectives. While the first four statistical methods only focus on the stability and change of each achievement goal, the cluster analysis can provide a more open perspective for the research in regulation of multiple goals profiles. In sum, implementing more short quizzes for testing students' knowledge and understanding in classrooms may lead students to have more adaptive achievement goals profiles.

Exams results

The most interesting results and findings in terms of instructional components' effects are participants' achievement goals endorsement toward exams. As described in the findings about quizzes, a task for normative assessment induces students to endorse relatively higher performance goals than mastery goals. Obviously, taking an exam is a typical normative assessment tool in class and has a strong effect on students by providing competence feedback on their performance. Normative assessment and performance feedback may change a student's perceived competence and, consequently, the student's further pursuit of achievement goals as well. Fryer and Elliot (2007) tested the hypothesis based on three noncumulative exams and they reported decrease in mastery goals and increase in performance-avoidance goals. But, they measured students' achievement goals one week before each exam, not after competence feedback. Strictly speaking, thus, the results were not from the competence feedback but students' expectations and/or predictions their performance for the coming exam. In order to have better predictions of effects of an exam and its competence feedback on the regulation of individual goals, the pre-assessment of achievement goals in the present study were administered one or two classes before the first exam and then the responses of post-assessment were gathered after the second exam's feedback.

Group level analyses. On the basis of theoretical foundations and prior research findings, I hypothesized that participants would decrease mastery goals and increase two performance goals toward taking an exam. Similarly with other instructional components, differential continuity showed high range correlation coefficients (from .65 to .77) between pre- and post-measures of all three achievement goals, representing high stability in goals adoption. However, mean-level change analyses had different results. First of all, and most interesting, participants' mastery goals increased at the posttest. That is to say, taking an exam is the only statistically significant instructional component that enhanced students' mastery goals in the present study. And, at the same time, the levels of performance-avoidance goals decreased significantly. The mean of performance-approach goals increased a little bit, but the differences were not statistically detectable.

The question is then raised, how did exams increase mastery goals in this study? As I have cited several times, all previous studies have reported that participants' mastery goals significantly decreased (Fryer & Elliot, 2007; Muis & Edwards, 2009a; Senko & Harackiewicz, 2005; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2011). I would speculate that it could be because of the overall class evaluation structures, which have diverse and frequent light-loading tasks. Fryer and Elliot (2007) found continuous decrease in mastery goals pursuit through three consecutive exams, but Muis and Edwards (2009) had an additional assignment task between the first and second exam. When they compared exam 1 to exam 2, mastery goal orientation increased whereas performance-avoidance goals decreased. No difference was observed for the performance-approach subscales.

Among the four instructional components used for this study, it is possible that the ten in-class quizzes could alleviate students' perceptions for being normatively evaluated toward an exam because students experienced their instructor's intentions through the series of quizzes. Both are norm-referenced tasks and have the same question formats of multiple choice and short essay questions. Thus, students might perceive taking a quiz to be a practice before taking a major exam in class and that could reduce negative feelings in testing such as fear of failure. The fear of failure was not tested directly in this study, but it has been documented as an important predictor of the achievement goals that individuals adopt on achievement tasks (Conroy & Elliot, 2004; Elliot & Church, 1997). Or, it may be that students responded more highly on mastery goals for their exam because the survey items for mastery goals look more appropriate and socially desirable to them as a response. In fact, students learned achievement goals concepts during a motivation lecture between pre- and post-achievement goals measures, which potentially biased their responding. This will be discussed more at the limitation section of the discussion.

Individual level analyses. Individual-level approaches also showed high stability in all achievement goals for exams. The calculated RCIs identified that 92.5% of students did not change any of their achievement goals, but approximately 5% and 4% of participants reported reliable increases in mastery and performance-approach goals. In order to explore whether students engaged in goal switching over time, profile consistency and dispersion were estimated for configuring shape and scatter. The mean profile consistency coefficients were high (from .82 to .83) and the profile dispersion coefficients were small (from -.01 to .10). In sum, the results of individual-level analyses support stability of achievement goals toward taking an exam from pre- to post-measures.

Cluster level analyses. To investigate the changes in achievement goals profile, cluster analyses were conducted and then, each of the four clusters was determined for pre- and post-measures toward exams. A majority of participants in the "*all high goals*" and "*high mastery, low performance goals*" did not change their goal profiles. Ten students (21%) in the "*all high goals*" cluster decreased only the two performance goals but maintained high mastery goals for taking an exam. In the case of "*high mastery, low performance-approach, high performance-avoidance goals*" cluster, 28 students (62%) decreased their performance-avoidance goals while holding high mastery goals, too. That is, if students had high mastery goals for an exam, they tended to not only maintain their high mastery goals but also decrease performance-avoidance goals at the post-measures. Even if participants were in the "*low mastery, low performance-approach, high performance avoidance*" profile, ten students (21%) shifted to "*all high goals*" or 25 students (53%) of them increased only performance-approach goals holding others constant. In sum, the results of cluster analyses reinforce the idea that exams could enhance participants' mastery goals and lessen performance-avoidance goals for some students.

Research question 2: Stability and change in individual perceptions of classroom goals - Would student's cluster profiles for perceptions of classroom structures change over time?

According to the social-cognitive perspective, the cognitions of individuals regarding academic work (e.g., beliefs about their ability, expectations about learning outcomes, goals for the task) are influenced by social-contextual factors, such as messages from the teacher in class, perceived abilities of classmates, information about the learning material, and so on (Urdan & Schoenfelder, 2006). Many studies have tried to explore relations between class goal structures and learning or self-related outcomes (e.g., Church, Elliot, & Gable, 2001; Greene, Miller, Crowson, Duke, & Akey, 2004; Urdan, 2004). However, there are no studies reported about regulation of the individual perceptions of class goals. In order to draw an overview of the research question, I conducted another set of cluster analyses with exactly same methods. The results of cluster centroid and tracking in profile changes are displayed in Table 9 and Figure 2, and this analysis needs to be viewed as exploratory purpose.

