Student Interest in Teaching and Learning: Conceptualizing and Testing a Process Model of Teacher Communication, Student Emotional and Cognitive Interest, and Engagement

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Joseph P. Mazer
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This dissertation titled
Student Interest in Teaching and Learning: Conceptualizing and Testing a Process Model of Teacher Communication, Student Emotional and Cognitive Interest, and Engagement

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ABSTRACT

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Student Interest in Teaching and Learning: Conceptualizing and Testing a Process Model of Teacher Communication, Student Emotional and Cognitive Interest, and Engagement

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Directors of Dissertation: Elizabeth E. Graham & Scott Titsworth

This dissertation examines the role of teacher communication, student interest, and student engagement in the teaching and process and contributes to prior theory and research in several ways. First, this study unites two teacher behaviors into a concise model of teaching and learning. Research has indicated that teacher immediacy and teacher clarity can have an important influence on student learning. This study considers the combined influence of these variables on student outcomes. Second, this dissertation examines the role of student interest in the instructional context. In particular, this dissertation explores how communication on the part of teachers can influence emotional interest and cognitive interest on the part of students. Guided by emotional interest theory, cognitive interest theory, and the tenets of an operational model, this dissertation informs how teacher communication behaviors influence student interest and how interest impacts student engagement and learning.

Chapter One presents a conceptual foundation for the problem area for this dissertation and identifies a rationale for the study. Specifically, relevant literature is reviewed to identify conceptual definitions and establish a foundation for the literature reviewed in the subsequent chapter. Chapter Two provides a systematic and
comprehensive overview of extant literature and presents the research questions and hypotheses. The chapter chronicles the relationships between teacher immediacy, teacher clarity, student interest, and student learning. Guided by the tenets of the conceptual model, the review of literature yields a parsimonious and operational model of the learning process which features communication, interest, and engagement as the primary constructs in this model. Chapter Three presents the methods and results of a pilot study designed to construct appropriate research measures for this dissertation. Chapter Four offers a description of the methods used to collect, analyze, and interpret data as part of the primary study for this dissertation. Chapter Five reports the results of the primary study, describes the measurement model and the structural model, and advances a final model of communication, interest, and engagement. Chapter Six discusses the findings, addresses theoretical and pedagogical implications of the dissertation, assesses its limitations, and identifies areas for future research.

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To the greatest teachers who have guided me through the classroom of life, my parents—Joseph and Janice Mazer—for their endless amount of love and support.

To a special teacher—George A. McFee—who ignited in me a passion for teaching and learning at a young age. The energy and enthusiasm that I exude each and every day in my teaching and research is for you.
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“Good teachers possess a capacity for connectedness. They are able to weave a complex web of connections among themselves, their subjects, and their students so that students can learn to weave a world for themselves. The connections made by good teachers are held not in their methods but in their hearts—meaning heart in its ancient sense, as the place where intellect and emotion and spirit and will converge in the human self.”


Writing this section is one of the final tasks that I must tackle before this dissertation is officially complete. I will be honest—I have often thought about how I would go about thanking those teachers who possessed the important capacity for connectedness as well as my friends and family who have influenced and supported me on my educational journey. Now though, at the end of four long years, as I sit to assemble this section and give some well-deserved nods to special people, I seem to be at a loss for what exactly to say. You see, all of the people I will mention here have influenced me in ways that more than a few pages can say. Each person deserves a dissertation devoted solely to him or her along with a statue erected in his or her honor. Recognizing individuals by name is risky—I certainly do not want to forget someone. So, I will begin with a huge extension of my gratitude to every single person who played any type of role—small or large—in helping me get to the point where I am today. First and foremost, my dissertation committee members were champions for my success. I could not have assembled a better group of teachers and scholars to see me through on this
process: Drs. Elizabeth Graham, Scott Titsworth, Andrew Ledbetter, and George Johanson each uniquely influenced me during my doctoral study.

