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**Mediating Effects of Teacher Enthusiasm and Peer Enthusiasm
on Students' Interest in the College Classroom**

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**Mediating Effects of Teacher Enthusiasm and Peer Enthusiasm on
Students' Interest in the College Classroom**

by

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Dedication

To God and to my parents and husband

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Mediating Effects of Teacher Enthusiasm and Peer Enthusiasm on Students' Interest in the College Classroom

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For teachers and educators, developing students' interest in the classroom has been a primary concern. Relatedly, for decades educational researchers have explored the construct of interest and the factors that influence students' interest. However, despite the importance given to context to interest development in these theoretical descriptions, less attention has been paid to understanding teacher and classmate characteristics as contextual factors that may influence, positively and negatively, students' interest. Therefore, with the goal of exploring the role of the teacher and classmates in students' interest in a course throughout a semester, this study explored mediator effects of students' perceptions of teacher enthusiasm and of peer enthusiasm on the relation between their initial interest and their situational interest at the end of the semester. Also, students' motivation for affiliation with their teacher and with peers was added to investigate associations between these student variables and their perceptions of teacher and peer enthusiasm.

Data were collected in 12 different classes with different instructors. In total, 455 students participated in the study, by filling out surveys at the beginning and end of the semester. For the main analysis, a path analysis was used in order to explore the relationships among initial interest, background knowledge, perceptions of teacher enthusiasm, perceptions of peer enthusiasm, motivation for affiliation with the teacher, motivation for affiliation with peers, and the situational interest variables of “hold interest” and “catch interest” at the end of the semester. Results indicated that the relationships between initial interest and “hold” as well as “catch” interest were mediated by perceptions of peer enthusiasm but not teacher enthusiasm. Also, perceptions of teacher enthusiasm and of peer enthusiasm had direct effects on “hold” interest as well as “catch” interest. Also, students’ affiliative motivation with the teacher and peers had direct effects on their perceptions of teacher and peer enthusiasm.

Overall, this study makes a contribution to an appreciation for the importance of contextual factors as well as students’ own individual variables to understanding the mechanisms by which students’ interest in a course develops and is maintained throughout the semester.

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Chapter 1: Introduction

In any college course, some students may be taking the course without much interest in the course content whereas some others may attend the class intrigued by the course topic and eager to learn. Whether students have an initial interest in a course or not, their interest could blossom or wither as the semester unfolds. Along with factors that students bring into the class, the goal of this study was to investigate the kinds of external cues in the classroom that could trigger and enhance students' interest leading to a more developed individual interest by the end of the semester. Others have investigated the effect of instructional strategies such as different types of classroom organization, tasks, and the utility value of tasks on students' interest in the classroom (Mitchell, 1993; Hulleman, Godes, Hendricks, Durik, & Harackiewicz, 2010). Furthermore, in a recent influential study, Harackiewicz, Durik, Barron, Linnenbrink-Garcia, and Tauer (2008) concluded that more research on the types of classroom environment that may trigger students' situational interest was needed. Under the assumption that a teacher and peers may have impact on students' situational interest, in my study, the relationship among students' perceptions of their teacher's enthusiasm, students' perceptions of their peers' enthusiasm toward the course, and the effects of both on the relationship between initial interest and situational interest was explored, taking into account students' initial interest brought into the class. Also, the relationship between students' motivation for affiliation with their teacher and classmates and their perceptions of teacher and peer enthusiasm

was investigated in order to understand better the contributors to perceptions of enthusiasm.

Statement of the Problem

In every classroom, teachers see students with different levels of interest in the subject matter, and teachers hope to influence positively students' interest. A number of studies have shown the importance of interest in learners' learning processes and academic performance (Alexander, Jetton, & Kulikowich, 1995; Hidi, 2000; Hidi & Renninger, 2006; Krapp, 2002; Renninger & Hidi, 2002). However, there has been relatively less research on instructional conditions or classroom contexts that influence students' interest in the classroom. There have been some studies on types of tasks and characteristics of activities that could catch and hold students' interest (Mitchell, 1993), but there is no research on how characteristics of one's teacher, and classmates as social factors in a class may influence one's interest throughout a semester, even though the environment and the external support for interest have been acknowledged as important factors in learners' interest development (Hidi & Renninger, 2006).

In contrast to teacher enthusiasm, the importance of peer enthusiasm has not been recognized whereas there has been a longstanding focus on the effect of teacher enthusiasm. Furthermore, even in studies of teacher enthusiasm, in general, teacher enthusiasm has been investigated as a predictor of students' performance (Bettencourt, Gillett, Gall, & Hull, 1983; Brigham, Scruggs, & Mastropieri, 1992; McKinney, Robertson, Gilmore, Ford, & Larkins, 1984) and motivation (Patrick, Hisley, & Kempler,

2000). However, antecedents to understanding students' perceptions of teacher enthusiasm have not been explored.

Therefore, in this study, I explored how students' perceptions of their teacher's enthusiasm and classmates' enthusiasm may mediate the relationship between students' initial interest and their interest at the end of the semester. Furthermore, the relationship between motivation for affiliation with their teacher and classmates and their interest at the end of the semester as mediated by perceptions of teacher and peer enthusiasm was explored. In the next sections of this first chapter, I discuss, in turn, the literature on the constructs of interest, teacher enthusiasm, peer influence, and affiliative motivation. I then present the research questions that guided my research.

Interest

Interest has been considered critical in motivation and in learning (Deci, 1992; Hulleman, Durik, Schweigert, & Harackiewicz, 2008; Schiefele, 2001). Most commonly seen as a motivational variable, *interest* has been defined as “a psychological state of engaging or reengaging with particular content such as objects, events, or ideas over time” (Hidi & Renninger, 2006, p.112). Despite different perspectives on the conceptualization of the interest concept, most researchers seem to agree on some common characteristics of interest. First, interest emerges from an individual interacting with his or her immediate environment (Krapp & Fink, 1992). Second, a domain-specific characteristic of interest seems to be common to most conceptualizations of interest (Schiefele, Krapp, & Winteler, 1992). Third, interest has been considered to have two

distinctive components, situational interest and individual interest (Krapp, Hidi, & Renninger, 1992), as I will describe below.

Various perspectives on explaining the construct of interest. There have been various perspectives on explaining the construct of interest. One well-known theory of interest is the *Person-Object Theory*, which has recently been revisited in terms of self-determination theory. This theory focuses on the importance of the interaction between an individual and the “objects” in a specific situation. Here, *person* refers to individuals who are considered to be agents of action and *object* refers to aspects of the environment, the object of any individual action (Krapp, 2007). *Person-Object* theory has two components, value-related and feeling-related valences, thereby emphasizing characteristics of relational concept and domain specificity (Krapp, 2007).

The most recent interest theory is the *Four-phase model of interest development* (Hidi & Renninger, 2006). In this theory, the four phases, labeled *triggered situational interest*, *maintained situational interest*, *emerging individual interest*, and *well-developed interest*, are sequential and developmental (Hidi & Renninger, 2006). Unlike other interest models, the four-phase model explains each phase, emphasizing affective as well as cognitive aspects. Each phase of the model can be characterized by affect and also includes how different levels of knowledge or cognitive processing influence interest (Hidi & Renninger, 2006). Even though the emphases of each perspective on the construct of interest are different, they complement each other, recognizing the importance of affective and cognitive components of interest.

One final variation in approaches to situational interest comes from the work of Mitchell (1993) who differentiated between “catch” and “hold” interest, later operationalized and defined by Harackiewicz et al. (2008). In these views, situational interest, which refers to an affective reaction aroused by the immediate environment, is said to be composed of two components, hold interest referring to “students’ feelings about and personal valuing of the course material” and catch interest referring to “affective reactions to course lectures” (Harackiewicz et al., 2008, p. 109).

Impact of interest on students’ achievement and motivation. There are a number of studies that show a positive impact of interest on learning (Alexander & Murphy, 1998; Scheifele, 1991; Scheifele, 2001; Schiefele, Krapp, & Winteler, 1992). Ainley, Hidi, and Berndorff (2002) examined the mediating processes of interest in reading comprehension and reported that topic interest influences reading comprehension as topic interest is associated with affective responses and is related to persistence with the text and learning. Alexander and Murphy (1998) investigated the shifts in learner profiles throughout a semester of a course in terms of knowledge, interest in a domain, and strategic ability, suggesting that having relatively more domain knowledge at the beginning of the semester would not necessarily lead to optimal academic performance. Rather, the interplay between knowledge and interest could optimally enhance students’ learning. Also, recently, it has been reported that initial interest may predict students’ continued interest in the future as well as situational interest in the class, with a positive

relationship with mastery goal orientation mediating the relation between initial interest and continued interest in course material (Harackiewicz et al., 2008).

Along with research on interest as a predictor and as an outcome, it may be important to investigate the effects of social learning environment on students' interest development. Interest may develop by interaction between a person and an "object", being stimulated by the social context by way of the value component (Hidi & Renninger, 2006; Krapp, 2007). Value cannot be interpreted separate from the context in which students are learning. The social context may influence the quality of interactions between a person and an object of interest because interpersonal experiences in the social context could change one's perception of person-activity interaction (Deci, 1992). Thus, the classroom environment where students interact with their teacher and classmates may stimulate or hinder their interest development, influencing the quality of their interaction with the course topic.

Teacher Enthusiasm

The question of how a teacher influences students' learning has been a long-standing question for a long time in educational research. Especially, the prolific literature from a "process-product" approach of the 70's and 80's sought to establish relationships between teacher behaviors and student outcomes, implying a strong association between what teachers did and what students experienced in the classroom. As identified in this literature as one of these effective teacher behaviors, *teacher enthusiasm* was recognized as an important characteristic of an effective teacher as well

as a predictor of student outcomes (Brophy & Good, 1986). However, teacher enthusiasm has not been explored as a mediating effect in terms of students' interest development, and there has been relatively less research on how teachers' enthusiasm plays its role in students' learning. In the Four-Phase model (Hidi & Renninger, 2006), the three components, affect, value, and knowledge are considered critically important in order for individuals to develop interest in a particular domain. Thus, in my study, I explored whether perceptions of teacher enthusiasm influenced students' situational interest, which includes affective reactions toward the course and students' valuing of the course content at the end of the semester. In the next sections, I define what is meant by teacher enthusiasm. I then, review in brief some of the literature on the impact of teacher enthusiasm on students' motivation.

Defining teacher enthusiasm. Defining teacher enthusiasm is not an easy task. A positive correlation between students' emotions and motivation in the classroom and teachers' expressions of positive emotions and intrinsic motivation has been reported, and several studies support the importance of teacher's emotional support, emphasizing some positive instructional characteristics including teacher enthusiasm (Meyer & Turner, 2006). In the *process-product* approach, teacher enthusiasm became a characteristic of an effective teacher (Brophy & Good, 1986) and it has been considered as a teaching strategy to influence students' performance by displaying a high energy level and interest in the subject matter (Sass, 1989). Teacher enthusiasm can be considered an expression of a teacher's positive affect while teaching. More recently, in

the perspective of self-determination theory, teacher enthusiasm has been described as an affective component accompanied by intrinsic motivation that may promote a teacher's active involvement in teaching (Kunter, Tsai, Klusmann, Brunner, Krauss, & Baumert, 2008). Especially in students' eyes, teacher enthusiasm could be an indicator of whether their teacher enjoys teaching them and values the course. This is because it is always difficult to know a teacher's actual level of enjoyment if the teacher does not express it in class. Therefore, student-perceived teacher enthusiasm was my main focus in this exploration of how teachers' affect could influence students' own affect and valuing of a course.

Impact of teacher enthusiasm on students' motivation. In the past decades, studies on the effect of teacher enthusiasm have focused on whether teacher enthusiasm affects students' outcomes and whether level of enthusiasm influences differently students' behaviors such as their achievement and engagement in classroom tasks. Most of this research was conducted in pre-K to 12 settings and not in college classrooms. Recently, some researchers have directed their attention to the relationship between teacher enthusiasm and students' motivation and emotions in the classroom.

Some studies support the relationship between teachers' enthusiasm and their students' emotions and motivation. Most recently, Frenzel, Goetz, Ludtke, Pekrun, and Sutton (2009) reported a positive link between teacher enjoyment and students' enjoyment, implying a positive relationship between teacher emotions and students' emotions in the classroom. They investigated students' perceptions of their teachers' enthusiasm, arguing that teacher enthusiasm is an observable variable by which students

can recognize their teacher's enjoyment of teaching in the classroom. They reported that a positive link existed between teachers' enjoyment and students' enjoyment and a positive relationship between students' perceptions of their teacher's enthusiasm and the students' level of enjoyment. Wild, Enzle, and Hawkins (1992) studied the effect of students' perceptions of their teacher's motivation on their own motivation. Results indicated that students who considered their teacher more intrinsically motivated reported positive affect and enjoyment when they were in class whereas students who perceived their teacher as extrinsically motivated showed relatively less interest in their class. These recent studies on teacher enthusiasm support the relationship between teacher enthusiasm and students' affect and value.

Peer Influence; Peer Enthusiasm

Most studies on peer influence have been conducted with children and adolescents as the focus rather than college students because young students are thought to be especially influenced by peers and their peers' opinions (Berndt, 1982; Steinberg, 1986). Even though college students may not be as easily influenced by peers as younger students, I wanted to explore the effect of peers on students' motivation, attitude, and behaviors in the college classroom because the classroom climate that a teacher and students create together may influence learning in the college classroom. However, interestingly, in research on peer influence, the focus has been on the effect of students' perceptions of their relationship with peers such as students' perceptions of belongingness and perceived peer relationships in the classroom, and relatively little has

been done on peer influence on one's own motivation in the classroom. When looking at higher education, in a large classroom, it is not easy to build close relationships with others in a class; thus, it seemed important to investigate how individual students perceive their classmates collectively and whether there is any relationship between how classmates act and individual students' motivation. Thus, along with research on the effects of students' perceptions of their relationship with peers, it may also be important to investigate whether students' perceptions of their peers' enthusiasm collectively in the classroom may influence students' interest over the semester.

Although there is no literature that can directly inform my study, the literature on peer relationship and classroom climate, with its emphasis on the importance of students' perceptions of their peers, could be used to support indirectly the link between students' perceptions of their peers' enthusiasm for a course and their own interest development. Also, there is a lack of research on peer climate in the context of higher education, where it often happens that a large number of students take a course together. Thus, more research is needed on how peers influence students' interest and learning in the college context. In the next section, I review in brief the key studies on peer relationship, classroom climate, and affiliative motivation.

Peer relationship. Peer relationship has been reported to have a positive association with learners' attitudes, beliefs about school (Ide, Parkerson, Haertel, & Walberg, 1981), and students' school motivation (Berndt, 1999). Furthermore, peer relationship is important because the quality of students' relationships with their

classmates or friends may help explain the effect of classroom norms that might encourage or discourage engagement in activities that are meant to lead to individual learning (Murdock, 1999; Ryan, 2000). It has been reported that those who think they are in a closer relationship with their peers are more likely to be influenced by these same peers and adopt values similar to them (Berndt, Laychack, & Park, 1990). Savin-Williams and Berndt (1990) showed the importance of the quality of relationships with peers, reporting that the more satisfying are the friendships students have, the more positively they perceive their schooling. Furthermore, recently, Nelson and DeBacker (2008) emphasized the importance of class belongingness on students' motivation to learn, showing how feelings of class belongingness influence students' self-efficacy, goal orientations, intimacy, and responsibility goals, suggesting how important it is for individual students to feel a valued and respected part of the classroom community.

Peers' contribution to classroom climate. Meyer and Turner (2006) emphasized the importance of a positive climate that teachers and students co-create for students to learn in the classroom. Along with teachers' influence on students' motivation and learning, there are findings that support the significant impact of peers as contributors to the social environment and individual students' motivation. Even though the effect of peer influence on students' motivation has been mostly investigated in younger students, peer influence cannot be overlooked in any classroom contexts including at the college level. Peers, collectively, may influence significantly their fellow students as they create norms that are modeled and valued especially by young students who may want to be a

part of the norm, which in turn, may influence classroom climate (Ladd, Herald-Brown, & Kochel, 2009; Ryan, 2000; Savin-Williams & Berndt, 1990). One recent study reported a moderate correlation between peers' attitude toward learning and students' motivation to learn (Khamis, 2008). More specifically, Sage and Kinderman (1999) reported a positive relationship between individual students' engagement in class and engagement level of their peers in the classroom, as well as an association between peer support and students' engagement and discipline problems at school. Also, according to Moos and Moos (1978), there is an association between classroom climate and students' academic performance, showing a positive link between students' perceptions of their classmates' involvement in the classroom and their achievement at the end of semester. Also, Ryan (2001) reported that students' motivation is likely to be affected by their peers.

A recent study showed that a negative peer climate could be especially harmful for students who have performance-approach, performance-avoidance, and social-approval goals, which all relate to how students look to others as important influence in their motivation (Nelson & DeBacker, 2008). Also, Murdock (1999) found that less engaged students with risk factors perceived the motivational context at school negatively and viewed their peers as having less aspiration in education.

These studies support the importance of the influence of students' perceptions of their classmates' motivation and their relationships with their classmates on their own interest and motivation.