Cluster level analyses. For the pre-class goals, I verified three clusters, which were "*high mastery, high performance class goals*", "*high mastery, low performance class goals*", and "*low mastery* class goals". The pretest was measured at the last day of the first week before the teaching of course contents had started. Participants were asked to respond on the classroom goals survey based on the course syllabus, the first week classes, and other possible information. And, post-classroom goal perceptions were collected at the last week of the class. Students could be classified into two opposite post-clusters, which are "*high mastery, low performance class goals"* and "*low mastery, high performance class goals*" profiles. If students were in "*high mastery, high performance class goals*" profile at the beginning of the class, they shifted almost evenly to *high* *mastery, low performance class goals"* (42%) or "*low mastery, high performance class goals*" (58%) profiles. Students who perceived their class as "*high mastery, low performance class goals*" oriented are a little more likely to maintain their high mastery class perceptions. However, 74% participants in "*low mastery* class goals" did not increase their mastery goal perceptions but increased only performance class goals. Thus, we can conclude that most of participants maintained their class goal perceptions from pre- to post-measures. Also, we can verify pre-mastery class goals are necessary for keeping individual mastery-oriented classroom perceptions at the end of semester because participants in high mastery group for class goals ("*high mastery, high performance class goals*" and "*high mastery, low performance class goals*") maintained the high levels of mastery-oriented class goals. On the other hand, if students perceived their class as low mastery-oriented at the beginning, they simply strengthened their performance-oriented perceptions toward their classroom structure. Therefore, it may be useful if instructors can help students perceive their classroom as more mastery-oriented at the beginning of the class. The students in the present study maintained that high mastery orientation across the semester.

Given these findings, it is important to understand how educators can promote a mastery goal structure and, perhaps, de-emphasize performance goals in the classroom or school. For example, Ames (1992a) suggested that a mastery goal structure can be created by (1) assigning to students appropriately challenging and meaningful academic work, (2) evaluating students in a manner that emphasizes and rewards improvement and growth over social comparison and competition, and (3) offering students more opportunities for choice and autonomy in the classroom. Also, research in the classroom reveals that when teachers consistently emphasize the valuing of learning and understanding the information presented in the classroom, students perceive a stronger mastery goal structures.

Research question 3: Relations between perceptions of class goals and individual achievement goals - Would students' individual achievement goals toward each instructional component predict their perceptions of classroom goals?

In order to understand students' achievement goals in class, diverse investigations have been conducted. One line of this research has been directed at understanding the relations between course goal structures and individual goal orientations. As discussed in the literature review, theorists have examined the relations between students' perceptions of class goals, learning outcomes, and their individual achievement goals (Ames & Archer, 1988; Arbreton & Roeser, 1993; Church et al., 2001; Miller & Meece, 1994). Research on classroom goal structures has generally found a positive correlation between students' perceptions of class goal structures and their respective personal goals, and perhaps a possible relationship, whereby the class goal structures influence personal goals (e.g., performance goal structure → individual performance goals, mastery goal structure → individual mastery goals); these positive correlations between goal structures and personal goal orientation have been found at the classroom level (E. M. Anderman & Midgley, 1997b; R. W. Roeser et al., 1996; Wolters, 2004).

Recently, a few researchers have explored the joint influence of personal achievement goals and classroom goal structures on learning outcomes (Lau & Nie, 2008; Murayama & Elliot, 2009). But, the relation between classroom goal structures and achievement goal adoptions is understood tenuously. Although the predictive utility of individual achievement goals and classroom goal structures is well established, the precise way in which the two constructs are related has received relatively little empirical attention. Murayama and Elliot (2009) addressed three possible models; the direct effect, indirect effect, and interaction effect model. Among them, the indirect effect model posits that classroom goal structures indirectly influence achievement-relevant outcomes through their impact on the adoption of personal achievement goals. Simply saying, classroom goal structures are generally viewed as precursors of students' achievement goal orientations.

However, is there the opposite direction between two constructs? I investigated whether students' individual achievement goal orientation could predict their perceptions of class goal structures. I hypothesized that students' perceptions of classroom goals would be affected by their individual goal pursuit of instructional components. If I could find any interesting relations between them, I would be able to suggest a totally different perspective of research to investigate achievement goal theory. Since there is no current research on this relation, this also needs to be considered as an exploratory hypothesis. In order to explore possible relations, I conducted a series of multiple regression analyses for predicting pre- and post-measures of class goal perceptions with individual goal orientations. There was not any significant personal achievement goals predictor for pre-measures of participants' classroom structures. This might be because of research design issues, specifically the pre-measures of perceived classroom goals were collected at the very beginning of the semester. Even though instructors briefly discussed requirements, expectations, and guidelines for the class, students could not become aware of classroom climate at that point.

At the posttest, however, participants' achievement goals toward in-class activities were significantly associated with their perceptions of classroom goals. In other words, if students had high levels of mastery goals for participating in a class activity, they were more likely to perceive their classroom climate as mastery-oriented. Also, their performance-avoidance goals for an activity were negatively associated with the perceptions of mastery classroom goals. In terms of predicting performance-oriented classroom structures, individual performance goal orientations (both performance-approach and performance-avoidance) for in-class activities were also significantly assessed. Students pursuing high levels of the two performance goals for in-class activities were more likely to perceive their classroom structure as performance-oriented. Therefore, the results suggest that instructors should elaborate and embed mastery-aimed activities in class for students to adopt high perceptions of mastery-oriented classroom structures.

Research question 4: Relations between perceptions of class goals and individual motivational variables - Would students' motivational variables predict their perceptions of classroom goals?

Previous research on the classroom structures has also examined their relations with students' learning performance, lecture engagement, use of effective learning strategies, intrinsic motivation and help-seeking behaviors (C. Ames & Archer, 1988; Church et al., 2001; Karabenick, 2004; Ryan et al., 1998). Also, Dweck and Leggett (1988) proposed that students' trait-like theory of intelligence might influence whether they pursue mastery or performance goals. Students with an incremental theory of intelligence tend to adopt mastery goals to develop their ability, whereas people with an entity theory of intelligence tend to adopt performance goals to demonstrate their ability and compare themselves with their peers. But, the relations have been tested only with individual achievement goal orientation not classroom goal structures.

Research question 4 has two major purposes. The first is to validate the current study's class goals measures through examining the relations between classroom goals and help-seeking behaviors. The second is to explore whether previous research findings about relations between individual goal orientations and the theory of intelligence can be extended to the perceptions of classroom goals.

I conducted two sets of simultaneous multiple regression analyses to predict participants' perceptions of classroom goal structures (mastery and performance) with predictors of academic help-seeking behaviors and theories of intelligence. For both pre- and post-class goals measures, instrumental help-seeking behaviors and incremental theory of intelligence were positively associated with perceptions of mastery goal structures whereas the fixed theory of intelligence predicted the level of students' performance class goals. Thus, we can suggest that the theories of intelligence are very useful constructs in diagnosing students' perceptions of classroom structure. Karabenick (2004) reported that students with higher levels of avoidant help-seeking behaviors perceived greater emphasis on performance-avoidance goals. But, the patterns about avoidant help-seeking behaviors were not verified in my study.

Implications of the study

Although there has been a tremendous amount of research on individual achievement goals and classroom structures, much of this research has focused on two constructs as the outcome measures. Recently, some of investigations have examined regulations of achievement goals and a few of them have explored relations between personal goals and classroom goals (C. Ames & Archer, 1988; Fryer & Elliot, 2007; Muis & Edwards, 2009a; Murayama & Elliot, 2009; Senko & Harackiewicz, 2005). In order to extend previous research findings, I conducted a study in lower division educational psychology classes to investigate stability and change in students' achievement goals toward instructional components and their perceptions of classroom structures. Also, I've tried to explore relations between students' personal goals (micro) and classroom goals (macro) in this study. The results and findings from the current study provide following implications for practice.

First of all, the current findings provide clear and consistent evidence for the presence of both stability and change in individual achievement goals. The issues of changes and stability in individual goals addressed in the present study are important for the achievement motivation research field. A few studies have addressed the consistency in individual achievement goals' strivings across different domains, such as sports versus school (Duda & Nicholls, 1992) or math versus English (E. M. Anderman & Midgley, 1997b), but goal regulation issues such as those addressed here have begun to garner research attention. Even though some theorists (Ames, 1992a; Seifert, 1996) insisted that various aspects of the classroom environment, such as the evaluative structure and the frequency of performance evaluation, were important factors in the regulation of achievement goals, those factors have not been clearly tested. However, the current study's findings indicate a considerable amount of stability for all three achievement goals toward each instructional component through the differential continuity and ipsative continuity. In terms of achievement goal changes, this study also provides evidence for goal regulation process through mean-level and individual-level changes. The study cannot verify the switching process among individual goal orientations, but the results from mean-level analyses provide strong evidence for the goal intensification process, in which individuals can simply intensify and/or reduce their pursuit of one goal without any concurrent adjustments to their pursuit of other goals toward instructional components.

The second important implication of this study concerns achievement goal research methodology. As most of studies in the regulation of achievement goals have adopted mean-level changes and differential continuity (e.g., E. M. Anderman & Midgley, 1997; L. H. Anderman & Anderman, 1999; Bong, 2005), they seemed to have overlooked the important possibility of individual change and stability. The current study has adopted person-center approaches, specifically RCI, ipsative continuity and cluster analysis. The findings provide fruitful implications to the further study of goal regulation. That is, three additional indexes of stability and change can yield information that is independent of that provided by differential continuity and mean-level change analyses. Particularly, the investigation of on-going changes in students' goal clusters has never been explored before. Thus, the results of exploratory research questions through cluster analyses can be a good addition to the achievement goals research area.

Third, the findings can provide pedagogical implications to instructional design of classroom in terms of increasing students' adaptive motivation and engaging students in their learning. Generally, taking an exam in class makes students have a high need to study the learning material. Some of them have struggled with severe test anxiety issues, which negatively impacts learning and also relates to individual achievement goals. Recently, Putwain and Symes (2012) reported that a relationship between perceived competence and test anxiety is mediated by students' achievement goal orientations. Also, moderate correlations between middle school students' test anxiety and their level of achievement goals have been addressed (Huijun, Dejun, Hongli, & Peixia, 2006). The current study suggests that a class would benefit from having not only exams but also diverse contents-related instructional components to encourage students' adoption of adaptive individual goals. For instance, in the present study, participants' pursuit of mastery goals for an exam was related to content-relevant in-class activities and quizzes. Particularly, I strongly recommend that short quizzes similar to exam questions should be used between major exams to enhance students' mastery goals and reduce their performance-avoidance goals.

Limitations of the study and suggestions for future studies

Before closing, I point out four limitations of the present research and how they can be resolved for the next investigations. First, the study reported herein was conducted in a college classroom setting. Some studies have shown that the influence of goals can vary across level of the educational system (e.g., Bong, 2005; Pajares & Cheong, 2003), which suggests that it is not appropriate to automatically assume that the patterns of stability and change observed in the current research will necessarily generalize to students at all grade levels.

Perhaps more significant, this study was conducted with students enrolled in a lower division educational psychology course which was a developmental class emphasizing learning strategies for at-risk students (although any student can enroll). That is, in this course participants learned diverse motivation-relevant concepts including achievement goals and academic help-seeking behaviors around the middle of the semester. This might confound with post-measure of achievement goals and/or other motivational variables that were being assessed later in the semester. This question is lessened somewhat when one recalls that of the four instructional components being evaluated, only one showed evidence of possible impacts of learning about goals. If this were indeed a confounding variable, the results should have been seen with all the components, and they were not. Thus, considerable research with different educational systems, diverse population, and various fields is required to generalize the results of stability and change in achievement goals beyond the current study.

Second, I measured both students' achievement goals toward each instructional component and their perceptions of classroom goals using self-report measures. Relying solely on self-report measures to gauge change paints a limited picture of the nature of stability and change, and limits generalizability from a measurement perspective. Future research is needed to include multiple approaches to measuring students' achievement goals. Also, the classroom structures need to be measured by different sources such as evaluations by peer instructors, observations by others not involved, or experts in instructional design. This study only explored the student's perceptions of class goals, but the level of perceptions needs to be compared with other measures to assess their validity and appropriateness.

Third, multiple instructors were engaged in this study. There might be slight differences in their instructional attitudes, teaching methods, pedagogical views, or perceived competence to teaching, even though all teaching contents and material were discussed and determined during a weekly meeting. Actually, two of instructors had six or more consecutive-semesters teaching experience while another two of them were new instructors for the class. I did not explore differences in students' achievement goal adopting patterns among instructors, but it would be a very interesting field for further studies. There are many studies on relations between teacher's values and students' class goal perceptions (e.g., Ames & Archer, 1988; Church et al., 2001; Elliot & Harackiewicz, 1996; Maehr & Midgley, 1991), but no research has clearly tested relationships between instructor's characteristics and student's individual achievement goals.

Fourth, while this is not a limitation of the present study, I did not track participants' goal changes based on their competence feedback after each task. Senko and Harackiewicz (2005) reported that achievement goals, although generally stable during a semester, were responsive to competence feedback. Simple fluctuations in competence perceptions, especially if negative, may lead to concurrent regulation in achievement goal pursuit. Since the current study has diverse and multiple instances of competence feedback, it was almost impossible for me to compare all fluctuations in students' achievement goals. Also, the major purpose of this study was to explore stability and changes in students' achievement goals in normal college classroom. But, I would suggest that future research can simplify comparisons of instructional components such as normative (quiz, exam) versus absolute assessments (paper, activities) or within normative tasks. For example, perhaps people with negative feedback on their quiz performance increase mastery goals whereas individulas who got negative performance feedback on exams decrease mastery goals and increase performance-avoidance goals. Further research is needed to address the possibilities.