Affiliative Motivation

In general, affiliative motivation has been defined as motivation to affiliate and get along with another person (Huntsinger, Lun, Sinclair, & Clore, 2009), and it has been explored as a way of elucidating why people act or think like the individuals with whom they interact (Huntsinger et al., 2009). Therefore, affiliative motivation has been explored and related to *emotional contagion* in laboratory conditions, but it has not been studied for its effects in the classroom context. However, affiliative motivation would seem relevant to the classroom context in order to help explain underlying mechanisms of why some students become more enthusiastic than others with the same teacher and the same classmates in the same course. In terms of the effects of affiliative motivation, Lakin and Chartrand (2003) reported a positive relationship between affiliative motivation and behavioral mimicry, and Sinclair, Lowery, Hardin, and Conlangelo (2005) found “social tuning of attitude,” reporting that the more likable is the experimenter, the more similar participants’ attitudes become to those of experimenters, supporting the role of affiliative motivation as underlying mechanism of convergence of attitudes in interaction. Furthermore, Huntsinger et al. (2009) suggested that affiliative motivation may even lead an individual to match in mood and affect the people with whom they interact by way of “mood matching” when an individual has motivation to affiliate with the other partner. These findings support the importance of affiliative motivation in understanding emotional transmission, and may be helpful as well in understanding the effects of students’ perceptions of teacher enthusiasm and peer enthusiasm. Because teacher enthusiasm can be considered an affective component accompanied by intrinsic

motivation while teaching (Kunter et al., 2008) and because it is expressed as a high energy level and interest in the subject matter (Sass, 1989), it may be that students with high affiliative motivation are more likely to experience their teacher's and peers' enjoyment and positive feelings. Therefore, affiliative motivation may help explain why some students become more enthusiastic than others despite having the same teacher and the same classmates in the same course.

Purpose of Study

Addressing lingering questions in interest research, Krapp (2007) suggested that further research was needed on the conditions that create a new interest and the underlying psychological processes for change in interest to occur. Even though it is important to determine what kinds of conditions and how those conditions influence learners' interest, there has been little research when compared to the theorizing of the concept that has gone on. A decade ago, Mitchell (1993) mentioned that teachers may not have power over students' initial interest but they can make an impact on their students' continued interest throughout instruction, emphasizing the role of a teacher as someone who provides appropriate tasks in the classroom. In line with these lingering questions, the purpose of this study is to explore what kinds of factors could influence students' interest in college courses, and how those factors are related to students' interest. No research that I could find had investigated the relationship between students' perceptions of their teacher and peers' enthusiasm and their own interest. Especially, even though contextual factors are considered important conditions in interest research (Hidi &

Renninger, 2006), students' perceptions of their teacher and peers have been overlooked in the research on students' interest. Also, no previous research has brought in how students' own affiliation motivation with others in the classroom influence their perceptions of teacher enthusiasm and of peer enthusiasm, or how affiliative motivation is related to students' situational interest at the end of the semester. It was these gaps in the literature that my study was intended to fill.

Research Questions

Research Questions 1 & 2. Does initial interest at the beginning of the semester predict hold interest and catch interest at the end of the semester?

Rationale. Previous research has shown there is a positive relationship between initial interest and situational interest. Although this is not the main focus of this study, it is still important to understand this relation in order to understand further mediator effects of perceptions of teacher enthusiasm and of peer enthusiasm on the relation of initial interest and the two kinds of situational interest, hold and catch interest.

Research Questions 3 & 4. Is initial interest associated with hold interest and catch interest indirectly via students' perceptions of their teacher's enthusiasm?

Rationale. This is one of main purposes of this study. Mediator effects of perceptions of teacher enthusiasm and of peer enthusiasm will help explain the relation between initial interest and situational interest at the end of the semester.

Research Questions 5 & 6. Is initial interest associated with hold interest and catch interest indirectly through students' perceptions of their peers' enthusiasm?

Rationale. Along with mediator effects of perceptions of teacher enthusiasm, mediator effects of perceptions of peer enthusiasm on the relation of initial interest and situational interest at the end of the semester is another main focus of this study. This result will help explain the relationship between initial interest and situational interest at the end of the semester. Furthermore, it could help our understanding of the concept of peer enthusiasm because peer enthusiasm, specifically, has not been studied.

Research Questions 7 & 8. Is students' background knowledge at the beginning of the semester associated with their initial interest and does background knowledge predict their hold interest and catch interest?

Rationale. Even though this is not one of the main purposes of this study, it is important to assess background knowledge as it has been posited as an important correlate of students' initial interest. If there is a high correlation between background knowledge and initial interest, we may deduce that students might be further along in terms of their developed individual interest (Hidi & Renninger, 2006).

Research Questions 9 & 10. Is students' motivation for affiliation with their teacher associated with their motivation for affiliation with their peers, and is students' initial interest associated with their motivation for affiliation with the teacher as well as their motivation for affiliation with their peers?

Rationale. Affiliative motivation has been relatively less well researched in the context of classroom learning. Therefore, it is important to understand how characteristics of affiliative motivations in the classroom context relate to interest, such as the relationship

between motivation for affiliation with one's teacher and peers and initial interest and situational interest.

Research Questions 11 & 12. Does students' motivation for affiliation with the teacher predict their perceptions of teacher enthusiasm, and does students' motivation for affiliation with peers predict their perceptions of peer enthusiasm?

Rationale. Affiliative motivation in the classroom was explored to elucidate antecedents of perceptions of teacher enthusiasm and of peer enthusiasm. Also, the results of this study will contribute insight to the construct of affiliative motivation because it has not been explored in the classroom context.

Research Question 13. Is affiliative motivation associated with catch interest via perceptions of teacher enthusiasm and via perceptions of peer enthusiasm?

Rationale. In this study, I was interested in mediator effects of perceptions of teacher enthusiasm and of peer enthusiasm on the relation between affiliative motivation and catch interest at the end of the semester. The results of this question could help explain how students' willingness to get along with their teacher and peers could influence their catch interest through their perception of teacher enthusiasm and of peer enthusiasm.

Chapter 2: Literature Review

The purpose of this study was to investigate whether students' interest at the end of the semester could be predicted by their perceptions of their teacher's and peers' enthusiasm, taking students' initial interest and their motivation to affiliate with their teacher or classmates. My understanding of the relationship between these variables is situated in the literature of two different perspectives, the process-product paradigm and the social perspective approach. Therefore, in the following sections, I first address the two general frameworks that have informed research on teaching, before moving on to the constructs of interest, teacher enthusiasm, peer influence, and affiliative motivation. These last four constructs are discussed in order to inform the interrelationship among students' interest, their perceptions of their teacher's and peers' enthusiasm, and affiliative motivation in my study.

The Process-Product Paradigm

Even though the relationships between students' interest, perceptions of peer and teacher enthusiasm, and affiliative motivation could sit well within the literature from a social perspective theory, the *process-product paradigm* in the research on teaching may not be ignored. This is because the prolific literature from the process-product approach of the 70's and 80's still provides important background for understanding the relationship between teacher enthusiasm and students' motivation.

In its essence, the process-product paradigm focused on seeking relationships between teacher behaviors (considered as the “process”) and student outcomes (as “products”) to determine the importance of teachers on student outcomes. Yet, for all its productive contributions to an understanding of how teaching affects student learning, the approach was criticized for not providing a full picture of the underlying process of learning and of the complex and interactive relationships between teacher and students. In particular, its biggest failing is that it overlooked the importance of the students’ own contributions to the learning process as well as of the context. I will next review in brief this approach.

In the 70’s and 80’s, the process-product tradition was very productive as an approach linking teacher behaviors to student outcomes, as a way to do research on teaching. Even though Shulman (1986) criticized the paradigm, he also recognized its several virtues in focusing on the relationship between effectiveness of teachers and student outcomes, such as establishing that teacher actions are linked to systematic variations in student achievement, the straightforward applicability of results to teaching performance, and the studies fact that were conducted in classrooms rather than in laboratory settings. Therefore, in terms of research on teaching, the process-product tradition had significant meaning in teacher education because the relationship between specific teaching processes and student achievement began to be studied based on observations of classroom processes, using reliable measures of student achievement (Gage & Needles, 1989).

As a prime example of research from this tradition, Brophy and Good (1986) introduced the Canterbury Studies in the Handbook of Research on Teaching. The Canterbury studies suggested that several teacher behaviors are positively related to student achievement. The importance of content coverage on students' achievement, the importance of overt participation for younger students rather than older students, the usefulness of clear questions with appropriate levels of difficulty, reviews at the end of lesson, teacher enthusiastic reactions to student response for the content, and support of the students were all established. It is noticeable that one aspect of teacher behaviors positively associated with student achievement was teachers' enthusiasm in teaching.

Also, Brophy and Good (1986) summarized several teacher behaviors that seemed to maximize student achievement based on many studies. They reported that the link between student achievement and the amount of content covered by a teacher as well as the pacing of instruction was most consistently replicated. Teachers' giving information, structuring, redundancy, clarity, pacing, and enthusiasm were reported to influence achievement. Also, they reported that questioning the students, reacting to student responses, and handling seatwork and homework assignments affected student achievement. However, in their conclusion, they mentioned that context-specific effects such as grade level and student SES should not be overlooked. Their review of these findings influenced the conceptualization of teacher effectiveness and teacher training education for decades.

Yet, even in the 80's, Peterson, Wilkinson, Spinelli, and Swing (1984) conducted a study that broadened the portrayal of the relationship between teaching and student

outcomes, merging what they called different paradigms, the sociolinguistic and process-product paradigms. In their study, they correlated the frequency of categories of student behaviors with students' achievement scores in order to understand how student behaviors such as requests in small group work were associated with student achievement. As a result, even though each paradigm in their research indicated different ideas about small group processing, overall, both paradigms supported the importance of student behaviors such as procedural requests and managerial explanations in small group as positive motivational and learning effects.

However, the history of the process-product paradigm is one of steady appreciation coupled with strong criticism. Acknowledging criticisms from their own as well as others, the researchers in this field seemed to broaden their perspectives. Brophy and Good (1986) suggested integrating teacher effects research with other research perspectives, considering other outcome variables, and suggesting that the research on teacher effects should improve not only methodologically but also expand into new areas. Furthermore, the social aspect of teaching and learning began to be considered in process-product research, even though it still emphasized the importance of the teacher's role as constructing the classroom community rather than recognizing the agency of students (Alton-Lee, 2006).

Even though the process-product paradigm provided support for the importance of the relations between teaching and student outcomes, it ignored presage and context variables. With the rise of social views of learning, a socioconstructivist perspective could better contribute to an understanding of the relationship between teacher and

student and the relationship among peers, representing the idea of reciprocity between such teacher variables as enthusiasm and such student variables as enthusiasm and interest through social interaction.

The Social Perspective Approach

Even though interest might be considered an individual variable that students bring into the classroom, the literature on interest has asserted the importance of social support and of the environment in interest development (Hidi & Renninger, 2006; Harackiewicz et al., 2008). Also, Summers (2006) described how individual motivation could be reinterpreted in a socioconstructivist perspective, quoting McCaslin and Hickey's (2001) idea about context specific characteristics of learning, motivation, and identity. Bringing these ideas together, the socio constructivist perspective emphasizes the social nature of learning, and I see it as useful in providing a theoretical framework for my interest in the relationship among teacher's enthusiasm, peers' enthusiasm, affiliative motivation, and student interest. In the socio constructivist perspective, the teacher's and peers' roles can be said to act as scaffolds of students' motivation and learning processes. In this perspective, teacher's and peers' enthusiasm could be interpreted as emotional support for students to become interested in the subject to move themselves further along in the zone of proximal development. Also, students' affiliative motivation may maximize that emotional support from others in the classroom because *affiliative motivation* is that refers to what may enhances individuals' tendency to feel

like others during ongoing interaction as well as even before meeting their partners (Huntsinger, Lun, Sinclair, & Clore, 2009).

The socioconstructivist paradigm originates in the work of Vygotsky (1978) who stated that every function in the child's cultural development appears twice, on the social level (interpsychological), and later on the individual level (intrapsychological) (Goldstein, 1999). Therefore, in this view, social interaction plays a crucial role in fostering learning because cognition is considered to be socially situated and transpersonal (Erickson, 1996; Resnick, 1991). Especially in terms of the role of teachers, Erickson (1996) explained the importance of interaction between teachers and students in the learning process, stating that as part of interaction, nonverbal as well as oral and written interaction between teachers and students are all considered an important aspect of the learning process. Also, in the perspective of *peer influence*, peers socialize their motivation and behaviors while interacting with each other through dynamic and complex socialization processes (Ryan, 2000).

Even though socioconstructivist perspectives have mostly focused on explaining the cognitive aspect of the learning process, recently there has been an increasing interest in affective aspects. As Goldstein (1999) pointed out, Vygotsky considered the role of affective and personal relationships as central to cognitive development, and he explicitly opposed the idea of a separation between cognition and affect. Vygotsky (1978) described the zone of proximal development as “ The distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in

collaboration with more capable peers” (p.86), implying that the zone of proximal development (ZPD) is formed through relationships (Erickson, 1996). Along with the cognitive development of a learner in the zone of proximal development, Goldstein (1999) emphasized the need to consider affective aspects, stating “analogous to the interpsychological dimension, the interrelational dimension is a shared affective space created by the adult and child in the ZPD” (p.651). Therefore, acknowledging that the interactions in the ZPD are influenced by affective relational aspects, Goldstein (1999) claimed that the ZPD should be interpreted as a region of affective development as well as a region of intellectual development.

Furthermore, in terms of motivation, the social perspective theories support the idea that individuals internalize standards and values while negotiating with others (Hickey, 2003). Especially, it is reported that students influence each others in class as they create the norms that they value and model (Ladd, Herald-Brown, & Kochel, 2009; Ryan, 2000; Savin-Williams & Berndt, 1990). Therefore, because a classroom climate is socially constructed by students as well as teachers, it would be important for teachers and students to be aware of it, feeling with each other, and trying to find a way to stimulate their interest together. Perhaps, as teachers enthusiastically engage in teaching and peers enthusiastically engage in learning in the classroom, students might perceive some value in the course material, negotiating engagement with the course, and developing their interest.

Overall, the socioconstructivist approach provides an opportunity to understand the relationship among teacher enthusiasm, peer enthusiasm, affiliative motivation, and

student interest as a complex and interactive process of an affective aspect in the zone of proximal development rather than as a simple set of correlations among variables.

Interest

Even though general cognitive factors play an important role in students' academic achievement, noncognitive factors such as motivational variables are also crucial in academic success by influencing achievement indirectly (Schiefele et al., 1992). Among different motivational variables, the importance of interest in students' learning has been explored for decades. Thus, interest has been used as a predictor of students' achievement as well as an outcome to measure students' success in college in some studies (Harackiewicz, Barron, Tauer, Cater, & Elliot, 2000; Harackiewicz, Barron, Tauer, & Elliot 2002). For instance, Alexander and Murphy (1998) reported that having relatively more domain knowledge at the beginning of the semester would not necessarily lead to optimal academic performance, but that interest and strategic investment contributed to better performance, implying the importance of the interplay among cognitive and noncognitive variables.

To enhance an understanding of the concept of interest, first, I will discuss a definition of interest and then explain various approaches to studies of the construct of interest, and its relationship to the connection between student interest and teacher enthusiasm.

Definition of Interest. Interest has been considered important in motivation (Hulleman et al., 2008; Schiefele, 1991), but because of the ambiguity in conceptualizations of the interest concept, it has often been used interchangeably with other concepts such as intrinsic motivation, subjective-related affect, attitude, and cognitive motivation (Schiefele et al., 1992). Most commonly, as a motivational variable, *interest* has been defined as “the psychological state of engaging or the predisposition to reengage with particular classes of objects, events, or ideas over time” (Hidi & Renninger, 2006, p. 112). In presenting one of most recent models of interest, Hidi and Renninger (2006) explained that interest develops in four phases, sequentially developing from situational interest to individual interest, and the characteristics of each phase of interest may play a role in mediating subsequent development, emphasizing affective as well as cognitive processes in each phase.

Situational interest and individual interest. In educational research, two types of interest have been differentiated: situational and individual interest (e.g., Krapp et al., 1992; Alexander, Kulikowich, & Schulze, 1994; Hidi, 2000, 2006).

Situational interest is acknowledged as more temporal and includes focused attention and an affective reaction stimulated by the immediate environment (Jetton & Alexander, 2001; Hidi & Renninger, 2006). Therefore, situational interest is an interest that develops as individuals are participating in an activity whereas individual interest is an interest that individuals bring to some environment or context (Mitchell, 1993).

Mitchell (1993) developed a model of interest, using qualitative and quantitative methodologies, based on previous theoretical work (e.g., Malone & Lepper, 1987). Based on various analyses, he identified two general constituents, individual and situational interest with five facets related to situational interest. Concentrating on situational interest, Mitchell (1993) proposed that situational interest involves “catching” and “holding” interest, claiming that “catching interest” is related to at least two kinds of stimulation such as cognitive and sensory stimulation, whereas “holding interest” refers to empowering students to hold their interest, making the content of learning meaningful. Based on focus group responses and open-ended questionnaires, five distinctive facets were identified as contributing to students’ perceptions of classroom interest. Catching interest had three facets, group work, computers, and puzzles, whereas holding interest had two facets, meaningfulness and involvement.

Situational interest has been considered important in learning processes because when situational interest is activated, an individual may perceive value in the activity and want to continue engaging in the activity over time, which may lead to maintained situational interest (Hulleman et al., 2008). In that case, individual interest may emerge or develop (Hulleman et al., 2008). Among a few studies on situational interest, Schraw, Flowerday, and Lehman (2001) explained three ways to increase situational interest; offering meaningful choices to students, selecting well-organized texts that promote interest, and giving them background knowledge to enhance understanding of a topic.