Finally, as I mentioned above, I want to explore how students' individual achievement goals affect their perceptions of classroom structures. I expected the small individual goals to predict big classroom goal structures. Particularly, I hypothesized that student's pursuing of achievement goals toward each instructional component could build up their perceptions of classroom structures. For this reason, I would name 'Micro VS Macro goal framework' for the relations between two constructs. Even though I did not verify significant relations in the current study, this area would be very interesting for future studies.

In closing, I would suggest applications for achievement goal theory to school reform based on my research findings. The aforementioned findings suggest that the most important contributions of achievement goal theory to education have been its application to the study of the classroom learning environment. However, a few researchers have used goal orientation theory to help guide class and school reform. For example, Midgley and Maehr (1999) engaged in several projects aimed at the reform of school-wide and classroom-specific instructional practices, based on achievement goal theory. They demonstrated that the schools were able to change their policies and practices in order to foster the development of personal mastery goals in students. To apply the achievement goal theory in the real educational fields, longitudinal studies about the regulations of individual achievement goals and classroom goal perceptions need to be performed at different educational levels.

Appendix A – Demographic Variables

Directions: Please tell us a little about yourself by answering the following questions.

Unique number____________________

EID______________________ Name_____________________________

1. Please identify your racial and ethnic backgrounds.

How would you describe your racial/ethnic background? Check one.
□African-American/Black □Hispanic/Latin-American □Native-American
□Asian-American □ Caucasian/European-American
□Multiracial (Please specify) _________________________
□ Other __________________________

2. What is your gender? ☐ Male ☐Female

3. How old are you? ______

4. What is your UT-Austin classification? Check one.
□ Freshman □ Sophomore □ Junior □ Senior

5. Based on a 4.0 scale, estimate your current grade point average (GPA). _______

6. Are you currently on academic probation? □ Yes □ No

7. In what college is your current major?
_____architecture _____business _____communication _____education _____engineering
_____fine arts _____school of information _____liberal arts _____natural sciences
_____nursing _____pharmacy _____social work
_____undeclared (you are not a part of any college)

8. What is/are your current academic goal(s)? Check all that apply.
□ Enroll in a community college □ Transfer to another 4-year institution
□ Enroll in a vocational/technical program □ Graduate with your Bachelor's degree
□ Enroll in graduate school or a professional program (ex. law school, medical school)

Appendix B – Individual achievement goals

Mastery goal items

1. I want to learn as much as possible from this class.
2. It is important for me to understand the content of this course as thoroughly as possible.
3. I hope to have gained a broader and deeper knowledge of how people learn effectively and efficiently when I am done with this class.
4. I desire to completely master the material presented in this class.
5. In a class, I prefer course material that arouses my curiosity, even if it is difficult to learn.
6. In a class, I prefer course material that really challenges me so I can learn new things.

Performance-approach goal items

1. It is important to me to do better than the other students.
2. My goal in this class is to get a better grade than most of the students.
3. I am striving to demonstrate my ability relative to others in this class.
4. I am motivated by the thought of outperforming my peers in this class.
5. It is important to me to do well compared to others in this class.
6. I want to do well in this class to show my ability to my family, friends, advisors, or others.

Performance-avoidance goal items

1. I worry about the possibility of getting a bad grade in this class.
2. My fear of performing poorly in this class is often what motivates me.
3. I just want to avoid doing poorly in this class.
4. I often think to myself, "What if I do badly in this class?"
5. I'm afraid that I ask my instructor a "dumb" question, they might not think I'm very smart.
6. I wish this class was not graded.

Appendix C – Perceptions of Class Goal Structures

Classroom performance goal structure items

1. In this class, students try to show how smart they are.
2. In this class, there is a lot of competition among students.
3. In this class, it's important not to do worse than other students.
4. In this class, getting a good grade is the main goal.
5. In this class, it's important that you don't make mistakes in front of everyone.
6. In this class, one of the main goals is to avoid looking like you can't do the work.

Classroom mastery goal structure items

1. In this class, it's OK to make mistakes as long as you are learning.
2. In this class, it's important to understand the work, not just memorize it.
3. In this class, how much you improve is really important.
4. In this class, trying hard is very important.
5. In this class, learning new ideas and concepts is very important.
6. In this class, understanding the material is the main goal.

Appendix D – Theory of Intelligence

For each of the following statements, please indicate how true you think statement is for this class by circling the appropriate letter. Use the following scale for your responses:

Not at all true	a
A little true	b
Somewhat true	c
Fairly true	d
Very true	e

Please bubble in your response for the letter that best describes what you think.

1. You are born with a fixed amount of intelligence.

2. If you fail in a task, you question your intelligence.

3. When you learn new things, your basic intelligence improves.

4. Your abilities are determined by how intelligent you are.

5. Performing a task successfully can help develop your intelligence.

6. Good preparation before performing a task is a way to develop your intelligence.

7. Difficulties and challenges prevent you from developing your intelligence.

8. If you fail in a task, you still trust your intelligence.

9. The effort you exert improves your intelligence.

10. You have a certain amount of intelligence and you cannot do much to change it.

11. Good performance in a task is ways of showing others that you are intelligent.

12. You can develop your intelligence if you really try.

13. Criticism from others can help develop your intelligence.

14. When you exert a lot of effort, you show that you are not intelligent.

Appendix E – Academic Help-seeking

For each of the following statements, please indicate how true you think statement is for this class by circling the appropriate letter. Use the following scale for your responses:

Not at all true	a
A little true	b
Somewhat true	c
Fairly true	d
Very true	e

Please bubble in your response for the letter that best describes what you think.

1. If I ask another student for help on something I do not understand, I want to be given the answer rather than an explanation of how to find the answer myself.
2. Even if I do not understand what is being taught in a class, I do not ask for help.
3. When I do not understand how to use a method or procedure presented in class, I ask someone to teach me how to do it on my own.
4. When I ask the instructor for help on something I do not understand, I want the instructor to give me the answer rather than explain it to me.
5. If I ask other students for help with something I do not understand, I want them to help me find the answer myself and not give the answer to me.
6. When I have trouble completing an assignment for class, I do not ask for help.
7. If I am having difficulty completing a class assignment, I want someone to teach me how to do it rather than doing it for me.