Individual interest has been defined as “a person’s relatively enduring predisposition to reengage particular content over time as well as to the immediate

psychological state when this predisposition has been activated” (Hidi & Renninger, 2006, p. 113). Mitchell (1993) identified individual interest as an interest that people already have and bring to some context; for instance, some students will already have some interest in the course content before they take a course in the field. As with situational interest, individual interest has been found to have a positive influence on learning processes such as attention, recognition, and recall (Renninger & Wozniak, 1985) and academic motivation (Alexander & Murphy, 1998; Scheifele, 2001).

Alexander and Murphy (1998) investigated the shifts in learner profiles throughout a semester of a course in terms of students’ knowledge, interest in the domain, and strategic ability, and suggested the importance of interplay among these three variables in order to achieve optimal academic performance. In their study, three distinct groups of participants, a learning-oriented cluster, a strong-knowledge cluster, and a low-profile cluster, emerged at pretest, and four distinct groups, a learning-oriented cluster, a strong-knowledge cluster, an effortful-processor, and a nonstrategic-reader cluster, emerged at posttest, based on cluster-analytic procedures. The term *learning-oriented cluster* referred to students who had a moderate level of domain knowledge and a high level of interest in that domain whereas the *strong-knowledge* cluster included those who began with the highest level of domain knowledge but the lowest level of interest in the domain. The *low profile* cluster, the largest cluster at pretest, included those who had a moderate interest in the domain and the least knowledge in that domain. At posttest, new clusters emerged, an *effortful-processor* cluster and a *nonstrategic-reader* cluster. The effortful-processor group included the students who displayed a high

level of strategic effort with the lowest average on the domain knowledge measure, and the nonstrategic-reader cluster included the students who put the least amount of strategic effort during studying and, on average, remembered the least from the knowledge passage, but claimed to be moderately interested in the domain.

Interestingly, the students in the learning-oriented cluster remained relatively consistent from pretest to posttest whereas many of the students in the strong knowledge cluster at pretest were distributed to other clusters at posttest, with 46% becoming nonstrategic readers. Therefore, these results suggest the importance of the interplay among domain knowledge, interest in the domain, and strategic abilities rather than only the importance of domain knowledge.

Various approaches to explaining the construct of interest. There have been several approaches to explaining the construct of interest. First, Alexander's (1994, 1997) Model of Domain Learning focused on interest development related to strategy development as well as knowledge acquisition in developing expertise in academic domains. Person-object theory, which has been recently discussed in terms of self-determination theory, focused on individual interest being affected by the interaction of the person with the environment (Krapp & Fink, 1992; Krapp 2002, 2007), and recently, by an expansion of ideas associated with two components, value-related and feeling-related valences.

Hidi and Renninger (2006) proposed the Four-Phase Model of Interest that describes four phases in a learner's interest development. The four-phase model of

interest development explains phases of situational and individual interest in terms of both affective and cognitive processes. The four phases are sequential and developmental, and each phase of interest may play a role as a mediator of subsequent phase of interest. In this model, like other models of interest, both situational and individual interests are included. Situational interest has two phases, triggered situational interest, and maintained situational interest, and individual interest has two phases, emerging individual interest and well-developed interest. Thus, the model includes four sequential phases: Phase 1- Triggered situational interest, Phase 2- Maintained Situational interest, Phase 3- Emerging individual interest, and Phase 4 -Well-developed interest. In early phases of interest development, affect may play an important role as an indicator of interest because the amount of knowledge of the particular content may be limited, whereas in the later phases of interest, some form of knowledge or cognitive processing are more recognized (Hidi & Renninger, 2006). Therefore, the model describes early phases of interest development as primarily consisting of focused attention and positive feelings whereas the later phases consist of positive feelings as well as both stored value and knowledge.

Student interest and teacher and peer enthusiasm. Hidi and Renninger (2006) proposed that the environment and the content have a critical impact on learners' interest development, and some qualitative studies have provided evidence that parents and teachers can play a critical role in students' interest development (Krapp, 2002). Also, triggered situational interest plays a significant role in students' learning, implying its

importance for those who have low initial interest in the subject (Hidi, 2006; Mitchell, 1993). To trigger situational interest, the immediate environment stimuli can be important in the classroom. Because a teacher's and peers' enthusiasm are recognized as contextual factors having stimulating characteristics, I tested in my study whether such a contextual factor as teacher enthusiasm could be associated with students' situational interest and could contribute to the further development of their individual interest. Also, Also, for those students who already bring their individual interest to class, still they may need teacher support and encouragement in order to persevere when facing difficulties (Hidi, 2006).

Teacher Enthusiasm

Each individual student brings his or her own motivational variables that influence engagement in the classroom. Certainly, all those factors that students bring to class influence their engagement in classroom activities. However, contextual factors such as the teacher and peers' influence on their learning cannot be overlooked. As one such contextual factor, a teacher plays a significant role in students' motivation throughout the semester. Several studies have reported that students are influenced by their perceptions of their teachers as well as by their teachers' actual behaviors (Skinner & Belmont, 1993). Therefore, educational researchers have suggested particular teacher behaviors that may promote student motivation, including guidance, modeling, enthusiasm, provision of choice, sincere praise, reinforcement, and interest-induction (Brophy & Good, 1986; Skinner & Belmont, 1993).

As identified as one of these effective teacher behaviors, teacher enthusiasm has been recognized as an important characteristic of an effective teacher as well as a predictor of student outcomes (Brophy & Good, 1986; Stewart, 1989). Thus, it has been widely used for teacher evaluation especially in the context of university course evaluation (Kunter, Klusmann, Brunner, Krauss & Baumert, 2008).

To enhance understanding of the concept of teacher enthusiasm, first, a definition will be offered, and then, effects of teacher enthusiasm on students' achievement and motivation and stimulus characteristics of teacher enthusiasm that could influence students' interest will be reviewed.

Definition of teacher enthusiasm. Despite its recognized importance, even until now, there has not been a single widely accepted definition of teacher enthusiasm (Kunter et al., 2008). Usually, definitions have been used global concepts such as dynamism and stimulus variation (Bettencourt et al., 1983).

Over the decades, researchers have tried to identify external indicators of teacher enthusiasm in the classroom but there is still no consensus on a definition among researchers. However, several researchers have conceptualized teacher enthusiasm as teacher behaviors or strategies based on research, observation, and opinion of teacher educators. According to Rosenshine (1970), “stimulating” “energetic” and “enthusiastic” teacher behaviors have been associated with students' achievement, and more specifically, behaviors such as frequencies of movement, gesture, variation in voice, and eye contact have identified as the relevant predictors of students' achievement. Based on

Rosenshine's conceptualization of teacher enthusiasm, Collins (1978) identified eight indicators of enthusiasm in order to train teachers to be more enthusiastic in their teaching; "(a) rapid, uplifting, varied vocal delivery; (b) dancing, wide open eyes; (c) frequent, demonstrative gestures; (d) varied, dramatic body movement; (e) varied emotive facial expressions; (f) selection of varied words, especially adjectives; (g) ready, animated acceptance of ideas and feelings; and (h) exuberant over-all energy level" (p. 436).

More recently, in the perspective of self-determination theory, teacher enthusiasm has been described as an affective component accompanied by intrinsic motivation that may promote teachers' active involvement in teaching and may, in turn, lead to high quality instructional behaviors (Kunter et al., 2008). Furthermore, Kunter et al. (2008) emphasized that it is important to distinguish between teacher enthusiasm about the subject matter and enthusiasm about teaching.

Effects of teacher enthusiasm on achievement. Based on conceptualizations of teacher enthusiasm focusing on specific teacher behaviors in the classroom, researchers have investigated the effects of teacher enthusiasm on students' achievement in particular school subjects, and educators have trained pre service teachers to be more enthusiastic in their teaching (Bettencourt et al., 1983).

Prior to 1970, researchers consistently reported a positive impact of teacher enthusiasm on students' achievement, and Rosenshine (1970) claimed that instructing a teacher to increase his or her enthusiasm would result in higher student achievement.

There have been findings that showed positive associations between teacher enthusiasm and student achievement gains (Brigham, Scruggs, & Mastropieri, 1992). Also, Bettencourt et al. (1983) suggested that across curriculum content, students, and grade levels, enthusiasm might be an important generalizable characteristic of effective training.

In the mid 80's, Bettencourt et al. (1983) conducted two experiments to examine the effects of enthusiasm training for teachers on student achievement and on the applicability of Collins' (1978) training suggestions. In the study, teachers were randomly assigned either to an experimental (training) or to a control (no-training) condition, and after training, two raters rated the teachers' enthusiasm based on the eight indicators developed by Collins (1978). As a result, trained teachers were reported to show significantly more enthusiasm than non-trained teachers. In one study, teacher enthusiasm had a significant positive effect on students' on-task behavior whether students were in the condition of seatwork or in teacher-led instruction. However, interestingly, in another experiment, the students who were taught by trained teachers did not achieve more than those who were taught by non-trained teachers.

As in the Bettencourt et al. (1983) study, several studies have shown no significant impact of teacher enthusiasm on student achievement. For instance, McKinney et al. (1982) reported no effect of teacher enthusiasm on social studies achievement of fourth grade students. Sanders and Gosenpud (1986) indicated that teacher enthusiasm had little impact on student exam scores and final grades.

Therefore, findings from these studies have not been consistent, and the difference among findings further suggested that other factors such as age and maturity may have a moderating effect on enthusiasm and achievement (Sanders & Gosenpud, 1986).

Effects of teacher enthusiasm on students' motivation. Since the mid 80's, along with waning popularity of the process-product paradigm, interest in the relationship between teacher enthusiasm and student achievement also decreased. However, as the importance of motivation in students' learning has been increasingly recognized, some researchers directed their attention to the relationship between teacher enthusiasm and students' motivation rather than limiting their attention to effects on student achievement gains. However, surprisingly, there has been little research on the effects of teacher enthusiasm on students' motivational variables. Therefore, there should be more studies conducted on the relationship between teacher enthusiasm and students' motivational variables. Contrary to the results of studies linking teacher enthusiasm and student achievement, studies examining the effects of teacher enthusiasm on students' motivation have shown consistently positive influence. Some studies on the relationship between teachers' motivation and students' motivation suggest a positive association between teacher enthusiasm and students' motivational variables. The finding of Wild et al. (1992) showed a positive relationship between students' self-perceived motivation and their perceptions of their teacher's motivation. When students perceived their teachers as being intrinsically motivated, they perceived the teacher as an important indicator of the

level of interestingness of an activity (Wild et al., 1992). Also, Patrick et al. (2000) reported that enthusiasm was the strongest predictor among variables of student intrinsic motivation and vitality. Several studies showed that high levels of teacher enthusiasm seem to exert a positive influence on students' motivation (Brigham, Scruggs, & Mastropieri, 1992; McKinney, Robertson, Gilmore, Ford, & Larkins, 1984; Patrick, Hisley, & Kempler, 2000). It is important to note that much of this research was conducted in the pre-K to 12 context, so little has yet been established empirically about the influence of teacher enthusiasm at the college classroom.

Stimulus characteristics of teacher enthusiasm and student interest.

Characteristics of teacher enthusiasm that are expected to attract and hold students' attention and interest are expected to stimulate students' interest in the classroom. Rosenshine (1970) stated that hearing and seeing a teacher displaying energetic actions may positively stimulate students in the classroom. There are studies showing that students are affected by the gestural, facial, and movement aspects of the teacher's behaviors in the classroom (Bettencourt et al., 1983), and the stimulus characteristics of intensity, size, contrast, and movement are important factors in gaining a person's attention (Bettencourt et al., 1983).

Bettencourt et al. (1983) claimed that the positive association between teacher enthusiasm and student on-task behavior could be explained as an attentional phenomenon because the stimulus characteristics of intensity are important in gaining a person's attention. Therefore, those stimulus characteristics that have been identified as

indicators of teacher enthusiasm have been used in teacher training (Bettencourt et al., 1983). Also, as another explanation, Bettencourt et al. (1983) suggested that students may interpret teacher enthusiasm from nonverbal communication that implies a teacher's eagerness for students to learn, and they may become motivated from perceiving their teacher's enthusiasm.

From the perspective of interest researchers, contextual stimuli are critical conditions for learners to develop their interest. Teacher enthusiasm could be interpreted as a contextual stimulus that could stimulate students' situational interest especially which could then develop into individual interest. If students bring little interest to class at the beginning of the semester, the teacher's own interest and enthusiasm for a domain would be very important to stimulate and enhance their interest.

Peer Enthusiasm

The research on teacher enthusiasm has had a rather venerable history with a number of studies showing a relationship between teacher enthusiasm and students' academic achievement (Bettencourt et al., 1983, Brigham, Scruggs, & Mastropieri, 1992) and motivation (Patrick, Hisley, & Kempler, 2000). However, the influence of classmates' enthusiasm on students on learning has not received much attention, even though it seems clear that when students are in class, they may be influenced by both their teacher's enthusiasm and their classmates' enthusiasm because the classroom is a socially constructed system (Ryan, 2000; Ryan, 2001). As a semester proceeds, students' interest in the course content may fluctuate, being influenced by their teacher and their

classmates as well as their own personal reasons. In order to investigate the effects of peers on students' learning, researchers have mostly concentrated on adolescents. Numerous studies have shown that young adolescents consider their peers as more significant in their lives and are less attached to their parents as they grow older although crowd affiliation declines as adolescents grow older, being more interested in their personal identity (Brown, Eicher & Petrie, 1986). Therefore, in general, peer influence on students' motivation in the college classroom has been less explored, and the specific concept of peer enthusiasm in the classroom has not been studied in field of peer influence or classroom climate. In particular, in terms of measuring peer influence on students' motivation and behaviors, there is no research on the effect of students' perceptions of their peers' enthusiasm in the classroom on their own motivation. Therefore, although there is no directly relevant study to me, assess to literature such as general peer influence, classroom climate, and peer climate, emphasizing the important role of peers on students' motivation and learning, are indirectly relevant.

Defining peer enthusiasm. As mentioned above, because it is difficult to define peer enthusiasm due to lack of direct relevant literature, I will rely on the concept of teacher enthusiasm and peer groups and their impact on students' attitudes and motivation.

First, in terms of peer influence, peer enthusiasm may be related to characteristics of peer group influence as bringing conformity with other classmates as students set norms in class together from observing classmates (Ladd, Herald-Brown, & Kochel,

2009; Ryan, 2000; Savin-Williams & Berndt, 1990;). Even though peer influence has been reported to have a critical impact on students' motivation and behaviors, in terms of conceptual and methodological perspectives, it has not been always clear how researchers define and measure peer influence as well as the way students define peers. For instance, the *peer group* can refer to an individual's relatively close group of friends who interact rather regularly, or to a clique (Brown, 1990). In some articles, *peer group* and *crowd* have been used interchangeably (Brown, Eicher, & Petrie, 1986). In Ntoumanis and Vazou (2005)'s study on developing a measure of peer motivational climate, all teammates were considered as peers rather than a few best friends or any peers who did not play sports. In line with this research, in my study, peers refer to all the classmates who are in the same class with the participant because I am interested in investigating students' overall perceptions of all other classmates' enthusiasm as a collective.

Also, in line with literature on the teacher enthusiasm, *enthusiasm* has been defined as a positive affective component associated with intrinsic motivation in an activity (Kunter et al., 2008), and a positive relationship between students' perceptions of their teacher's enthusiasm and the students' own emotions and motivation has been reported. In line with the concept of teacher enthusiasm, peer enthusiasm might be considered as peers' expressed positive affect about enjoying learning in the classroom, and like the effect of teacher enthusiasm, it could be hypothesized that observing others as excited about learning may foster in students' a positive feeling and a strong motivation to learn in the classroom.

Peer influence. There are numerous studies on the impact of peer influence coming from different perspectives such as peer influence on educational outcomes, behaviors, engagement, and motivation (Gaer, Pustjens, Damme, & Munter, 2007; Kellam, Ling, Merisca, Brown, & Ialongo, 1998; Ladd, Herald-Brown, & Kochel, 2009; Marsh, Martin, & Cheng, 2008;). However, in this study, my focus was on the effect of classmates' enthusiasm on an individual student's interest in the course in the classroom. Therefore, the impact of peers' attitudes and of students' relatedness to peers on student's academic motivation is discussed in this part.

It has been reported that peers are socialized into particular beliefs and behaviors that influence their motivation, engagement, and achievement through their interactions with peers (Ryan, 2000). They observe and acquire standards of behaviors and values that are displayed by others at school in order to develop their social identities and a sense of belongingness (Wentzel, 1999). Furthermore, students' experience of relatedness with peers may be important in helping students internalize their beliefs (Deci, 1992). These social-motivational processes have been investigated in order to understand their impact on students' academic motivation (Wentzel, 1999). For instance, several studies have reported how peers' attitudes or behaviors can influence individual students' attitude and engagement in school. Also, children who get along with more disaffected or aggressive peers are reported to display more disengagement with school and more aggressive behaviors, showing how peers' beliefs or attitudes could influence other students' attitude toward school (Sage & Kindermann, 1999; Kellam et al., 1998; Wentzel, 1999). Also, while investigating the relationship among several variables such as students' beliefs

about learning, parents' support, peers' attitudes toward learning, teacher-student interaction, and curriculum content, and students' motivation to learn in secondary school settings in the United Arab Emirates, Khamis et al. (2008) reported a moderate positive correlation between students' motivation to learn and their beliefs about learning and their peers' attitude toward learning. Furthermore, Gaer, Pustjens, Damme and Munter (2007) found support for the importance of peers' attitudes on individual students' attitude about language achievement in the classroom, reporting that boys were more likely to be influenced by their peers' attitudes in terms of their academic engagement.

As peers' attitudes have an impact on students' attitudes and engagement at school, children's relatedness to peers is considered an important component of peer influence. In terms of students' sense of belongingness, there have been findings that have supported an association with students' academic performance, self-perception such as self-efficacy, achievement value, and academic motivation (Anderman, 2003; Wentzel, 1999; Nelson & DeBacker, 2008). Nelson and DeBacker (2008) reported the importance of feelings of belongingness, pointing out that depending on types of goal orientations that students bring into the classroom, students can be more susceptible to their peers' influence, reporting that a negative peer climate could be especially influential on students who have performance-approach, performance-avoidance, and social-approval goals. In terms of students' sense of relatedness, Furrer and Skinner (2003) reported as a part of their study, students' feelings of loss of relatedness to their peers could influence their emotional experience in the classroom.

Classroom climate. Teachers and students create a classroom's climate together as they interact with each other through their emotional, instructional, and organizational experiences of the classroom (Brown, Jones, LaRusso, & Aber, 2010). Thus, the classroom processes cannot be interpreted without attending to social dimension (Brown, Jones, LaRusso, & Aber, 2010). Brown et al. (2010) reported how teachers' social-emotional functioning, which had a positive relationship with classroom instructional support and organization, influenced their ability to create high-quality social processes in their classroom. A number of studies have reported that teachers influence the classroom climate, as they make students feel they belong and are comfortable and safe (Anderman, 2003) and as they transmit attitudes and beliefs toward schooling through their perceived interpersonal connectedness with them, influencing their engagement at school and psychological well-being (Baker, 1999). Like teachers, classmates may influence classroom climate as they create the norms that they value and act upon (Ladd, Herald-Brown, & Kochel, 2009; Ryan, 2000; Savin-Williams & Berndt, 1990).

In terms of the effects of classroom climate on students' learning, several studies showed associations between a positive classroom environment and students' attitudes, academic performance, and motivation (Baker, 1999). Baker (1999) reported a positive relationship between classroom climate and school satisfaction for young adolescents by studying the relation between the social and psychological experiences of at-risk students and their school attainment and learning. By contrast, there are also findings that show how a poor classroom climate could negatively influence children's behavior and engagement at school. Kellam, Ling, Merisca, Brown, and Ialongo (1998) reported an

association between poor classroom climate and high level of aggression, reporting an influence of classmates' levels of aggressive behavior on individual students' aggressive behavior, and emphasizing the importance of classroom context in early elementary schools. Furthermore, it was reported that if students in class perceive negative behaviors toward schooling as acceptable, these negative behaviors are normative in that classroom (Kershaw, 1992).

Some recent findings have underscored the importance of classroom climate as contextual factor on students' language achievement and as a moderating effect on students' motivation. Gaer, Pustjens, Damme, and Munter (2007) investigated gender differences in the impact of peers' attitudes on language achievement, and as one of their findings, they reported that classes and school levels are more important factors than is gender in explaining differences in achievement, emphasizing the importance of classmates' attitudes on achievement. Also, taking the important role of classroom climate as a moderator of students' motivation, Marsh, Martin, and Cheng (2008) investigated classroom climate, considering it as playing a mediating role on the relationship between teacher effect, teacher gender, and students' gender. They reported that students' perceptions of their classroom climate showed moderate to large impact on their individual motivation while student gender, age, teacher gender, school subject, and their interactions did not explain much of the variation in student motivation. More specifically, they reported that students' adaptive and maladaptive climate perceptions were not consistent across classes taught by the same teacher, implying that the

connection between classroom climate and their adaptive and maladaptive motivation is largely influenced by the particular group of students in a class rather than the teacher.

Affiliation Motivation; Motivation for Affiliation with One's Teacher and Peers

When it is near to the end of a semester, apparently, not all students are enthusiastic about a school subject or perceive their teacher and peers as enthusiastic in the same way even if they are exposed to the same teacher and peers throughout the semester.

In communication studies, from the perspective of *emotional contagion*, friends, family, and even strangers influence how individuals feel, sometimes automatically and unconsciously mediated by factors such as context and motivational aspects that may temper the degree to which emotional contagion happens (Chartrand, Maddux, & Lakin, 2005). Even though it is reported that unconscious transfer of emotions may occur between persons, studies so far seem to be limited to laboratory settings rather than to the classroom contexts with their more complex social dynamics. As one motivational and contextual factor that could influence the effect of teacher and peer enthusiasm on students' affect toward a course, which in turn, might eventually influence their interest, affiliative motivation might contribute to a potential explanation of the degree of enthusiasm that is transferred from others to students in the classroom. If students are not interested in how their teacher and peers act in the class, their enthusiasm may not be transferred as well as those who are motivated to get along with their teacher and peers.

This is because affiliation motivations could enhance mimicry of others' behaviors (Lakin & Chartrand, 2003) and attitudes (Sinclair, Lowery, Hardin, & Colangelo, 2005).

Defining affiliative motivation. There are different perspectives on defining affiliation motivation. In general, *affiliative motivation* is defined as “the desire to get along with and have a smooth interaction with another person” (Huntsinger, Lun, Sinclair, & Clore, 2009). Also, from another perspective, *goal to affiliate* has been investigated in order to explore when individuals are more likely to be influenced behaviorally and emotionally by those with whom they interact (Chartrand, Maddux, & Lakin, 2005). From the perspective of socio-cognitive research, context-specific affiliative goals such as students' values for affiliation at school were also reported (Huntsinger, Lun, Sinclair, & Clore, 2009; Lochman, Wayland, & White, 1993), though in general, affiliative motivation may be considered a stable tendency to maintain relationships with others (Hill & Werner, 2006).

Effects of affiliative motivation on mimicry of others' behaviors and mood. There have been findings that when individuals have goals to affiliate, they are more influenced by others' behaviors (Lakin & Chartrand, 2003), and furthermore, it was reported that goal to affiliate could enhance mimicry even when students are exposed to others' behaviors in either a conscious or nonconscious condition, whether regularly or temporarily (Chartrand & Bargh, 1996). Huntsinger et al. (2009) reported that affiliative motivation moderates anticipatory mood matching, meaning that if individuals are

motivated to affiliate with others whom they expect to meet, the individuals' moods are likely to match that of the other's mood. Numerous studies have reported that affiliative motivation could enhance behavioral mimicry (Lakin & Chartrand, 2003) and convergence of attitudes (Sinclair, Lowery, Hardin, & Colangelo, 2005). Interestingly, in the literature on peer influence, affiliative motivation was explored as a part of social relationship because quality of relationship with peers has been considered important (Lochman, Wayland, & White, 1993). Also, affiliative motivation has been explored mainly to help explain underlying mechanisms of emotional contagion in laboratory settings rather than in classroom contexts. Although studies of the effects of affiliative motivation in the classroom context have been limited, some findings may have implication for the classroom context. For instance, individuals tend to match their moods spontaneously and automatically with that of the partner with whom they feel close such as dating partner and roommates (Anderson et al., 2003; Neumann & Strack, 2000). Also, Sinclair, Lowery, Hardin, and Conlangelo (2005) reported that when participants in a study like the experimenter and when they have positive impressions of the experimenter, their attitudes are more likely to match the attitude of that experimenter. Furthermore, in terms of group emotional contagion, Barsade (2002) reported that emotional transmission among people in a group occurs with its effect on group members' cooperativeness, level of conflict, and task performance. Also, Totterdell (2000) reported there was a positive association between collective mood of a team and an individual's mood in the same sports team, and they found significant effects of a positive collective mood on an individual's mood more than a negative collective mood. As for the few studies of

affiliative motivation in school contexts, Hill and Werner (2006) investigated students' behaviors at school such as school attachment and aggression, reporting a positive association between students' affiliative motivation and school attachment and a negative relationship between students' affiliative motivation and students' aggression. Therefore, Therefore, overall, these findings suggest that if students feel closer to others or if they want to get closer to others, they are more likely to be influenced by others' mood, implying that affiliation motivation may help explain the way students perceive others' enthusiasm in the classroom. Thus, in the classroom, it may be assumed that students might be affected by affiliative motivation, and benefit from the impact that the excitement of the teacher and peers can have on their own enthusiasm.

Rationale

There has not much research on teacher enthusiasm since the process-product paradigm has lost its influence on research on teaching. Also, most studies on teacher enthusiasm have been conducted in K-12 setting, focusing on its effect on students' performance. Even though recently, some researchers have directed their attention to the relationship between teacher enthusiasm and students' enjoyment and motivation in the college classroom, the impact of teacher enthusiasm on students' interest in particular has not been explored. Also, in peer influence research, most often the focus has been on students' perceived relationship with close others or students' sense of belonging in the classroom or school rather than on the effect of observing others' affect toward a course. Also, affiliative motivation has not been studied in classroom contexts as a factor

explaining the transmission between a teacher, classmates, and individual students' positive feelings. Acknowledging that interest can be influenced by individuals' affect toward particular content, it is important to understand how they perceive their teacher's and classmates' levels of affect toward a course, and this was the overarching goal of my study.

Chapter 3: Method

The primary objective of this study was to investigate whether students' interest in course content at the end of the semester could be predicted by such factors as their perceptions of their teacher's enthusiasm and perception of their peers' enthusiasm, their initial interest, and their background knowledge while accounting for the association between their initial interest and their perceptions of their teacher's and of peers' enthusiasm. Another objective was to study whether students' motivation for affiliation with their teacher and classmates was related to their initial interest as well as their perceptions of their teacher's enthusiasm and of peers' enthusiasm.

In order to explore factors influencing students' interest in a course throughout a semester, data were gathered in the beginning and at the end of the semester from students in several courses. To analyze the data, a path analysis was used as a main analysis to investigate interrelationships among the factors.

Courses

In total, 12 different generally introductory courses representing various disciplines participated in this study. There were eight lower division courses and three upper division courses. The number of participants in each class ranged from 9 to 106. Class structure was asked by asking for participants' perceptions of the structure of their class, which led to some variability in response. In 10 courses, more than 60% of the students reported the same class structure. However, students in two courses perceived

their course to be either a lecture-based or a mixture of both class. There were four courses in which all students took the course to fulfill a requirement; for the other eight classes, there was a mixture of students who were taking the course as a requirement as well as not. Descriptions of all 12 courses are presented below.

Table 1. Descriptions of the Courses

Courses	Division	Participants	Class Structure	Required	Non-required
Psychology I	Lower	44	Lecture-based	30	14
Business	Upper	31	Mixture of both	31	0
Marketing	Upper	19	Mixture of both	19	0
Finance	Upper	9	Lecture-based	8	1
Asian study	Lower	25	Lecture-based & mixture of both	16	9
American history	Lower	106	Lecture-based	100	3
Basic biology	Lower	46	Mixture of both	41	5
Asian Religion	Lower	21	Mixture of both	17	4
Psychology II	Lower	47	Lecture-based	38	9
Educational psychology	Upper	50	Mixture of both	41	1
Chemistry	Lower	24	Lecture-based & mixture of both	23	0
Biology	Lower	33	Mixture of both	33	0

Participants

For the Time 1 survey, there were 753 students responding who were registered in 12 different courses of various disciplines at the beginning of the Fall semester, 2010. Of these, 748 complete questionnaires could be entered into data analysis, excluding students who did not sign the consent form, students who chose the same answers across

all the items on the questionnaire or students who did not write down their identification number and therefore whose survey could not be matched. At Time 2, 691 participants completed questionnaires. With the same procedure that was used at Time 1, a total of 688 answers could be included from the Time 2 data set. However, in the final data set, excluding students who had participated either only at Time 1 or only at Time 2, only 512 cases who had participated in both pre and post surveys were included. During data cleaning, missing data (15 cases) and outliers (42 cases) were all eliminated from the data, and thus, 455 students' answers became the final set of data for analysis. Data cleaning procedures will be discussed in more detail in chapter 4.

Among these 455 participants, 59.3 % (270) were female students and 40.7 % (185) were male students. In terms of their year in school, 15.2 % (69) were freshman, 42.4 % (193) were sophomore, 22.9 % (104) were junior, 18.2 % (83) were senior. Also, 10.1% (46) of the students were taking the course even though it was not required whereas for 89.5 % (407) of the students, the course they were describing in their responses was required. In terms of students' perceptions of the class structure, 53% (241) students perceived their class to be lecture based, 4.2% (19) students considered their class as discussion-based, and 42.9% (195) students considered their class as a mix of lecture and discussion.

Measures

At Time 1, students were asked to fill out survey forms measuring initial interest, background knowledge, and demographic information at the beginning of the semester in

class. At Time 2, at the end of the semester, they completed six measures; their situational interest, which had two components, “catch interest” and “hold interest”, and their perceptions of their teacher’s enthusiasm, perceptions of their peers’ enthusiasm, their motivation for affiliation with their teacher, and their motivation for affiliation with their classmates. At the end of the second questionnaire, there were two open-ended questions asking the students to reflect about how their instructors stimulated their interest toward the course in class and how they defined peer enthusiasm. Except for these two open-ended items, measures used a 7-point Likert scale, ranging from “1” strongly disagree to “7” strongly agree, and responses included some negatively worded items and later their scores were reversed so that a high score indicated the highest possible positive rating of each item. All measures can be found in Appendix D and E.

Interest: Initial and situational Interest (hold interest & catch interest)

The measures of initial interest and situational interest were adapted from the interest questionnaire used by Harackiewicz, Durik, Barron, Linnenbrink-Garcia, and Tauer (2008). The interest measure at Time 1 included seven items assessing initial interest in the course content (e.g., I’ve always been fascinated by the course content). In this scale, each item is rated on a 7-point scale, ranging from strongly disagree to strongly agree, and responses include some negatively worded items. Harackiewicz et al. (2008) reported Cronbach’s alpha of .90 ($\alpha = .90$ for the current study).

At Time 2, students’ situational interest in the course, catch interest and hold interest, were measured. *Catch interest* focuses on “students’ affective reactions to course

lectures” and *hold interest* focuses on “students’ feelings about and personal valuing of the course material” (Harackiewicz et al., 2008, p109). The “catch interest” scales was composed of five items, and the “hold interest” was composed of nine items, and both measures included negatively worded questions. Harackiewicz et al. (2008) reported Cronbach’s alpha of .85 for catch interest and .91 for hold interest ($\alpha = .85$, $\alpha = .92$, respectively for the current study).

Background knowledge

The measure of background knowledge was adapted from the same questionnaire used by Harackiewicz et al. (2008). The measure includes three items measuring background knowledge (e.g., I studied related topics in another class or did readings on my own). Each item was rated on a 7-point scale, ranging from strongly disagree to strongly agree, and responses included some negatively worded items. Harackiewicz et al. (2008) reported a Cronbach alpha of .90 ($\alpha = .79$ for the current study).

Students’ Perceptions of Teacher Enthusiasm

The measure of students’ perceptions of teacher enthusiasm was adapted from a measure of teacher enthusiasm by Frenzel, Goetz, Ludtke, and Pekrun (2009). The measure included four items measuring students’ perception of their teacher’s enthusiasm (e.g., Our teacher teaches with enthusiasm). Each item is rated on a 7-point scale, ranging from strongly disagree to strongly agree, and responses included some negatively worded items. Frenzel et al. (2009) reported Cronbach’s alpha of .85 for the enthusiasm measure ($\alpha = .84$ for the current study).

Students' Perceptions of Peer Enthusiasm

The measure of students' perceptions of their peers' enthusiasm was adapted and modified from a measure of students' perceptions of teacher enthusiasm (Patrick, 1995) because there is no currently available measure of students' perceptions of peer enthusiasm. The questionnaire at Time 2 included four items measuring students' perception of their peers' enthusiasm (e.g., Overall, the other students in this class really seem to be excited about learning). Each item is rated on a 7-point scale, ranging from strongly disagree to strongly agree, and responses included some negatively worded items. In order to clarify how students were defining peer enthusiasm in the classroom, an open-ended question was added asking the students to define what they meant by *peer enthusiasm*.

Motivation for Affiliation with Teacher

The measure of students' motivation for affiliation with their teacher was adapted and modified from a measure of affiliative motivation (Huntsinger, Lun, Sinclair, & Clore, 2009). This measure included three items measuring students' willingness to get along with their teacher (e.g., I want to get along with the teacher of this class). Each item is rated on a 7-point scale, ranging from strongly disagree to strongly agree. Huntsinger et al. (2009) reported Cronbach's alpha of .82 for the measure ($\alpha = .89$ for the current study).

Motivation for Affiliation with Peers

Like the measure of students' motivation for affiliation with their teacher, the measure of students' motivation for affiliation with their classmates were adapted and modified from the same measure of affiliative motivation (Huntsinger et al., 2009). This

measure was composed of three items measuring students' willingness to cooperate with their classmates (e.g., I want to cooperate with fellow classmates in this class). Each item is rated on a 7-point scale, ranging from strongly disagree to strongly agree. Huntsinger et al. (2009) reported Cronbach's alpha of .82 for the measure ($\alpha = .89$ for the current study).

Procedure

Before the fall 2010 semester began, about 65 instructors who were scheduled to teach some sort of introductory courses in various disciplines were contacted by email and asked to allow their students to participate in the study. In total, 12 professors from various disciplines agreed to allow their students to participate in the study.

On the first day of the course, I visited ten professors' classes, and even before the instructor had explained the course, I briefly described the purpose of my study to students, asked for their participation in the study and distributed consent forms and questionnaires. For the other two classes, as requested by their instructors, I conducted the survey on the second day of class. If a student decided to agree to participate, he or she signed the consent form and filled out the questionnaires asking for demographic information, their initial interest, and background knowledge of the course content.