8. When I ask for help with my coursework, I want someone to give me the answer.

9. Even when I think the work in my class is too hard to do on my own, I will not ask for help.

10. If I need help with a class assignment or homework, I ask another student to give me the answer rather than telling me how to do it myself.

11. When I ask an instructor for help, I want the instructor to give me hints or clues rather than the answer.

12. When I cannot do a homework problem, I skip it rather than ask anyone for help.

Appendix F – Syllabus

EDP 310 - Individual Learning Skills
Fall 2013
Unique #10290/ SZB 422 / MWF 9:00-9:50 AM

Instructor: Cheon-woo Han **Phone:** 512-471-2748 (office)
Office: SZB 352 **E-mail:** cheonwoo.han@utexas.edu
Mailbox: SZB 352 **Blackboard:** courses.utexas.edu

Office hours: Monday, Wednesday: 11:00 AM - 1:00 PM, and by appointment

Texts: LASSI Instructional Modules and Assigned Readings

> **The *LASSI Instructional Modules*** are available online (about $55). ***You are required to purchase these modules by Wednesday, September 4th.*** This is a web-based instructional tool that everyone will be required to purchase, read and complete some of the activities. How to purchase the LASSI Instructional Modules will be discussed in class and available on Blackboard under the syllabus link.
>
> ***Additional Readings*** will be posted on Blackboard. It is your responsibility to access the readings and bring a copy to class when requested to do so by your instructor.

Course Description & Objectives

EDP 310 is designed to help you become a more strategic learner. Providing you with knowledge and skills that you can use immediately to help you be more successful at UT, in the work place, and throughout your life, this course will help you:

1) develop awareness of your current learning and study strategies and methods in order to identify and assess your personal strengths and areas where you may need improvement

2) set learning goals, use these goals to guide your studying, and monitor your progress toward achieving your goals

3) build a repertoire of learning strategies and skills useful for a variety of learning tasks

become a more strategic learner who is motivated to learn, understands how to study and learn effectively and efficiently, and understands how to manage his/her studying and learning activities

Course Expectations

University of Texas Honor Code
The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.

Classroom Etiquette
In order to maximize the learning opportunities for all students, it is imperative that the classroom environment be conducive to learning. This means that you are expected to respect everyone in the class as well as the class rules and guidelines. Therefore, behavior that will not be tolerated includes, but is not limited to, working on anything not directly related to the class activities at hand (e.g., studying for other classes), reading newspapers, sleeping, wearing headphones or ear pieces, using cell phones (it is your responsibility to shut them off before class), and talking while anyone else is talking. Computers will not be needed for in-class exercises, therefore *using a laptop, iPhone, Palm Pilot, Blackberry or other forms of technology during class is inappropriate*. Engaging in these or other distracting activities may result in your removal from class and an unexcused absence for the day. Disruptiveness or disrespect of your fellow students or your instructor will result in a warning, followed by being asked to leave the classroom. If you are asked to leave, this will be counted as an unexcused absence.

Participation
Your participation grade will be based in your informed contributions to classroom discussions and exercises. Much of our class time will be spent in small group and full class discussions. For the sake of your success, as well as that of your classmates, I expect your attitude and level of participation to reflect a commitment to reaching the objectives and goals of this course. What you get back from this course is proportional to what you put into it!

There is a growing body of evidence that cooperative learning is a very successful technique in helping students learn. With this evidence in mind, our class will use small groups as one way enhancing your learning. You will be expected to participate in structured discussions and work with your assigned group to complete in-class exercises. These in-class exercises are designed to help you process, understand, and apply new information from class lecture and modules. These exercises will also help you on tests and in preparing the major assignments. Small group exercises will be structured in order to ensure all group members contribute appropriately.

Level of Engagement/Listening Skills – Level of engagement with course lectures, discussions, and activities with eye contact, taking notes, and with informed contributions.

Behavior – Appropriate classroom behaviors (e.g., not texting, sleeping, or taking out-of-turn, etc.)

Preparation - Coming to class with a pen, paper to take notes, and having read any necessary information to provide informed comments to course discussions and activities.

Collaboration – Works in groups (large and small) in appropriate and fair ways.

Scholastic Honesty

Students who violate university rules regarding academic honesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the university. Policies on scholastic honesty will be strictly enforced. This includes but is not limited to: writing another student's name on an in-class activity, or otherwise taking or giving credit for work that is not one's own. This is viewed as a form of cheating by The University of Texas and will be treated as such in this class as well. You should refer to the Student Judicial Services website at www.utexas.edu/depts/dos or the General Information Catalog to access the official University policies and procedures as well as what constitutes scholastic dishonesty.

You will be asked to sign an academic honesty commitment form to acknowledge that you will uphold these principles set forth by the University.

Undergraduate Writing Center

I strongly encourage you to use the Undergraduate Writing Center, FAC 211, 471-6222: http://uwc.fac.utexas.edu/. The Undergraduate Writing Center offers free, individualized, expert help with writing for any UT undergraduate, by appointment or on a drop-in basis. Any undergraduate enrolled in a course at UT can visit the UWC for assistance with any writing project. They work with students from every department on campus, for both academic and non-academic writing.
Whether you are writing a lab report, a resume, a term paper, a statement for an application, or your own poetry, UWC consultants will be happy to work with you. Their services are not just for writing with "problems." Getting feedback from an informed audience is a normal part of a successful writing project. Consultants help students develop strategies to improve their writing. The assistance they provide is intended to foster independence. Each student determines how to use the consultant's advice. The consultants are trained to help you work on your writing in ways that preserve the integrity of your work. Additional writing resources are available. View this APA tutorial to see how to cite references and more! http://flash1r.apa.org/apastyle/basics/index.htm.

Communication with Instructor

I am here to guide and help you improve your knowledge and skills so that you can become a more strategic and self-regulated learner. However, you must take responsibility for what you will learn from this course. In addition to the modules and other materials you have for this course, I am also available to help you succeed in EDP 310. If you have questions or concerns about the course, need some help with a difficult concept or assignment, or anything else, I am always willing to listen and do what I can to help you. You can come to my office during my posted office hours, or arrange a separate meeting if those times are not available for you, contact me by email, or leave a message on my office phone number (be sure to say the message is for me since several of us share the same number).