In the middle of the semester, the 12 professors were contacted again in order to set the date when I would conduct the second survey in their classes. For one class, the survey was conducted the Monday of the next to last week of the semester. For the other 11 classes, surveys were administered during the last week of the semester. At this time, students were told that if they had participated in Time 1, they were asked to fill out the

questionnaire. However, if students had not participated at Time 1 but were still willing to participate, they were asked to sign the consent form and complete the set of questionnaires. These students' data are not included in this report but may be used at a later time. The second survey included questions about their "catch interest" and "hold interest", their perceptions of their teacher's enthusiasm, their perceptions of their peers' enthusiasm in the class, their motivation for affiliation with their teacher, and their motivation for affiliation with their classmates. Data were collected in the same way as at Time 1. In addition, at the end of the survey, two open-ended questions were added, asking students to describe how their instructors stimulated their interest in class and to define peer enthusiasm.

Many students had dropped or added the course after the pretest data were collected, thus, pretest data were collected on 746 students, and post test data were collected on 691 students. However, the number of students who completed both pre and post surveys was only 512.

Hypotheses

Interest and perceptions of teacher enthusiasm and perceptions of peer enthusiasm:

Hypotheses 1.1-1.6.

Rationale. First, I hypothesized that there will be a direct effect of initial interest on hold interest and catch interest at the end of the semester. Even though students' interest might fluctuate throughout a semester, students with high initial interest were expected to

remain interested at the end of the semester. The study by Alexander and Murphy (1998) showed that students with high interest and a moderate level of domain knowledge remained relatively stable from pretest to posttest. Also, recently, Harackiewicz et al. (2008) reported that initial interest had direct effects on situational interest and continued interest. Second, more importantly, in this study, I hypothesized that the relation between initial interest and hold interest as well as catch interest would be mediated by perceptions of teacher enthusiasm and perceptions of peer enthusiasm. Because enthusiasm and hold interest and catch interest all have a strong emotion component, teachers' and other classmates' explicit positive emotions may trigger students' positive affect in participating in the class which is closely related to catch interest, and teacher's and classmates' enthusiasm in the course content may influence students' valuing of the course content, which is closely related to hold interest. Therefore, I hypothesized that students' perceptions of teacher enthusiasm as well as perceptions of peer enthusiasm may help explain why their initial interest is related to their hold interest and catch interest at the end of the semester.

Hypothesis 1.1: Initial interest at the beginning of the semester will predict hold interest at the end of the semester.

Hypothesis 1.2: Initial interest at the beginning of the semester will predict catch interest at the end of the semester.

Hypothesis 1.3: Initial interest will be associated with hold interest indirectly through students' perceptions of their teacher's enthusiasm.

Hypothesis 1.4: Initial interest will be associated with catch interest indirectly through students' perceptions of their teacher's enthusiasm.

Hypothesis 1.5: Initial interest will be associated with hold interest indirectly through students' perceptions of their peers' enthusiasm.

Hypothesis 1.6: Initial interest will be associated with catch interest indirectly through students' perceptions of their peers' enthusiasm.

Students' perceptions of teacher enthusiasm and perceptions of peer enthusiasm:

Hypotheses 2.1-2.7.

Rationale. First, I hypothesized that perceptions of teacher enthusiasm would be related to perceptions of peer enthusiasm. Because peer enthusiasm has not been studied specifically, it is difficult to refer directly to any literature about peer enthusiasm. However, as classroom climate is created by students as well as the teacher, teacher enthusiasm and peer enthusiasm may be related to each other. The study of Frenzel et al. (2009) showed a positive association between teacher enjoyment and students' enjoyment. Second, I hypothesized that students' initial interest would predict their perceptions of teacher enthusiasm and perceptions of peer enthusiasm, based on the premise that interest is composed of value-related and feeling-related valences and it emerges from an individual interacting with his or her environment (Krapp et al., 1992). While students are in the classroom, they are not interacting with an object of interest by themselves in the classroom. Thus, if they have more interest in the course topic in the beginning of the semester, they may pay more attention to characteristics of their teacher and classmates while learning the course content. Third, I hypothesized that perceptions of teacher enthusiasm and perception of peer enthusiasm will predict students' hold interest as well as catch interest. A teacher and one's classmates' explicit positive

emotions may trigger one's own affective reactions to the course lecture related to catch interest, and a students may see some value in the course content by observing the teacher's and classmates' enthusiasm for the course content related to hold interest.

Hypothesis 2.1: Students' perceptions of their teacher's enthusiasm will be associated with their perceptions of their peers' enthusiasm in the classroom.

Hypothesis 2.2: Students' initial interest will predict their perceptions of their teacher's enthusiasm.

Hypothesis 2.3: Students' initial interest will predict their perceptions of their peers' enthusiasm.

Hypothesis 2.4: Students' perceptions of their teacher's enthusiasm will predict their hold interest at the end of the semester.

Hypothesis 2.5: Students' perceptions of their teacher's enthusiasm will predict their catch interest at the end of the semester.

Hypothesis 2.6: Students' perceptions of their peers' enthusiasm will predict their hold interest at the end of the semester.

Hypothesis 2.7: Students' perceptions of their peers' enthusiasm will predict their catch interest at the end of the semester.

Background knowledge: Hypothesis 3.1.-3.2.

Rationale. According to Hidi and Renninger's (2006) four-phase model, interest includes affective as well as cognitive aspects, and each phase has different degrees of affective and cognitive component. Hidi and Renninger reported that, especially in the early phase, individuals may have less knowledge of the particular content, whereas developed individual interest may have more knowledge in associated with it. Therefore, first, I hypothesized that students' initial interest would be related to their background knowledge because of association between knowledge and developed individual interest.

Also, Harackwicz et al. (2008) showed a positive association between initial interest and background knowledge. Lastly, I hypothesized that students' background knowledge would predict their hold interest because hold interest is more closely related to valuing of the course content. If students have high background knowledge, they may already have value for that content.

Hypothesis 3.1: Students' background knowledge at the beginning of the semester will be associated with their initial interest.

Hypothesis 3.2: Students' background knowledge at the beginning of the semester will predict their hold interest.

Students' motivation for affiliation with the teacher and motivation for affiliation with peers: Hypotheses 4.1-4.8.

Rationale. First, I hypothesized that there would be a positive relationship between motivation for affiliation with the teacher and motivation for affiliation with peers. Even though there is no literature that I can directly refer to, Huntsinger et al. (2009) suggested that affiliative motivation could encourage an individual to adopt the same feelings as those with whom they interact. As mentioned above, students and a teacher create a classroom atmosphere together, and collectively, students might come to see the classroom atmosphere as positive or negative. In this collective context, it may be difficult to have highly varying levels of motivation for affiliation with the teacher and with peers, though the particular classroom structure may influence that. Second, I hypothesized that students' initial interest would be related to their affiliative motivation. As defined above, interest occurs while interacting with an object of interest (Krapp et

al., 1992) and the environment in which students are interacting with objects of interest may not be ignored. Even if students are in a lecture-based class, they are a part of a class grouping and the teacher and classmates may influence the environment in which they are interacting with the content of interest. Thus, students with high initial interest may expect and foster a good relationship with others in the classroom recognizing the importance of the environment where they are learning about their interest. Third, I hypothesized that affiliative motivations would predict perceptions of teacher enthusiasm and perceptions of peer enthusiasm. As defined above, affiliative motivations refer to taking on the feelings of others (Huntsinger et al., 2009). Thus, if students have some degree of motivation for affiliation with the teacher and with peers, they are more likely to perceive or feel like the teacher and their peers in the classroom. If they do not care about getting along with the teacher and other students in the classroom, they may not direct their attention to them as much as those who care about having a smooth interactions with them and who may not be influenced by how others feel in the classroom.

Hypothesis 4.1: Students' motivation for affiliation with their teacher will be associated with their motivation for affiliation with their peers.

Hypothesis 4.2: Students' initial interest will be associated with their motivation for affiliation with their teacher.

Hypothesis 4.3: Students' initial interest will be associated with their motivation for affiliation with peers.

Hypothesis 4.4: Students' motivation for affiliation with their teacher will predict their perceptions of their teacher enthusiasm.

Hypothesis 4.5: Students' motivation for affiliation with their classmates will predict their perceptions of their peer enthusiasm.

Hypothesis 4.7: Motivation for affiliation with the teacher will be associated with catch interest via perception of teacher enthusiasm.

Hypothesis 4.8: Motivation for affiliation with peers will be associated with catch interest via perception of peer enthusiasm.

Analytical Procedure

One of the main purposes of this study was to explore the interrelationships among students' initial interest, their situational interest (catch and hold interest), and students' perceptions of their teacher's enthusiasm and of their peers' enthusiasm as mediators of their interest. Secondly, I was interested in exploring associations among students' perceptions of teacher enthusiasm and perceptions of peer enthusiasm with their motivation for affiliation with their teacher and classmates as well as their initial interest. The following analyses addressed these interests.

First, descriptive statistics are presented to characterize the sample, including information on students' gender, year in school, class structure and whether the class is required or is not. Correlations among the eight variables are also presented. Second, as preliminary analyses for data screening, first, skewness and kurtosis were checked for the normality of distribution of scores, and multivariate outliers were checked using Mahalanobis distance (Kline, 2005). Then, I addressed missing data and examined multicollinearity based on VIF and tolerance values. Third, when using a path analysis, it is important to have reliable and valid scores because each construct has only one

observed measure, and is assumed to have no measurement error of exogenous variables (Kline, 2005). Therefore, before the main analysis, reliability for each scale was checked using Cronbach's alpha and CFA (Confirmatory Factor Analysis).

Fourth, in the main analysis, I first used multiple regressions with enter method in order to examine the significance of predictors of hold interest and catch interest. I then used multiple regression with Sobel test to check for mediation effects of perceptions of teacher enthusiasm and peer enthusiasm. A path analysis was conducted in order to explore overall direct and indirect relationships among variables. Considering that students are nested within 12 classrooms and corresponding teachers and classmates, I used the path analysis with cluster variables. For path analysis, different fit indexes could be used to assess how well a model explains or fits the data, and according to Kline (2005), there are model fit indexes that are commonly reported in a path analysis, as I describe next. First, in the case of model chi-square, as the value of the chi-square becomes higher, the model fit becomes worse, implying that the model does not explain the data well. Second, the CFI (Comparative Fit Index) shows relative improvement in fit of the proposed model compared to an independence model. If the CFI is higher than .90, it indicates good fit of the model (Hu & Bentler, 1999). Third, RMSEA (Root Mean Square Error of Approximation) measures the error of approximation, and it is reported to be relatively robust against sample size. The higher the RMSEA, the worse the fit of the model is. In general, if RMSEA is less than or equal to .05, it indicates close approximate fit. If the lower bound of a 90% confidence interval is less than .05, it implies that the model is close to the population. Fourth, the SRMR (Standardized Root mean Square

Residual) is based on how close residuals are to zero because zero residuals imply good model fit, and a value less than .10 is considered reasonably good fit (Kline, 2005)

Even though the model with all 455 participants as one group showed good fit (CFI =0.983, RMSEA Estimate .08 (90% C.I.) 0.047 0.115, SRMR=0.027), the ICC (0.218) showed significant differences among classes in these data, therefore, necessitating the use of cluster variables in the analysis. Therefore, a path analysis with cluster variables using complex type option in Mplus (Version 6) was used in order to correct the standard errors due to the nested structure of the data. However, when cluster variable was used in Mplus, at least 20 clusters are preferred, although in this study, I had only 12 classes participating. Therefore, the results of this final path model may have to be interpreted with some caution.

Complex survey data refers to multilevel data, which includes cluster sampling. There two approaches, complex type option and multilevel modeling are used in order to analyze complex survey data (Muthén & Muthén, 1998-2010). This procedure allowed me to investigate interrelationships among the variables and to investigate direct and indirect effects in the model, correcting for inaccurate estimates because of the clustered nature of the variables.

Chapter 4: Results

This study had two main objectives. First, I investigated whether students' interest in course content at the end of the semester could be predicted by such factors as their perceptions of their teacher's and perceptions of peers' enthusiasm and their initial interest, while measuring the impact of their initial interest on their perceptions of their teacher's and peers' enthusiasm. Another objective was to focus on teacher enthusiasm and peer enthusiasm, exploring whether perceptions of teacher enthusiasm and of peer enthusiasm would mediate and help explain the association between initial interest and situational interest and the association between affiliation motivation and catch interest.

Below, I first present the results of preliminary analyses on gender, whether a course was required or was not, and students' reports on classroom structure. Second, descriptive statistics for dependent measures and correlations among variables are presented. Third, I report on data screening, multivariate normality, outliers, and multicollinearity issues. Fourth, before the main analysis, I present the results of reliability tests for each scale. Finally, the results of the main analyses addressing my hypotheses, using path analysis are described.

Preliminary Analysis

Using independent sample t-tests and ANOVA, the effects of demographic variables (gender, required vs. not required, and classroom structure) on all dependent variables were analyzed. According to independent-samples t-tests, using an α of .05,

there was no significant difference between male and female students on all eight variables: initial interest, background knowledge, hold interest, catch interest, perceptions of teacher enthusiasm, perceptions of peer enthusiasm, motivation for affiliation with teacher, and motivation for affiliation with peers.

When comparing students who were taking the course to fulfill a requirement to those for whom the course was not required, there was no significant difference on six of the variables: background knowledge, hold interest, catch interest, perceptions of peer enthusiasm, motivation for affiliation with teacher, and motivation for affiliation with peers. However, there were significant differences in initial interest, $t(451) = 3.96, p < .001$, and in the scores of perceptions of teacher enthusiasm, $t(451) = -3.49, p = .001$. Students who took the course not as a requirement showed higher initial interest ($M = 5.74, SD = .98$) compared to students who took the course as a requirement ($M = 5.05, SD = 1.12$) although interestingly, there was no difference between these two groups on their hold interest and catch interest measured at the end of the semester. However, students who took the course to fulfill a requirement showed higher perceptions of teacher enthusiasm ($M = 6.17, SD = .82$) than those who took a course that was not required ($M = 5.72, SD = .92$).

Multiple ANOVAs were conducted to compare scores on the eight dependent variables among lecture-based, discussion-based, and mix of both class structures, and there was a significant difference on five variables: background knowledge, $F(2, 452) = 24.34, p < .001$, hold interest, $F(2, 452) = 4.31, p = .014$, perceptions of peer enthusiasm, $F(2, 452) = 9.23, p < .001$, motivation for affiliation with peers ($F(2, 452) = 21.49, p < .001$)

and affiliation motivation of teacher ($F(2, 452)=13.27, p <.001$). However, there was no significant difference among the three groups in initial interest, catch interest, and their perceptions of teacher enthusiasm.

Post hoc comparisons using Tukey HSD test showed that students in lecture-based classes ($M=5.28, SD=1.50$) showed significantly higher mean score of background knowledge than discussion-based classes ($M=3.21, SD=2.07$) and combination classes ($M=4.42, SD=1.79$), and combination classes had higher means than discussion-based class. The mean score of hold interest for combination classes ($M=5.40, SD=1.03$) was significantly higher than discussion-based class ($M=4.69, SD=1.34$). Also, students who perceived their class as a mix of both structures ($M=5.36, SD=1.18$) showed significantly higher motivation of affiliation with peers than lecture-based class ($M=4.49, SD=1.52$). Similar to motivation of affiliation with peers, students who perceived their class as a mix of both structures ($M=6.27, SD=.82$) showed significantly higher motivation of affiliation with teachers than lecture based class ($M=5.80, SD=1.09$). In terms of perceptions of peer enthusiasm, combination classes ($M=4.64, SD=1.19$) and discussion-based class ($M=4.87, SD=1.13$) showed significantly higher means than lecture-based class ($M=4.20, SD=1.14$), but there was no significant difference between these two groups. In terms of teacher enthusiasm, there was no significant difference across all three groups.

Descriptive Statistics and Correlations among Variables

Overall, descriptive statistics showed that the means of students' hold interest ($M=5.27, SD=1.11$) and catch interest ($M=5.35, SD=1.11$) that were measured at the end

of the semester was slightly higher than their initial interest ($M=5.12$, $SD=1.27$) measured at the beginning of the semester. In terms of perceptions of teacher enthusiasm and peer enthusiasm, the mean for teacher enthusiasm ($M=6.01$, $SD=.91$) was much higher than that of perceptions of peer enthusiasm ($M=4.41$, $SD=1.19$). Like perceptions of teacher enthusiasm and of peer enthusiasm, the mean for motivation for affiliation with the teacher ($M=6.01$, $SD=1.00$) was much higher than that of motivation for affiliation with peers ($M=4.89$, $SD=1.45$) (see Table 1).

A correlation analysis among the eight variables demonstrated first that students' initial interest was significantly correlated with five variables, hold interest, catch interest, perceptions of peer enthusiasm, motivation for affiliation with peers, motivation for affiliation with the teacher but not background knowledge and perceptions of teacher enthusiasm (see Table 3 for actual r and p values). Students' hold interest was significantly correlated on all variables, significant for catch interest, motivation for affiliation with peers, motivation for affiliation with the teacher, perceptions of peer enthusiasm, and perceptions of teacher enthusiasm, but not background knowledge. Like hold interest, students' catch interest showed significant correlations except background knowledge. Motivation for affiliation with peers had significant association with perceptions of peer enthusiasm, motivation for affiliation with the teacher, perceptions of teacher enthusiasm, and background knowledge. Perceptions of peer enthusiasm also had significant correlations with motivation for affiliation with teacher, perceptions of teacher enthusiasm, and background knowledge. Motivation for affiliation with the teacher had a significant association with all variables except for background knowledge. Finally,

perceptions of teacher enthusiasm was significantly correlated with six variables but was not associated with initial interest and background knowledge. Interestingly, perceptions of peer enthusiasm and motivation for affiliation with peers were significantly correlated with all eight variables, though they showed a significant negative correlation with background knowledge (see Table 3).