<u>Attendance Policy</u>

Attendance is an important part of succeeding in college and in your future professional lives. Therefore, coming to this class on time will be a substantial part of your grade. At the beginning of each class throughout the semester, I will have an attendance sheet for you to sign. It is *<u>your responsibility</u>* to sign the sheet each class. ***DO NOT*** ask anyone to sign for you and do not sign for anyone else. If you are late, don't forget to sign the sheet before you leave class for the day. *If you do not sign **before** leaving class, you will be counted as absent for that day.*

Unexcused absences

You are allowed 3 unexcused absences, but remember that part of your grade is class participation. If you choose not to come to class, you will not be able to receive credit for participating in class that day. Students with more than 3 unexcused absences will earn the following penalties:

- 4 unexcused absences = *decrease of grade by one level (example A to A-)*
- 5 or 6 unexcused absences = *loss of one full letter grade* (100 points)
- 7 or more unexcused absences = *automatic failure of the course* (uniformly enforced)

Excused Absences

For an absence to be excused you must provide legitimate documentation. Excused absences include:

- Illness (with a signed note from your doctor, University Health Services' generic "no excuse" form letters will **<u>not</u>** be accepted)
- Critical family events (weddings or deaths)
- Official U.T. events (games for athletes, concerts for band members)
- Religious Holy Days

By UT Austin policy, you must notify me of your pending absence *at least fourteen days* prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, I will give you an opportunity to complete the missed work within a reasonable time after the absence.

Excused absences must be documented with a written excuse, turned in to me *prior to or no later than one week* after your absence. If possible, please inform me ahead of time. If you have an excused absence you will have 1 week to complete whatever work was due that day, including the in-class activities if they were collected that day.

Tardies
Class will begin on the hour since we have a limited amount of time to cover a lot of material. You will be counted tardy if you are more than 5 minutes late (by my watch) and if you are more than 25 minutes late, you will be counted as absent. Also, if you choose to leave class for more than five minutes in the middle or at the end of class you may also be counted tardy for that day. ***Three tardies will result in 1 unexcused absence.*** The in-class quizzes will begin at the start of class on the days indicated in the syllabus; please be aware that your unexcused tardiness will cut into the time you have to complete the quiz.

Due Dates, Late Work and Incomplete Assignments

Due Dates
Quizzes will be administered at the start of class on the date listed in the course schedule.

Assignments will be turned in electronically on Blackboard by the start of class (9 a.m.)on the day the assignment is due. The assignment submission space on Blackboard will be removed at 9 a.m. on the due date. This is the latest possible date and time that work can be turned in for credit (the only exception is in the case of an excused absence). Work will not be accepted for credit after 9 a.m. on the due date, but the assignment still must be turned in. **Do not wait until the night before to start on an assignment!** Computer crashes and server problems will not be accepted as an excuse for late work.

Late Work: Quizzes
If you have an excused absence on a quiz day, the standard University policy regarding make up work is in effect and you have one week to take a make-up quiz for credit. It is your responsibility to make arrangements with your instructor for you to take the quiz. It is also your responsibility to leave the classroom if the quiz results are being discussed before you take the make up quiz.

If you have an unexcused absence on a quiz day you will receive a zero for that quiz. You are welcome to make an appointment to take the quiz with your instructor, but you will not receive points toward your final grade for completing it.

Late Work: A Systematic Approach for Reaching Academic and Life Goals
Late work will *not* be accepted for a grade unless you have an excused absence. If you have an excused absence, you must turn in the work **within one week** of your absence. If your absence is going to be unexcused, you need to make other arrangements to turn in the assignment on time. Even though late work will not be graded, you will still need to complete the assignments since this project continues to build upon earlier parts.

Grading System, Course Requirements & Assignments

The University of Texas at Austin has adopted the +/- system for grading. As such, the chart below shows the conversions from the letter grading system to the 4.0 grading system to % grades and finally to our 1000 point system.

Letter	4 point system	Percentage	EDP 310 1000 pt system
A	4.00	94-100	940-1000
A-	3.67	90-93	900-939
B+	3.33	87-89	870-899
B	3.00	83-86	830-869
B-	2.67	80-82	800-829
C+	2.33	77-79	770-799
C	2.00	73-76	730-769
C-	1.67	70-72	700-729
D+	1.33	67-69	670-699
D	1.00	63-66	630-669
D-	0.67	60-62	600-629
F	0.00	59 or below	590 or below

Failure to complete any graded or non-graded assignment in this course will result in a grade of "incomplete" (X) for this course. Remember that it is your responsibility to obtain assignments and announcements made on days when you are absent!

I am always happy to discuss the grade you have earned on any task. As I am not able to discuss grades right before, during, or after class, or by email, you will need to see me during regularly scheduled office hours or make an appointment. Also, I prefer that you wait at least one day after you receive an assignment back to meet with me. This will allow you enough time to think about whatever questions you may have.

Percentage of Final Grade	Task	Points (Possible on each)	Number of Assignments	Total Points
15%	In-Class Quizzes	15	10	150
7.5%	Learning Autobiography	75	1	75
7.5%	Goals and Strategies Proposal	75	1	75
7.5%	Implementation, Monitoring, and Modification Report	75	1	75
7.5%	Summative Evaluation Report	75	1	75
45%	Exams	150	3	450
8%	Class Participation	80		80
2%	Final Course Evaluation	20		20
	Extra Credit	*10*	*1*	*10*
TOTAL (Extra Credit is NOT included in the total)				1,000

In-Class Quizzes *(15% of final grade)*
Brief quizzes will be administered at the start of class on days marked in the course schedule. Instructors will use the Learning Objectives as a guide for each quiz administration. You should use the Learning Objectives as guidance when reading the LASSI online modules and readings posted to Blackboard to prepare for the in-class quizzes. These quizzes (1) help you prepare for class, (2) guide what you should read to comprehend in the online modules and what you should listen for in class, (3) help you consolidate the information you get from class and from the modules, and (4) guide how you study for exams.

You will receive no more than three questions on each quiz and quiz questions will not just be simple recall. Questions may require situational analyses, application of course material, and comparison/contrasting of topics. You should be prepared to answer specific questions about what you have read in the assigned readings. If you have an excused absence on a quiz day, the standard University policy regarding make up work is in effect and you have one week to take a make-up quiz for credit. It is your responsibility to make arrangements with your instructor for you to take the quiz and to leave the classroom if the quiz is being discussed before you take the make up quiz. If you have an unexcused absence on a quiz day you will receive a zero for that quiz. You are welcome to make an appointment to take the quiz with your instructor, but you will not receive points toward your final grade for completing it.

A Systematic Approach for Reaching Academic and Life Goals (30% of final grade)
This semester long project is an opportunity for you to apply a systematic approach to setting and achieving your goals. The project will be broken up into four parts, each part worth up to 75 points toward your final grade. More information about each of the assignments will be provided in class.