Table 2. Means and SDs (in parentheses) on Eight Measures by Gender, Requirement, and Class Structures Groups

	Total	By Gender		By Requirement		By Perceived Class Structure		
		Male	Female	Req.	Non-req.	Lec.	Dis.	Com.
<i>n</i> =	455	185	270	46	407	241	19	195
Initial interest	5.12 (1.12)	5.02 (1.14)	5.18 (1.11)	5.05 (1.12)	5.73 (.98)	5.04 (1.20)	4.96 (1.04)	5.23 (1.03)
Background knowledge	4.82 (1.73)	4.70 (1.78)	4.90 (1.70)	4.83 (1.75)	4.80 (1.63)	5.28 (1.50)	3.21 (2.07)	4.41 (1.79)
Hold interest	5.27 (1.11)	5.21 (1.05)	5.31 (1.14)	5.25 (1.12)	5.43 (.97)	5.21 (1.14)	4.69 (1.34)	5.40 (1.02)
Catch interest	5.12 (1.27)	5.27 (1.19)	5.41 (1.14)	5.36 (1.17)	5.25 (1.04)	5.28 (1.11)	5.25 (1.39)	5.45 (1.19)
Motivation for affiliation with the teacher	4.89 (1.45)	4.91 (1.42)	4.88 (1.47)	4.92 (1.44)	4.71 (1.50)	4.49 (1.52)	5.22 (1.64)	5.36 (1.17)
Perceptions of teacher enthusiasm	4.41 (1.19)	4.35 (1.22)	4.46 (1.17)	4.38 (1.20)	4.69 (1.06)	4.20 (1.14)	4.86 (1.33)	4.64 (1.19)
Motivation for affiliation with peers	6.01 (1.00)	6.03 (1.03)	6.00 (.98)	6.02 (.99)	5.89 (1.06)	5.79 (1.08)	6.19 (.95)	6.27 (.82)
Perceptions of peer enthusiasm	6.01 (.91)	6.13 (.74)	6.12 (.89)	6.17 (.81)	5.72 (.92)	6.05 (.85)	6.21 (.72)	6.21 (.81)

Note. Lec.= Lecture based class, Dis. = Discussion based class, Com. = Combination of both structures

Table 3. Bivariate Correlations Among Variables

	1	2	3	4	5	6	7	8
1.Initial interest	1							
2.Background knowledge	-.01	1						
3.Hold interest	.47**	.09	1					
4.Catch interest	.23**	.01	.65**	1				
5.Motivation for affiliation with peers	.25**	.17**	.31**	.22**	1			
6.Perceptions of peer enthusiasm	.28**	.20**	.40**	.47**	.49**	1		
7. Motivation for affiliation with the teacher	.22**	-.08	.42**	.40**	.60**	.35**	1	
8. Perceptions of teacher enthusiasm	.06	-.001	.41**	.63**	.30**	.32**	.55**	1

N=445 , **p<0.01

Data Screening

As part of data screening procedures, I checked for normality, outliers, missing data, and multicollinearity before conducting the main analysis. First, using values for the skew and kurtosis indexes, the normality of each subscale was checked. The sign of the skew index indicates its direction, and a value close to 0 implies that a score distribution is near symmetrical around the mean, whereas variables with absolute value of skew indexes more than 3 imply extreme skewness (Kline, 2005). Positive kurtosis indicates a higher peak while negative kurtosis indicates a flat distribution (Kline, 2005). In my data, values of skew and of kurtosis of most subscales were close to zero, indicating acceptable score distributions. However, one subscale, item 38 on teacher enthusiasm scale had skewness of -2.39 and kurtosis of 8.21. Even though the value of the kurtosis index was

close to extreme, there was no excessive skewness and kurtosis when averaging the scores for each scale to run the main analyses. Also, as a conservative rule, values of the kurtosis index greater than 10 may cause problems and greater than 20 may cause serious problems (Kline, 2005). Therefore, based on my results and compared to the guidelines suggested in the literature, all the subscales were seemed good to be included in later analyses.

Table 4. Skewness and Kurtosis of Variables

	INT	BK	HOLD	CATCH	AFP	ENP	AFT	ENT
Skewness	-.55	-.60	-.73	-.72	-.64	-.24	-.99	-.87
Kurtosis	.08	-.62	.48	.22	.05	-.06	.40	.22

In terms of outliers, a multivariate outlier implies a case that has extreme scores on more than one variable. Using SPSS, Mahalanobis distance was used to check multivariate outlier. According to conservative levels of statistical significance, a p-value less than .001 is recommended for a score to be considered as an outlier (Kline, 2005). My results showed there were 42 cases that had less than or equal to .001 p-value. In order to make sure there was no effect of outliers in the data, all 42 cases were eliminated. Also, later, fit indexes of the model that included 42 cases were compared with the original final model results. Fit indexes became much worse than the original final model (CFI=.965, RMSEA Estimate .091, (90% CI) 0.060 0.124, SRMR=.066), even though the CFI still met criterion. Therefore, the results of the original final model with 455 participants are what I choose to focus on in my study.

Concerning missing data, there were 15 cases that missed one or more items. Because some scales have only three items, excluding students who missed one or more items in those scales (five students), 10 cases were added to the final data in order to see if these made a difference with the results of the final path model. Thus, the total number of subjects became 465. Results of the path analysis showed slightly worse fit than the original final path model (CFI=.971, RMSEA Estimate.071 (90% CI) 0.039 0.107, SRMR=.027), even though all fit indexes still met criterion. Therefore, the results of the original final model with 455 participants were what I choose to focus on in my study.

Multicollinearity occurs when variables that are supposed to measure different things are apparently measuring the same thing, showing high intercorrelations (e.g., $r > .85$) among variables (Kline, 2005). To check for multicollinearity, I first examined the correlation matrix with all subscales. In general, even though subscales of each scale showed relatively high correlation with each other, there was only one correlation higher than the criterion; the correlation coefficient of hold interest 1 and hold interest 2 was .89. Then, using SPSS, I tested collinearity statistics. Tolerance values indicate the proportion of total standardized variance that is not explained by other variables, and a value less than .10 indicates possible multicollinearity. Another indicator for multicollinearity is if the variance inflation factor (VIF) is more than 10 (Kline, 2005). In these data, there were no variable that had its tolerance less than .10 or a VIF higher than 10. Also, when averaging subscales for each scale, the range of tolerance was from .43 to .91, and the range of VIF was from 1.09 to 2.33.

Table 5. Tolerance and VIF of Variables

	INT	BK	HOLD	CATCH	AFP	ENP	AFT	ENT
Tolerance	.73	.91	.44	.43	.52	.59	.49	.53
VIF	1.36	1.09	2.26	2.33	1.91	1.69	2.06	1.87

For a model to be identified, the number of observations should be more than the number of parameters. In this study, the number of observed variables was 8 and the number of observations equaled to 36. The number of parameters estimated with the data was 30 and thus, the model degrees of freedom (*df*) were 6. In terms of number of cases, a ratio of the number of cases to the number of free parameters should be more than 5:1, and the preferable ratio is 10:1 (Kline, 2005). In this study, the number of cases was 455, so the ratio was more than 10:1.

Finally, in order to decide whether data should be treated as clustered, ICC (Intraclass correlation) was calculated, and the value indicated that it was necessary to take the clustered nature of the data into consideration. Intraclass correlation is the proportion of variance in a variable due to grouping effects indicating variance between groups, $\rho(\text{ICC}) = \frac{\text{MSb} - \text{MSw}}{\text{MSb} + (c-1)\text{MSw}}$; for my data, $\text{MSb} = 7503.432$, $\text{MSw} = 599.110$ and $\frac{7503.432 - 599.110}{7503.432 + (41.23 - 1) \cdot 599.110} = 0.218$. Therefore, the ICC (intraclass correlation) was 0.218. Deff (design effect) was calculated with $(1 + (c-1)\rho)$, and its value was 8.78 ; $1 + (41.23 - 1) \cdot 0.218 = 8.77$. Overall, the result of ICC indicated that about 22% of the variance could be explained by the grouping variable. Because this is more than 10%, it was important to analyze the data as clustered when running a path analysis.

Reliability

Reliability (Cronbach's alpha, construct reliability and variance extracted)

Score reliability is critical when path analysis is conducted because exogenous scales are assumed to have no measurement errors (Kline, 2005). Therefore, before the main analysis, a reliability test (Cronbach's alpha) was conducted using SPSS to ensure that each scale had a good reliability. Second, a Confirmatory Factor Analysis was used to judge the quality of each factor with its construct reliability and variance extracted from measured variables. In general, it is recommended that a factor explain at least 50% of the variance in the variables. Construct reliability should be at least 70%. Below, I list values of Cronbach's alpha, construct reliability, and variance extracted for eight measures.

Table 6. Cronbach's alpha, Construct reliability, and Variance Extracted s for Eight Measures

	<i>Cronbach's alpha</i>	<i>Construct Reliability</i>	<i>Variance Extracted</i>
1.Initial interest	.90	.89	.55
2.Background knowledge	.79	.79	.56
3.Hold interest	.92	.91	.55
4.Catch interest	.85	.84	.54
5.Motivation for affiliation with peers	.89	.89	.74
6.Perceptions of peer enthusiasm	.84	.84	.58
7. Motivation for affiliation with the teacher	.90	.90	.76
8. Perceptions of teacher enthusiasm	.89	.89	.68

Overall, all eight scales had acceptable reliability based on Cronbach's alpha, variance extracted, and construct reliability.

Main Analysis

One of objectives in this study was to establish the level of interrelationships among initial interest, hold interest, catch interest, perceptions of teacher enthusiasm, and perceptions of peer enthusiasm, as there has been no research focused on the effects of perceptions of teacher enthusiasm and perceptions of peer enthusiasm on students' interest at the end of the semester. Therefore, multiple regression analysis using SPSS was conducted to explore the significance of predictors of interest at the end of the semester. Also, when the results of a path analysis showed significant indirect relationships among variables, mediator effects of perceptions of teacher enthusiasm and perceptions of peer enthusiasm were tested, using multiple regressions with the Sobel test. This was because one purpose of this study was to understand the mechanism of the relationship among variables, taking perceptions of teacher enthusiasm and perceptions of peer enthusiasm into consideration. A mediator effect is used when researchers are interested in "how" and "why" the relationship between an independent variable and a dependent variable holds (Bennett, 2000). Because multiple regressions were used to predict main variables in this study, the results of multiple regressions overlap with the results of the path analyses. Therefore, the results of these multiple regressions are presented in Appendix A. Also, the results of the Sobel tests and Bootstrap Analysis used to confirm the indirect effects of path analysis are presented in Appendix B and C.

As a main analysis, a path analysis using Mplus (version 6) was used to analyze the data because path analysis is appropriate when investigating causal relations among observed variables based on prior hypotheses (Kline, 2005). Thus, a path analysis could indicate direct effects of one variable on another variable and indirect effects via one or more mediating variables on another variable, covariance between observed exogenous variables, and a disturbance correlation between endogenous variables (Kline, 2005).

In terms of the complexity of the model, the number of observations (the number of variances and covariances) should be more than the number of parameters. In this study, taking into consideration the clustered nature of the data, the path analysis with complex type option and cluster variable in Mplus was used in order to analyze the survey data because the ICC (Intraclass correlation) was 0.22 and DEFF (design effect) was 8.78. Using the complex type option could correct the standard errors and chi-square test of model fit by taking into account non-independence of observations in contrast to traditional statistical methods that assume independence of observation (Muthén & Muthén, 1998-2010). Because the data collection was conducted in twelve different classes, results of these preliminary tests indicated that the clustering nature should be considered in order to analyze the data correctly. Note that, in this study, there were only 12 classes, even though 20 clusters are usually preferred in analyses with cluster variables, and results need be interpreted accordingly.

Path Analysis

In conducting a path analysis, I constructed a full model with direct paths from initial interest, background knowledge, motivation for affiliation with peers, and motivation for affiliation with the teacher to hold interest and catch interest as well as indirect paths from these same variables to hold interest and catch interest via perceptions of peer enthusiasm and perceptions of teacher enthusiasm. Results of the path analysis indicated that the fit of the final model was good with the data (CFI=0.991, RMSEA Estimate .081, (90 percent C.I.) 0.048 0.116, SRMR=0.027).

Figure 1. Final Path Model

Direct and Indirect Effects in the Path Analysis Model

According to the path analysis, there were both direct and indirect effects.

Direct effects. The direct effect of initial interest on hold interest ($\beta = 0.39, p < 0.001$) as well as direct effects of perceptions of teacher enthusiasm ($\beta = 0.32, p < 0.001$) and perceptions of peer enthusiasm ($\beta = 0.22, p < 0.001$) on hold interest were significant. Also, there was a direct relationship between background knowledge and hold interest ($\beta = 0.14, p < 0.05$).

In addition, the direct effect of initial interest on catch interest ($\beta = 0.14, p < 0.001$) as well as the direct effects of perceptions of teacher enthusiasm ($\beta = 0.56, p < 0.001$), perceptions of peer enthusiasm ($\beta = 0.34, p = 0.001$), and the negative direct effect of motivation for affiliation with peers ($\beta = -0.15, p < 0.05$) on catch interest were significant. However, there was no direct relationship between motivation for affiliation with the teacher and catch interest ($\beta = 0.00, p = .99$) though there was an indirect relationship between these two variables, mediated by perceptions of teacher enthusiasm.

There was a direct effect of initial interest ($\beta = 0.16, p < 0.001$) and motivation for affiliation with peers ($\beta = 0.46, p < 0.001$) on perceptions of peer enthusiasm. Also, there was a direct effect of motivation for affiliation with the teacher on perceptions of teacher enthusiasm ($\beta = 0.56, p < 0.001$), but there was no direct relationship between initial interest and perceptions of teacher enthusiasm ($\beta = -0.07, p = 0.072$).

In terms of covariance, the covariance between motivation for affiliation with peers and motivation for affiliation with the teacher ($\beta = .60, p < .001$) and the covariance between initial interest and background knowledge ($\beta = -.01, p = 0.823$) were not significant.

Indirect effects. The indirect effect from initial interest to hold interest via perceptions of teacher enthusiasm ($\beta = -0.02, p = 0.07$) was not supported whereas the indirect effect from initial interest to hold interest via perceptions of peer enthusiasm ($\beta = 0.04, p = 0.01$) was supported.

An indirect effect from initial interest to catch interest via perceptions of teacher enthusiasm ($\beta = -0.04, p = 0.084$) was not supported whereas an indirect effect from initial interest to catch interest via perceptions of peer enthusiasm ($\beta = 0.06, p = 0.01$) was supported. An indirect effect from motivation for affiliation with the teacher to catch interest via perceptions of teacher enthusiasm ($\beta = 0.31, p < 0.001$) as well as the indirect effect from motivation for affiliation with peers to catch interest via perceptions of peer enthusiasm ($\beta = 0.16, p < 0.001$) were supported. The findings for all hypotheses are discussed in more detail in Chapter 5.

Chapter 5: Discussion

As a main purpose of this study, I investigated how students' perceptions of teacher enthusiasm and of peer enthusiasm as contextual variables could help explain the relation between students' initial interest and their situational interest (both hold and catch interest) at the end of the semester and the relation between students' affiliative motivation and their catch interest at the end of the semester. Also, I examined how perceptions of teacher enthusiasm and perceptions of peer enthusiasm were related to students' affiliation motivation in the class. Overall, the results of this study supported the importance of contextual variables such as teacher and peer enthusiasm as well as students' own individual variables such as initial interest and affiliation motivations in the class in explaining students' interest at the end of the semester. In the following sections, first, I discuss contextual variables followed by students' own individual variables, and then, I discuss the interplay between these two kinds of variables in explaining situational interest. Finally, limitations of the study and implications for future research are addressed.

Contextual Variables: Teacher Enthusiasm and Peer Enthusiasm

In this section, I discuss the two contextual variables that may influence students' interest over the semester, teacher enthusiasm and peer enthusiasm.

Teacher Enthusiasm. Because teacher enthusiasm has been defined as an important characteristic of an effective teacher (Brophy & Good, 1986), its effects on students' performance (Bettencourt et al., 1983; Brigham, Scruggs, & Mastropieri, 1992) and motivation (Wild et al., 1992; Frenzel et al., 2009) have been explored for decades. Even though teacher enthusiasm has been considered an effective instructional strategy, a few studies have recently refocused on the positive affect aspect of teacher enthusiasm (Frenzel et al., 2009) that may influence students' affect which, in turn, may help enhance students' interest. In line with these studies, I will discuss in this section my findings related to characteristics of teacher enthusiasm.

First, as a preliminary finding, students perceived their teacher's enthusiasm rather similarly whether students were male or female and whether they were in different class structures. However, interestingly, students reporting on a course taken to fulfill a requirement perceived their teacher's enthusiasm as higher than those who took a course that was not required. Even though there was no significant difference in motivation for affiliation with the teacher between these two groups, still, students who were taking a required course showed higher motivation to affiliate with their teacher. It may be that teachers' enthusiasm may have more influence on students who are taking a course as a requirement than those who are not taking a required course. Also, overall, the affective component that Kunter et al. (2008) emphasized when defining teacher enthusiasm seemed reflected in my study in the positive associations between teacher enthusiasm and variables with affective aspects such as situational interest, motivation for affiliation with the teacher, perceptions of peer enthusiasm, motivation for affiliation with peers but not

initial interest or background knowledge. In terms of predictors of teacher enthusiasm, I had hypothesized that students' initial interest and their motivation for affiliation with the teacher would predict their perceptions of teacher enthusiasm. However, only motivation for affiliation with the teacher had a direct effect on perceptions of teacher enthusiasm. This may indicate that if students care more about their relationship with their teachers, they are more likely to perceive their teacher as enthusiastic. Another way of saying this is that students who seek to have smooth relations with their teacher may perceive their teacher's positive emotions more easily and be more influenced by their teacher's feelings because a characteristic of affiliative motivation may lead individuals to take on others' feelings (Huntsinger et al., 2009). Furthermore, the results supported the existing literature on affiliation motivation. When an individual has affiliation motivation, he or she is more likely to mimic others' behaviors (Lakin & Chartrand, 2003) and attitudes (Sinclair, Lowery, Hardin, & Colangelo, 2005). On the other hand, students' perspectives on their teacher's enthusiasm did not seem to be influenced by students' initial interest in the course. Perhaps, somewhat naïvely, I had hypothesized that students with high initial interest might perceive their teacher positively. Results indicated that students' judgment of their teacher's enthusiasm was independent of their own initial interest.

Peer Enthusiasm. Unlike teacher enthusiasm, peer enthusiasm has not been extensively explored previously. Thus, in this study, my hypothesis about peer enthusiasm came from an extension of the concept of teacher enthusiasm. First, in general, students perceived their peers as less enthusiastic than their teacher. This may be because classmates express less enthusiasm in the classroom because unlike the teacher,

they have less opportunity to express their enthusiasm, especially if they are in a lecture-based class. On the other hand, students perceived their classmates' enthusiasm rather similarly whether they were female or male and whether the course was fulfilling requirement or not. However, students perceived their classmates' enthusiasm differently depending on different class structures, perceiving their classmates as more enthusiastic in discussion-based classes and combination classes than in lecture-based classes. Overall, this may indicate distinctive characteristics of peer enthusiasm from teacher enthusiasm, suggesting that students who think they should be interactive in the classroom tend to perceive their classmates' enthusiasm differently whereas students perceived their teacher enthusiasm rather similarity whether they were in different class structures.

Interestingly, as shown in Table 3, perception of peer enthusiasm had significant relationships with all variables. Like teacher enthusiasm, peer enthusiasm seems to involve an affective component that influences students' situational interest. However, unique to peer enthusiasm, students' initial interest was positively related to their peer enthusiasm whereas their background knowledge was negatively correlated with perceptions of peer enthusiasm. This may imply that when students think they know more about a course at the beginning of the semester, especially if they have developed individual interest, which is said to involve more knowledge in the object of interest with less strong of an affective aspect compared to early phases of interest development, they may be less influenced by classmates' enthusiasm in the classroom. In terms of predictors of perceptions of peer enthusiasm, unlike teacher enthusiasm, initial interest as well as

motivation for affiliation with peers had direct effects on their perceptions of peer enthusiasm. Thus, if students are initially interested in a course, they are more likely to perceive their classmates as enthusiastic, even though the β , though significant, was not substantial. On the other hand, like teacher enthusiasm, if students care more about their relationships with their classmates, they are more likely to perceive their classmates as enthusiastic because students who are motivated to get along and to cooperate with their peers are more likely to pay attention to classmates and interact with them, and in turn, they may perceive classmates' positive emotions more easily than those who are not interested in building good relations with their classmates (Huntsinger et al., 2009).

Individual Variables: Students' Initial Interest, Background Knowledge, and their Affiliative Motivation

In this section, I address findings related to how individual variables may influence students' reported interest at the end of semester, their initial interest, their background knowledge, and their motivation for affiliation with the teacher and classmates.

Initial Interest and Background Knowledge. Even though initial interest and background knowledge were not my main concerns in this study, they are discussed briefly here because they are still important variables in an understanding of perceptions of teacher enthusiasm and peer enthusiasm as well as students' situational interest at the end of the semester. First, in this study, students who took the course not as a requirement

showed higher initial interest than those who took the course as a requirement although interestingly, there was no difference between these two groups on their situational interest measured at the end of the semester. Students who took the course as a requirement showed more “hold” and “catch” interest than their initial interest whereas unfortunately, students for whom the course was not required showed a decline in interest toward the end of the semester, showing their hold interest and catch interest to be lower than their initial interest. This may suggest that students’ interest may fluctuate throughout the semester, and contextual variables such as teacher enthusiasm and peer enthusiasm could be important variables that could enhance students’ situational interest throughout a semester. In terms of background knowledge, if there had been a significant correlation between initial interest and background knowledge, overall, the correlation might have suggested that some students had developed individual interest before the semester, as Harackiewicz et al. (2008) showed. However, in my study, students’ background knowledge was not correlated with their initial interest, thus implying that these students’ initial interest was not of the well- developed type at the beginning of the semester because well-developed interest may involve a moderate cognitive component (Hidi & Renninger, 2006).

Affiliative Motivation. In general, affiliative motivation research has been conducted in laboratory settings, and students’ motivation for affiliation with the teacher and peers has not been explored in classroom contexts. Thus, the findings of this study may contribute to a better understanding of the concept of affiliative motivation. In this study, overall, students showed more motivation for affiliation with their teacher than

with their peers (See Figure 2). In addition, their affiliative motivation was different depending on class structure. Students in mixed structure classes, which included discussion and lecture, showed significantly higher motivation for affiliation with the teacher than students in lecture-based classes. Relatedly, students in the mixed structure classes showed significantly higher motivation for affiliation with peers than students in lecture-based classes. Therefore, it may be important to recognize that overall, when students think that they need to be more interactive in the classroom, they report more motivation to affiliate with their teacher and their classmates.

Figure 2. Direct Effects of Affiliative Motivation and Initial Interest on Perceptions of Teacher enthusiasm and Perceptions of peer enthusiasm

Interplay Between Contextual Variables and Individual Variables to Explain Students' Situational Interest

In current formulations of the construct of interest, *situational interest* is considered critical in interest development because when students develop situational interest, they may see value in the object of interest and want to keep participating in the activity over time (Hulleman et al., 2008). Such participation may lead to the next phase of *maintained situational interest* and eventually *individual interest* (Hulleman et al., 2008). Thus, situational interest has gained attention from researchers and educators because contextual factors such as what the teacher and classmates do may have an impact on students' situational interest, with its characteristic affective reactions that can be influenced by the environment (Jetton & Alexander, 2001; Hidi 2006; Mitchell, 1993). Therefore, in this study, as environmental variables, the effects of teacher enthusiasm and peer enthusiasm which involve affective component on students' situational interest were explored. In the next two sub-sections, I discuss how the variables I measured were associated with two forms of situational interest, catch and hold interest.

Catch Interest. Students' *catch interest* refers to "students' affective reactions to course lectures" (Harackiewicz et al., 2008, p109). In my study, background knowledge did not have any effect on catch interest whereas perceptions of teacher enthusiasm had a direct relationship with catch interest, more so than perceptions of peer enthusiasm and initial interest (see Figure 3). As it is defined, catch interest involves affective reactions to course content, and so, teacher enthusiasm and peer enthusiasm can have more direct

effects on catch interest than can initial interest. Thus, this may imply that even though students' initial interest, an individual variable, is an important variable in understanding catch interest, teacher enthusiasm and peer enthusiasm as contextual variables play a key role for students to develop their catch interest in the classroom. As another individual variable, students' motivation for affiliation with the teacher did not have any impact on their catch interest, and furthermore, students' motivation for affiliation with peers even had a negative direct effect on their catch interest. These findings suggest that if students care highly about having a good relationship with classmates, their attention may be diverted from the lecture, and accordingly, their catch interest may be influenced negatively.

As portrayed in Figure 4, mediator effects indicated that contextual variables such as teacher enthusiasm and peer enthusiasm may help explain the relationships among students' own individual variables such as the relation between initial interest and catch interest and the relation between affiliative motivation and catch interest. Perceptions of teacher enthusiasm did not have mediator effects on the relation between initial interest and catch interest, but still alone, affected catch interest even more so than initial interest. Thus, both variables, teacher enthusiasm and initial interest, may have different characteristics that independently influence catch interest. On the other hand, perceptions of peer enthusiasm mediated the relation between initial interest and catch interest. Even though students' own initial interest had relatively less effect on catch interest compared to contextual variables, if students perceived their classmates as being enthusiastic, they reported higher level of catch interest at the end of the semester.

Also, perceptions of teacher enthusiasm and perceptions of peer enthusiasm had mediator effects on the relation between affiliative motivation and catch interest. Specifically, even though affiliative motivation itself had no effect or even a negative effect on catch interest, if students wanted to have good relationships with others in the classroom, and if they perceived the teacher and their classmates as enthusiastic in the classroom, then, their catch interest seem to have been affected by their affiliative motivation indirectly. Because affiliative motivation is indirectly related to situational interest, it may be important that the teacher consider what to do to create classroom climate for students to become more involved so that their affiliative motivation increases and so they perceive their classmates as more enthusiastic.

Hold Interest. According to Harackiewicz et al. (2008), *hold interest* refers to “students’ feelings about and personal valuing of the course material” (p109). In this study, unlike catch interest, students’ initial interest had more effect on hold interest than their perceptions of teacher enthusiasm and perceptions of peer enthusiasm (see Figure 3). Also, interestingly, unlike catch interest, background knowledge had a direct relationship with students’ hold interest. Overall, these results may indicate that if students have initial interest, they may already place some value in the course content, and their initial interest may still be influencing their value at the end of the semester. Along with initial interest, if students have some background knowledge, they may already value the course content and want to build some knowledge in the area. In this study, more interesting results were that perceptions of teacher enthusiasm and peer enthusiasm had direct effects on students’ hold interest, and especially, perception of

teacher enthusiasm had almost as much effect as initial interest on students' hold interest. It seems that with expressed positive emotions in the classroom, teacher enthusiasm and peer enthusiasm may convey some value for the course content to students. Teacher's enthusiasm especially may add appeal to students' valuing of the course.

As mediators, perceptions of teacher enthusiasm did not mediate the relation between initial interest and hold interest but perceptions of peer enthusiasm did so. Such results may suggest that when students have initial interest and in turn, perceive their classmates as enthusiastic, they are more likely to value the course content at the end of the semester, whereas teacher enthusiasm by itself independently affects students' hold interest as much as their initial interest.

Overall, perceptions of teacher enthusiasm and perceptions of peer enthusiasm were strong predictors of students' hold and catch interest at the end of the semester. Furthermore, teacher enthusiasm and peer enthusiasm seemed to influence students' catch interest more than their hold interest. Because catch interest emphasizes "reactions to the course" rather than "value toward the course content," it seems reasonable that students' catch interest would more likely be influenced by others' enthusiasm in the classroom. Also, even though both contextual variables showed significant importance in explaining students' interest in the course, overall, students' situational interest was more likely influenced by their teacher's enthusiasm than their classmates' enthusiasm.

In conclusion, as the finding of this study showed, even though students' initial interest influenced their situational interest at the end of the semester, contextual variables such as teacher enthusiasm and peer enthusiasm significantly influenced their

situational interest, which in turn may enhance their further interest in the future. Furthermore, the relations among students' individual variables were mediated by contextual variables. Therefore, contextual variables as well as individual variables should be recognized for their importance concurrently rather than focusing on only one kind of variables in research on the construct of interest.

Figure. 3. Mediator Effects of Perceptions of Teacher Enthusiasm and Perceptions of Peer enthusiasm on the Relation between Initial Interest and Hold as well as Catch Interest

Figure. 4. Mediator Effects of Perceptions of Teacher Enthusiasm and Perceptions of Peer enthusiasm on the relation between Affiliative Motivation and Catch Interest

The results of this study may be understood more easily by considering classroom scenarios that we often face. For example, if a student is highly interested in a psychology course because she wants to understand her son's behavior, her initial interest may positively influence her interest at the end of the semester because she already sees some value of the course and her valuing of the course may remain rather consistent . Furthermore, at the same time, if her classmates as well as teacher show enthusiasm in learning and teaching the content of the class, it could boost her positive reactions to the course and may help her enjoy coming to class even more. Another case would apply if regardless of her interest, she has a high need to get along with her classmates and teacher, and she perceives them as enthusiastic in learning and teaching. Under such

circumstances, she may have positive reactions to the course, which could be closely related to valuing the course. On the other hand, a student who has to take a government course to graduate next year and who is not interested in the subject very much might have ended the semester with relatively low interest. However, once she comes to class and sees her teacher and classmates as eager to teach and learn the topic, she may become more curious about the subject and even start to value the content of the course so that her final interest in the course now shows an increase.

Implications of the Study

This study began with my own questions about how the classroom atmosphere created by teacher and students together influence students' interest throughout the semester. In terms of the construct of interest, I was fascinated by what role teachers in the classroom, in general, could play in understanding the connection between the role of the teacher and student interest. Previous work had explored teacher effects via choice of instructional strategies such as types of tasks (Mitchell, 1993) and types of text (Schraw, Flowerday, & Lehman ,2001) and students' interest. Instead, in my study, I investigated the contextual variables of teacher enthusiasm and peer enthusiasm and their connection to students' interest. Especially, in this study, the findings that teacher enthusiasm was associated with situational interest are noteworthy because teacher enthusiasm was as powerful as students' individual characteristics in the form of initial interest, on students' hold interest and catch interest. Thus, one implication of my study is that teacher enthusiasm should be recognized for its critical importance as a contextual variable,

focusing on the positive affect component that may be transferred to students' value as well as emotions in the classroom. For instance, even if a teacher is interested in the subject and in teaching students, the teacher may not feel comfortable being expressive or enthusiastic in front of students because of characteristics of her own. Even though as semester goes on, students might see the teacher's interest in her teaching, still, this study shows the importance of a teacher's expressed positive emotions in class because students may gain benefit from their perceptions of teacher enthusiasm, which may influence students' positive reactions and valuing of the course. One of studies on teacher enthusiasm, Bettencourt et al. (1993), reported that teachers who were in the condition of training to be enthusiastic showed significantly more enthusiasm than others who were not in the training condition, and results showed that teacher enthusiasm helped students keep on task in class. Therefore, it may be especially important for non- expressive teachers to recognize the impact of their expressed positive emotions on students' interest and to become more expressive in their classes.

As for peer enthusiasm, it had not been extensively studied before, so the findings of this study may contribute to the literature on peer influence and classroom climate, showing the effects of classmates' enthusiasm on students' situational interest. The results supported the claim that peer enthusiasm also play an important role because along with its direct effect on students' situational interest, it seemed to help explain the relation between initial interest and situational interest. Also, when students seem more concerned about having a good relationship with classmates, there may be a negative impact on their catch interest but peer enthusiasm may mediate this process and

positively help develop students' catch interest. In addition, when students were in a class structure that involved discussion, they tended to perceive their classmates as more enthusiastic. That perceptions of peer enthusiasm had a direct association with situational interest may suggest that it may be important to create classroom environment for students to get more involved in the classroom.

Concerning affiliative motivation, motivation for affiliation with the teacher and peers has not been studied in classroom contexts. Thus, the findings of this study may contribute to an understanding of the construct of affiliative motivation, indirectly supporting previous findings about affiliative motivation in other settings. The findings of this study showed that if students are more motivated to get along with others in the classroom, they are more likely to perceive their teacher and classmates as enthusiastic. Based on the affiliative motivation literature, it is possible that when students have more affiliative motivation, they may perceive the feelings of their teacher and classmates more easily, and this may suggest an influence on affective reactions and valuing of the course.

Therefore, the results of this study may imply that the teacher should help students become more actively involved in the classroom so that they can develop their situational interest throughout the semester. Second, most importantly, the results indicated that individual students' own variables such as initial interest could be important variables in predicting their situational interest. More importantly, perceptions of their teacher's and peers' enthusiasm are also strongly associated with their situational interest. Thus, the contextual variables that teacher and students create together should

not be ignored in understanding the mechanism by which student interest is created and developed throughout the semester in the classroom.

Limitations and Future Directions

Even though the results of this study showed potential implications for the literature on interest, teacher enthusiasm, peer enthusiasm, and affiliative motivation, it is important to acknowledge some of the limitations of this study. First, concerning my analytical procedure, when data are analyzed with cluster variables, it is preferred to have 20 clusters. Because of the characteristics of the study in which teacher enthusiasm and peer enthusiasm were investigated, it was imperative that I collect in different classes with different instructors. However, even though about 65 professors were contacted for the survey, only 12 professors agreed to allow me to conduct research in their classes. Because of this situation, only 12 clusters were used to analyze the data, so that the results of this study may have limitations in terms of the analysis that are presented in this study. Another concern is that all professors who participated in this study were generally seen as enthusiastic teachers. The mean score on the perception of teacher enthusiasm scale was 6.13 out of 7 (standard deviation of .84), and a negatively skewed distribution, all indicating that overall, students rated their teacher as highly enthusiastic. Therefore, there was not as much variance in students' answers to perceptions of teacher enthusiasm scale. Also, any study that relies on individuals' perceptions has limitations, as it is difficult to understand teacher enthusiasm and peer enthusiasm more objectively. Therefore, in the future, when studying teacher enthusiasm and peer enthusiasm, I believe

it would be helpful to conduct the study in more diverse classes with teachers of different degrees of enthusiasm. Also, in order to rate more objectively teacher or peer enthusiasm, it would seem important to add direct classroom observation of teacher and peer behaviors. In addition, the construct of peer enthusiasm has not previously been specifically explored, but like teacher enthusiasm, it appears to be an important variable contributing to students' interest so that peer enthusiasm measures should be more carefully developed, and the construct of peer enthusiasm should be clarified.