Learning Autobiography (7.5% of final grade)
Goals and Strategies Proposal (7.5% of final grade)
Implementation, Monitoring, and Modification Report (7.5% of final grade)
Summative Evaluation Report (7.5% of final grade)

Exams *(45% of final grade)*
You will take 2 exams and one final exam in EDP 310. The first two exams will take place in class. These exams will each contain 14 multiple-choice and 4 short-answer questions. Exam 1 will cover course topics/learning objectives from Unit 1. Exam 2 will cover course topics/learning objectives from Unit 2.

ITEM TYPE	**POINTS (Possible on each)**	**# of Items**	**TOTAL (raw)**	**% of Exam**
Multiple Choice	5	14	70	46%
Essay	20	4	80	54%
TOTAL			150	100%

The final exam will take place during the final exam period (time to be announced when available) and will focus on the integration of all course topics as well as broad themes and core concepts presented in the course. The final exam will consist of all multiple-choice questions and is also worth 150 points.

Class Participation and In-Class Activities *(8% of final grade)*
This course is interactive and requires your active and thoughtful participation in class activities, small and large group discussions, and group work. Individual and group participation during class is a vital part of learning and will be highly emphasized in this course. There will be an individual or group in-class activity or discussion to be completed almost every day of class and there may be online materials you will be asked to respond to online. Participation points are earned by actively taking notes during class, by thoughtfully contributing to in-class activities and discussions, by showing respect to your fellow classmates and your instructor, and by maintaining a positive attitude towards learning. Your participation score could also be based on your completion of midterm and end-of-semester group feedback forms, the evaluation your group members give your contributions to class discussions and projects, the instructors evaluation of your contributions, as well as a self-assessment of your participation.

Final Course Evaluation *(2% of final grade)*
Summative evaluation is an important component in the learning process, as such, you will be asked to reflect back on your experiences in EDP 310 and provide feedback on how you have used course content and materials throughout the semester.

EXTRA CREDIT

There is an extra credit assignment available and it is worth 10 points. It is not mandatory and is not counted as part of the 1,000 total course points. Therefore, the highest score you can earn in this course is 1,010. The assignment involves bringing in one source and writing a paragraph description of how it is related to the content of this course. The source can be an article, story, poem, quote, comic, website, movie or TV clip, picture, song, or some other material.

Non-Graded Course Requirements

Office Hours Visit
All students must make at least one appointment to meet with me during office hours, or by appointment. You will be assigned the dates during which you have to make the appointment (to be announced). A sign-up sheet will be made available. The specific purposes and guidelines of this assignment will be discussed in more detail during class. While you are not assigned a grade for this assignment, not completing this assignment will result in an incomplete in the course.

Assessments
At the beginning and end of the semester, we will complete assessments that are used to identify strengths and opportunities for improvement in the areas of strategic learning.

Results of these assessments will not affect your final grade in the course. However, you will receive an incomplete in the course if you do not complete all pre- and post-assessments.

Research Participation/Subject Pool

All students registered for this course must complete this research participation requirement. To do so, either participate in one or more research studies as part of the subject pool for the Department of Educational Psychology, or complete a 5 page written alternative assignment. Please note the deadlines below:

- Students must register online to be considered for the subject pool by **Sunday, September 15th**.
- Subject pool assignments will be posted on **Friday, October 4th**.
- The alternative assignment will also be posted on **October 4th** for students who prefer not to participate in the subject pool.
- Participation in ALL assigned studies must be completed by **Friday, November 15th**.
- Alternative assignments are due on the last class day, **Friday, December 6th**.

If you have questions about your participation in the subject pool or about the alternative assignment, please go to the following website:
http://www.edb.utexas.edu/education/departments/edp/subject_pool/students/
If you have more questions, please email Kadie Rackley, the subject pool coordinator:
edpSubjectPool@austin.utexas.edu

University Policies Relevant to EDP 310 Students

Use of E-Mail for Official Correspondence to Students

E-mail is recognized as an official mode of university correspondence; therefore, you are responsible for reading your e-mail for university and course-related information and announcements. You are responsible to keep the university informed about changes to your e-mail address. You should check your e-mail regularly and frequently—I recommend daily, but at minimum twice a week—to stay current with university-related communications, some of which may be time-critical. You can find UT Austin's policies and instructions for updating your e-mail address at http://www.utexas.edu/its/policies/emailnotify.php

Documented Disability Statement

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Division of Diversity and Community Engagement, Services for Students with Disabilities at 471-6259 (voice) or 232-2937 (video phone) or
http://www.utexas.edu/diversity/ddce/ssd

Behavior Concerns Advice Line (BCAL)

If you are worried about someone who is acting differently, you may use the Behavior Concerns Advice Line to discuss by phone your concerns about another individual's behavior. This service is provided through a partnership among the Office of the Dean of Students, the Counseling and Mental Health Center (CMHC), the Employee Assistance

Program (EAP), and The University of Texas Police Department (UTPD). Call 512-232-5050 or visit http://www.utexas.edu/safety/bcal

Religious Holidays. A student who is absent from a class or examination for the observance of a religious holy day may complete the work missed within a reasonable time after the absence, if proper notice has been given. University policy is that students should notify their instructors at least 14 days prior to the observance of a religious holy day. More information on this policy can be reviewed online at: www.utexas.edu/student/registrar/catalogs/gi03-04/ch4/ch4g.html#religious.

Campus Safety and Security: In case of an emergency evacuation, please be aware of the following recommendations the Office of Campus Safety and Security has outlined to keep you and others safe. Additional information may be available at 512-471-5767 or http://www.utexas.edu/safety/

- Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.
- Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.
- Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.
- In the event of an evacuation, follow the instruction of faculty or class instructors.
- Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.
- Information regarding emergency evacuation routes and emergency procedures can be found at: www.utexas.edu/emergency.

Appendix G – Example of rubric for papers

Purpose

This project is designed to help you take an inventory of your past learning experiences. It is important for you to be aware of and understand the thoughts, behaviors, attitudes, and beliefs that have contributed to your academic successes as well as those beliefs, attitudes, thoughts, and behaviors that did not help you succeed and that you might want to change or abandon. This learning autobiography you will create will serve as the foundation for the rest of this goal project, so it is crucial that you really put effort into completing this assignment and be honest with yourself as you reflect on what you have done in the past.

Directions

Consider your previous learning experiences – high school, colleges other than the University of Texas, as well as here at UT if this is not your first semester. These memories are full of useful information about your current learning habits and practices and we want you to write about them. We are looking for responses that demonstrate thoughtful consideration of your experiences and would like to see you address questions listed below. Make sure you include specific examples that illustrate your experiences.