In terms of future direction, I would like to investigate the mediating effects of students' affiliative motivation on the relation between perceptions of teacher enthusiasm and peer enthusiasm and their situational interest at the end of the semester. Even though as presented in this study, perceptions of teacher enthusiasm and peer enthusiasm were shown to play mediator roles in the relation between affiliative motivation and situational interest, it is still plausible that students' affiliative motivation could be a mediator of the relation between perceptions of teacher enthusiasm and situational interest. Therefore, focusing especially, on analyzing the mediator effects of affiliative motivation, it would be interesting to compare two separate models to determine which variable, either perception of enthusiasm or affiliative motivation, contributed to more explanatory mediators.

Conclusion

This study had three main purposes. First, I investigated whether teacher enthusiasm and peer enthusiasm had mediator effects on the relation between students'

initial interest and situational interest at the end of semester in order to elucidate the interplay between contextual variables and individual variables. Second, I investigated relationships between teacher and peer enthusiasm and students' situational interest in order to help explain contextual variables that may be associated with students' situational interest. Third, I investigated the relationships between perceptions of teacher enthusiasm and of peer enthusiasm and students' affiliative motivation as well as their initial interest in order to help explain antecedents of perceptions of teacher enthusiasm and of peer enthusiasm. Overall, the results of this study supported the importance of enthusiasm of one's teacher and classmates in a classroom as these may influence students' affective reactions to and valuing of a course. Also, the results showed how important were students' own initial interest and their motivation to affiliate with the teacher and classmates in order to maximize their situational interest through their perceptions of teacher enthusiasm and of peer enthusiasm. Therefore, as the importance of social support and of the environment in interest development has been recognized (Hidi & Renninger, 2006; Harackiewicz et al., 2008), the findings of this study showed the interplay between students' own academic and social motivation in the classroom and emotional support from their teacher and classmates to help explain students' interest at the end of the semester.

Appendix A

The Results of Multiple Regression Analyses

Predictors of hold interest, catch interest, perceptions of teacher enthusiasm, and perceptions of peer enthusiasm. Because I was interested in whether predictor variables could significantly predict hold interest, catch interest, perceptions of teacher enthusiasm and perceptions of peer enthusiasm, a multiple regression analysis with the enter method was used. Using such an analysis can allow a researcher to assess a set of predictor variables, showing the relative contribution of each predictor variable (Brace, 2000).

First, based on my hypotheses (hypotheses 1.1, 2.4, 2.6, 3.2), initial interest, background knowledge, perceptions of teacher enthusiasm, and perceptions of peer enthusiasm were regressed on the variable of hold interest. The summary showed that the model was significant with an adjusted R -square value of .41, indicating that this model accounted for 41% of the variance in the hold interest variable ($R^2=.41$, $F(4, 450)=57.65$, $p < 0.001$). The results showed that all four variables were significant predictors of hold interest. Among those variables, initial interest accounted for more of the variance in hold interest ($\beta = .39$, $p < .001$), followed by perceptions of teacher enthusiasm ($\beta = .32$, $p < .001$), perceptions of peer enthusiasm ($\beta = .22$, $p < .001$) and background knowledge. ($\beta = .14$, $p < .001$). The hypotheses were supported, showing that the four variables were significant predictors of hold interest.

Table 7. Model Summary of Predictors of Hold Interest

<i>Model</i>	<i>B</i>	<i>SE</i>	<i>β</i>	<i>ΔR²</i>
INT	.38	.04	.39***	.14
BK	.09	.02	.14***	.02
ENP	.21	.04	.22***	.04
ENT	.39	.05	.32***	.09

*** $p < .001$

Next, based on hypotheses 1.2, 2.5, 2.7, initial interest, perceptions of teacher enthusiasm, and perceptions of peer enthusiasm were regressed on catch interest. The model summary showed that the model was significant with an adjusted R Square value of .43, indicating that it accounted for 43% of the variance in the catch interest ($R^2=.44$, $F(5, 449)=65.13$, $p < 0.001$). Among these variables, unlike the predictors of hold interest, perceptions of teacher enthusiasm was the greatest contributor to catch interest ($\beta = .48$, $p < .001$), followed by perceptions of peer enthusiasm ($\beta = .34$, $p < .001$), initial interest ($\beta = .14$, $p < .001$), and then motivation for affiliation with peers ($\beta = -.18$, $p < .001$). However, interestingly, motivation for affiliation with the teacher was not a significant predictor in this model ($\beta = .05$, $p = .35$).

Table 8. Model Summary of Predictors of Catch Interest

<i>Model</i>	<i>B</i>	<i>SE</i>	<i>β</i>	<i>ΔR²</i>
INT	.16	.04	.14***	.02
AFT	.06	.06	.05	.001
ENT	.67	.06	.48***	.16
AFP	-.16	.04	-.18***	.02
ENP	.36	.05	.34***	.08

*** $p < .001$

Based on hypotheses 2.2 and 4.2, two variables, initial interest and motivation for affiliation with the teacher were regressed on perceptions of teacher enthusiasm. The model summary showed that the model was significant with an adjusted R-square value of .29, indicating that this model accounted for 29% of the variance in perceptions of teacher enthusiasm ($R^2=.29$, $F(2, 452)=92.78$, $p < 0.001$). Interestingly, the results showed that only motivation for affiliation with the teacher was a significant predictor ($\beta = .55$, $p < .001$). Only the hypothesis about motivation for affiliation with the teacher was supported, suggesting that initial interest was not a significant predictor of perception of teacher enthusiasm ($\beta = -.06$, $p = .12$).

Table 9. Model Summary of Predictors of Perception of Teacher Enthusiasm

<i>Model</i>	<i>B</i>	<i>SE</i>	<i>β</i>	<i>ΔR²</i>
INT	-.01	.04	-.02	.0003
AFT	.19	.03	.31***	.29

*** $p < .001$

Based on hypotheses 2.3 and 4.3, initial interest and motivation for affiliation with peers were regressed on perceptions of peer enthusiasm. The model summary showed that the model was significant with an adjusted R-square value of .27, indicating that this model accounted for 27% of variance in perception of peer enthusiasm ($R^2=.27$, $F(2, 452)=83.41$, $p < 0.001$). As hypothesized, the results showed that motivation for affiliation with peers as well as initial interest were significant predictors of students' perceptions of peer enthusiasm. Especially, motivation for affiliation with peers explained a greater proportion of the variance of perceptions in peer enthusiasm than initial interest ($\beta = .45$, $p < .001$) though initial interest was a significant predictor as well ($\beta = .16$, $p < .001$).

Table 10. Model Summary of Perceptions of Peer Enthusiasm

<i>Model</i>	<i>B</i>	<i>SE</i>	<i>β</i>	<i>ΔR^2</i>
INT	.17	.04	.16***	.02
AFP	.37	.03	.45***	.20

*** $P < .001$

Appendix B

The Results of Sobel Tests

In addition to testing for indirect effects, multiple regressions with Sobel test were used in order to examine mediator effects. “Mediation exists when a predictor affects a dependent variable indirectly through at least one intervening variable, or mediator” (Preacher & Hayes, 2008).

Then, multiple regression using SPSS with Sobel tests were tested for a mediator effect. First, the results of the Sobel test statistics indicated a mediator effect of perceptions of teacher enthusiasm on the relation between motivation for affiliation with teacher and catch interest ($Z=8.82, p < .001$). Also, the results of the Sobel test statistics indicated a mediator effect of perceptions of peer enthusiasm on the relation between initial interest and hold interest ($Z=4.65, p < .001$) and catch interest ($Z=5.20, p < .001$). Also, the results showed a mediator effect of perceptions of peer enthusiasm on the relation between motivation for affiliation with peers and catch interest ($Z=7.66, p < .001$).

Appendix C

The Results of Bootstrap Analysis

Along with the Sobel test, a bootstrap analysis using Mplus was conducted in order to test mediator effects of perceptions of teacher enthusiasm and perceptions of peer enthusiasm. Bootstrapping analysis for testing indirect effects is recommended because it repeatedly samples data sets and estimates the indirect effect in each resampled data set, and it does not impose the assumption of normality of the sampling distribution (Preacher & Hayes, 2008). Because a bootstrap analysis cannot be used for cluster variable together, the fit indexes changed a little bit but it still showed a good fit (CFI=0.983, RMSEA Estimate .08, 90 percent C.I. 0.047 0.115, SRMR=0.027). Concerning indirect effects, the same results as the original final model were confirmed.

Table. 11. Indirect Effects Analyzed Using Bootstrap Analysis

Hypothesized Indirect Effect	Unstandardized Indirect Effect	Standardized Indirect Effect	Biased-Corrected Bootstrap Estimates	
			SE for Standardized Indirect Effect	95% Confidence Interval for Standardized Indirect Effect
INT, ENT, CATCH	-.04	-.04	.02	-.08 .01
INT, ENP, CATCH	.06	.06	.02	.02 .09**
INT, ENT, HOLD	-.02	-.02	.01	-.06 .01
INT, ENP, HOLD	.04	.04	.01	.01 .06**
AFT, ENT, CATCH	.36	.31	.06	.24 .38***
AFP, ENP, CATCH	.12	.16	.03	.10 .21***

Appendix D

Questionnaire (Time 1 survey)

Please answer the following information:

1. For identification purposes, please write down the name of this course: _____
2. What is your UT EID (this is just for matching pre and post tests)

3. What is your Gender? M _____ F _____
4. What is your class rank?
Freshman__Sophomore__Junior__Senior__ other _____
5. Does this course fulfill a requirement in your program of studies?
Yes _____ No _____
6. Why are you taking this course? Please, describe your reasons briefly.

Please indicate how true each statement is for you using the following scale where “1” means “not at all true” and “7” means “completely true”. (Please select only one answer for each statement)

	<i>Not at all true of me</i>					<i>Completely true of me</i>	
	1	2	3	4	5	6	7
1. I've always been fascinated by the topic of this course.	1	2	3	4	5	6	7
2. I chose to take this course because I'm really interested in the topic.	1	2	3	4	5	6	7
3. I'm really excited about taking this class.	1	2	3	4	5	6	7
4. I'm really looking forward to learning more about the topic of this course.	1	2	3	4	5	6	7
5. I think the discipline to which this course belongs is an important one.	1	2	3	4	5	6	7
6. I think what we will study in this course will be important for me to know.	1	2	3	4	5	6	7
7. I think what we will study in this course will be worthwhile to know.	1	2	3	4	5	6	7
8. This class is my first exposure to the discipline.	1	2	3	4	5	6	7
9. I already have some background in the content of the course. (I studied related topics in another class or did readings on my own)	1	2	3	4	5	6	7
10. I have very little experience with the content of the course.	1	2	3	4	5	6	7

Appendix E

Questionnaire (Time 2 survey)

Please answer the following information:

What is your UT EID (used only to match pre and post surveys) : _____

Which of the following best describes your class?:

Lecture based class _____ Discussion based class _____ Mix of lecture and discussion class _____

Please indicate how true each statement is for you using the following scale where “1” means “not at all true” and “7” means “completely true”. (Please select only one answer for each statement)

	<i>Not at all true of me</i>				<i>Completely true of me</i>		
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
1. The topic of this course fascinates me.	1	2	3	4	5	6	7
2. I'm excited about the topic of this course.	1	2	3	4	5	6	7
3. I like the instructor of this class.	1	2	3	4	5	6	7
4. To be honest, I just don't find the topic of this course interesting.	1	2	3	4	5	6	7
5. I think the field represented by this course is very interesting.	1	2	3	4	5	6	7
6. The lectures in this class really seem to drag on forever.	1	2	3	4	5	6	7
7. I think what we are learning in this course is important.	1	2	3	4	5	6	7
8. I think what we are studying in this course is useful for me to know.	1	2	3	4	5	6	7
9. I don't like the lectures very much.	1	2	3	4	5	6	7
10. I find the content of this course personally meaningful.	1	2	3	4	5	6	7
11. I see how I can apply what we are learning in this course to real life.	1	2	3	4	5	6	7
12. I enjoy coming to this class.	1	2	3	4	5	6	7
13. I think this course is part of an important field or discipline.	1	2	3	4	5	6	7
14. The lectures in this class aren't very interesting.	1	2	3	4	5	6	7
15. I want to have good rapport with fellow classmates in this class.	1	2	3	4	5	6	7
16. Overall, the other students in this class seem to have a genuine interest in the course material.	1	2	3	4	5	6	7
17. I want to get along with fellow classmates in this class.	1	2	3	4	5	6	7
18. Overall, the other students in this class really seem to be excited about learning.	1	2	3	4	5	6	7
19. Overall, the other students in this class seem to be very enthusiastic and energetic.	1	2	3	4	5	6	7
20. I want to cooperate with fellow classmates in this class.	1	2	3	4	5	6	7
21. Overall, the other students in this class act like they are only here because they have to be.	1	2	3	4	5	6	7
22. I want to have good rapport with the teacher of this class.	1	2	3	4	5	6	7
23. The teacher of this class teaches with enthusiasm.	1	2	3	4	5	6	7
24. I want to get along with the teacher of this class.	1	2	3	4	5	6	7
25. The teacher of this class makes good use of humor during teaching.	1	2	3	4	5	6	7
26. I want to cooperate with the teacher of this class.	1	2	3	4	5	6	7
27. The teacher of this class does things to get students excited about the subject.	1	2	3	4	5	6	7

28. The teacher of this class really seems to take pleasure in teaching. 1 2 3 4 5 6 7

Optional questions

Is there anything (e.g., use of instructional technology, organization of class, etc.) that your teacher did in this class that resulted in you being more interested in the course topic?

How do you define *peer enthusiasm*?

Thank you so much for helping me with my research!

Appendix F

Consent Forms

ORS REVIEWED ON: 07/29/2010
IRB Protocol #2010-07-0038

EXPIRES ON: 07/28/2013

Consent Form

Title: Mediating Effects of Teachers and Peers on Students' Learning in College Classroom

Conducted By: Taehee Kim, graduate student (Diane Schallert, Ph.D, faculty sponsor) Educational Psychology Department;

Telephone: (Taehee Kim), (Diane L. Schallert)

You are being asked to participate in a study described in this form. The person in charge of this research will also describe the study to you and answer all of your questions. Your participation is entirely voluntary. You can refuse to participate without penalty or loss of benefits to which you are otherwise entitled. You can stop your participation at any time and your refusal will not impact current or future relationships with UT Austin or participating sites, simply by telling the researcher.

The purpose of this study is to explore ways of measuring the factors that may influence students' learning in the college classroom. Thus, how students' perceptions of their instructors and peers influence them will be investigated. You will be one of about 400 students expected to participate in this study.

If you agree to be in this study, you will be asked to do the following things:

- If you agree to participate, sign the consent form.
- If you do not agree to participate, do not sign in the consent form. You are indicating that you do not wish to participate in this study. There will be no consequences for not participating.
- If you agree to be in this study, you will be asked to answer about 10 items on a questionnaire in class once at the beginning of the semester (including demographic information) and to answer about 20 questions once at the end of the semester.

Total estimated time to participate is less than 5 minutes for the first survey and less than 15 minutes for the second survey.

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

The potential benefits of this research are contribution to the literature on factors influencing student learning in the college classroom. In addition, this study may suggest ways for instructors who are teaching introductory courses to see how their behaviors in the classroom could affect students' learning.

Compensation: No compensation will be offered.

Confidentiality and Privacy Protections: To match your first and second questionnaires, you will be asked to write down your UT EID on your questionnaires. The UT EID will be erased as soon as I have linked the questionnaires. However, your responses will not be shown to your course instructor and all records will be stored securely and kept private, in my home office, using a locked filing cabinet, and accessed only by me as the researcher in order to ensure your privacy. Also, participants will be able to

skip questions or withdraw from the survey at anytime without consequences.

The records of this study will be stored securely and kept confidential. Authorized persons from The University of Texas at Austin, members of the Institutional Review Board, have the legal right to review your research records and will protect the confidentiality of those records to the extent permitted by law. All publications will exclude any information that will make it possible to identify you as a subject.

Contacts and Questions:

If you have any questions about the study please ask now. If you have questions later, want additional information, or wish to withdraw your participation call me or my supervisor at the phone numbers and e-mail addresses at the top of this page.

If you would like information about the research study, have questions, concerns, complaints or wish to discuss problems about a research study with someone unaffiliated with the study, please contact the IRB Office or Jody Jensen, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects. Anonymity, if desired, will be protected to the extent possible. As an alternative method of contact, an email may be sent to orsc@uts.cc.utexas.edu or a letter sent to IRB Administrator, P.O.Box 7426, MailCode A3200, Austin, TX 78713.

You may keep this form for your records.

ORS REVIEWED ON: 07/29/2010
IRB Protocol #2010-07-0038

EXPIRES ON: 07/28/2013

Consent Form

Title: Mediating Effects of Teachers and Peers on Students' Learning in College Classroom

Conducted By: Taehee Kim, graduate student (Diane Schallert, Ph.D, faculty sponsor) Educational Psychology Department;

Telephone: (Taehee Kim), (Diane L. Schallert)

I am signing this form indicating that I am consenting to participating in this study.

Name: _____

Signature: _____ **Date:** _____

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