In general, you need to address the following issues:

- Which subjects and tasks do you find easy? Which ones are more challenging for you?
- What are some of your negative and some of your positive academic experiences?
- In what situations (general and/or specific) did you overcome academic challenges? What did you do to overcome these difficult situations?
- In what situations (general and/or specific) were you not able to overcome academic challenges? What prevented you from succeeding?
- What is test taking like for you?
- What negative and positive behaviors do you exhibit in the classroom?
- What is your overall evaluation of your current level of learning habits and practices?

The questions listed on the other side of this page are included to help you begin discussing these issues.

Grading You can earn up to 75 points on this assignment. Points are earned based on the quality and accuracy of your responses with respect to content and writing. The final autobiography should be 3 – 5 pages (double-spaced), one-inch margins, Times New Roman 12 point font, and free of grammatical and spelling errors.

Due Uploaded to Blackboard before the start of class on Monday, September 16.

Use the following questions to help you work on your Learning Autobiography. Don't feel that you have to answer each of these questions as though you were ticking off items on a list. Try to focus on what you think are important parts of your academic history that helped you to succeed or prevented you from succeeding on academic tasks. As you respond to each question, please make sure to think back and reflect on what you have done in the past as well as what you having been doing now that helped your academic achievement or that prevented you from achieving at the level you wanted.

Easy & Difficult Subjects and Tasks: What **subjects** were easy or challenging for you? What **tasks** were easy or challenging for you? How do you know that these were easy or challenging for you? How did you study for these subjects? How did you complete these tasks? What worked? What did not work? Why? Include as many details as you can!

Negative and Positive Experiences: Are there specific negative and positive learning experiences that really stand out in your memory? What are these events? What impact do you think these experiences have had on how you learn and your learning success?

Overcoming Challenges: What challenging learning situations have you been able to overcome? What situations haven't you been able to overcome?

Test Taking: Have you ever felt prepared for a test and then did poorly on it? Why do you think this happened? How did you feel while you were taking the test and after you finished?
Behaviors in Class: What behaviors did you find yourself doing in class (e.g., participating, texting a friend, or taking notes)? Are your positive and negative behaviors the same in all classes, or do they vary across subjects or types of classes? Do you feel these were helpful? How are you as a student in class? What role did/do you take when working in groups, such as group leader or note-taker? How do you contribute within groups?

Overall Evaluation: How do you currently feel about your learning habits and practices? Are they effective? Are they efficient? Have you ever had formal instruction on how to be a strategic student? If so, what impact has that instruction had on your practices as a student?

Additional Thoughts About Your Experiences: While completing this project you will certainly have made other observations about your learning history. Please include anything else (thoughts, attitudes, beliefs, behaviors, feelings etc.) that you think is relevant to understanding yourself as a learner.

<table>
<tr><th colspan="3">Content (65 points)</th></tr>
<tr><td colspan="3">Easy and difficult subjects and tasks are illustrated and accompanied with detailed description of why you believe these subjects and tasks are easy/difficult for you.
Examination of positive and negative experiences is thorough and explained with examples.
Discussion of situations (general and/or specific) when adversity was overcome (or not overcome) describes both the situation and the resolution (e.g., if you did overcome something, how did you do it; and why do you feel you were or were not able to overcome adversity in these situations).
Discussion of what test taking is like for you.
Analysis positive and negative classroom behaviors.
Overall evaluation of current level of how you learn is clearly stated and supported with relevant examples throughout the document</td></tr>
<tr><td rowspan="2">Comments</td><td rowspan="2"></td><td>Total Content Points</td></tr>
<tr><td></td></tr>
<tr><th colspan="3">Organization & Mechanics (10 points)</th></tr>
<tr><td colspan="3">Typed, 1 inch margins, 12 point Time New Roman font, and between 3 - 5 double-spaced pages.
Clear flow of ideas logically organized into paragraphs containing main ideas and supporting details. Logical transitions within and between paragraphs are used.
Language is precise – including effective word choice, tone, and variety of sentence structures, types, and lengths.
Spelling, grammar, and usage (verb tense, pronoun use, subject/verb agreement) have been checked and corrected</td></tr>
<tr><td rowspan="2">Comments</td><td rowspan="2"></td><td>Total Mechanics Points</td></tr>
<tr><td></td></tr>
<tr><td colspan="2"></td><td>Total Score:</td></tr>
</table>

Appendix H – Flow chart for writing assignments

A Systematic Approach for Reaching Academic and Life Goals

When you set clear intentions and goals for what you want to accomplish, you are much more likely to achieve the outcomes you desire. However, if you are like many students, you may not have had much practice thinking about and setting useful goals. You may even be wondering what you need to consider when setting a goal in the first place! After you set a goal how will you know you are making progress toward achieving what you set out to do? And what happens when the going gets tough – how do you stay motivated to put in the effort to reach your goals when you are faced with a challenge? This project will help you answer these questions as you gain experienc e successfully navigating the process of achieving your goals!

Learning Autobiography

- Reflecting on your past academic experiences gives you an opportunity to think about which beliefs, attitudes, thoughts, and behaviors have contributed to your successes and which ones you might like to change. This kind of reflection provides good information that you will need to consider when setting and working toward your goals this semester.

- Length: 3- 5 pages
- Due Date: September 16, 2013

Goals and Strategies Proposal

- Now that you have a clearer idea of your strengths and areas of challenge as a learner, it is time to set goals and create a plan to achieve them this semester. In this proposal you will use what you have learned about yourself from completing your learning autobiography, as well as what we have discussed about goals in class and in the Attitude Module, to set four goals: one academic,one social,one personal, and one professional goal. For each of these four goals, you will select two EDP 310 strategies you will use to help you work toward reaching the goal.

- Length: 4 - 5 pages
- Due Date: September 30, 2013

Implementation, Monitoring, and Modification Report

- After working toward your goals for awhile, it is important to take an inventory of your progress. You may find that you are right on track to accomplish what you set out to do for some of your goals but that you are also struggling to make progress on some other goals. This is your opportunity to "check in" on your progress and decide if your goals and/or your strategies need to be revised as you move forward.

- Length: 4 - 5 pages
- Due Date: November 6, 2013

Summative Evaluation Report

- As the semester draws to a close, one final reflection is in order. Did you accomplish your goals? What bumps in the road did you face? How did you successfully deal with them? What strategies have you learned you should rely on in the future? What strategies might you not want to use again? Have you figured out what you would like to work on going forward from EDP 310 to continue to become an even more effective and efficient learner? What will be your plan for continuing to set and work toward achieving your goals once this class ends?

- Length: 3 - 4 pages
- Due Date: November 25, 2013

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