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As my co-advisor, Dr. Scott Titsworth greatly influenced my scholarly and pedagogical thinking throughout my doctoral program. In fact, the idea for this dissertation began to emerge in Scott’s Instructional Communication seminar. Throughout the duration of my time at Ohio University, Scott planted seeds of ideas, guided and challenged my thinking, and encouraged me to think more deeply about salient issues related to communication, emotion, teaching, and learning. Scott, in all, I took six doctoral seminars with you and we have collaborated on a list of other projects.
Reflecting on these experiences, to say that you have made me a better teacher and scholar is a dreadful understatement. I cherish our friendship.

I owe my training in structural equation modeling to Dr. Andrew Ledbetter who patiently guided me through the statistical analysis portion of this dissertation. I greatly appreciate his guidance, especially for coaching me through my many syntax errors, the pains of parameter estimates, multiple runs with model misfit, and for helping me make those pesky SEM decisions. Andrew, I am so thrilled that our paths crossed here at Ohio. Thank you for your patience and encouragement. At times, when I was emotionally sapped, you calmly led the way and provided much-needed self-esteem boosts. I will miss shooting the breeze and losing track of time during our many meetings. I am looking forward to our future scholarly adventures and am thrilled to call you a very dear friend.

I was stunned when I first met Dr. George Johanson during an EDRE statistics course in Fall 2007. When he walked into the classroom on the first day, I learned that George shares more than a first name with one of my former high school teachers who influenced my desire to become a teacher. His clear instructional style, passion for teaching and for his subject matter, and engaging mannerisms—strangely similar to those of my high school teacher—heightened my interest in research methods and shaped how I teach my courses. I was fortunate to take three research methods courses with George and often found myself taking notes about the content and notes about how to teach the content. George, I cannot thank you enough for agreeing to serve on my committee. You guided my thinking through important methodological issues and posed thoughtful and challenging questions during our many committee meetings. Throughout this process,
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person I am today. Thank you for guiding me through the classroom of life. Although the words (and accompanying statistics) of this dissertation may seem unfamiliar, my efforts in it were for you.

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CHAPTER 1: INTRODUCTION

Learning is one of the most vital human functions. It requires the acquisition of new information and knowledge and encompasses the development of capacities, skills, and values. Students, in particular, engage in many behaviors inside and outside of the classroom that reflect their engagement in learning. Students often have the opportunity to listen attentively, orally participate during discussions, take notes, and ask questions of instructors. Students might prepare for class by reading assigned material, reviewing notes, studying for a test or a quiz, completing assigned homework, and talking about class content with friends. Students might think about how the course material relates to their lives, how they can utilize their new knowledge and skills, and how the class content will benefit their future careers. These behaviors, among many others, reflect students’ engagement in their learning.

The Teaching and Learning Process

Bloom (1954) noted that “probably the most common educational objective in American education is the acquisition of knowledge or information” (p. 33). Although learning functions as a process, scholars often study learning through the acquisition or modification of cognitive, affective, and/or behavioral outcomes (Bloom, 1956). Ideally, teachers structure classroom lessons, activities, and assessment around a series of objectives that help students achieve higher levels of learning. Students cognitively progress through a series of phases involving the retention, analysis, and critical evaluation of content (Bloom, 1956).
In traditional classrooms, teachers typically spend more time talking than students (Armbruster, 2000), an observation that has meaningful importance for how both enact their roles. For instance, teachers must manage a host of behaviors to create productive learning conditions for students. Specifically, teachers must master the content in their discipline, structure a lesson in a clear manner, coordinate examples to illustrate course concepts, organize discussion questions to challenge students to critically think, and manage the execution and debriefing of classroom activities. In a similar vein, students must learn to manage effective behaviors in the classroom. They must decide which information is worthy of devoted attention, determine how to record that information for retrieval, and how to seek clarification for information that poses confusion (Mayer, 1977).

In the 1950s, a group of educational psychologists, led by Benjamin Bloom, developed three classifications of student learning: psychomotor, affective, and cognitive (Bloom, 1954). Psychomotor learning emphasizes the development of particular skills and behaviors that are directed toward a specific content area. Psychomotor learning objectives, often more valued at the elementary school level, tend to decrease in importance as students move through their educational careers (McCroskey, 2002). In communication courses, psychomotor learning often involves the development of students’ communication skills in one-on-one, group, and public speaking situations.

Although psychomotor learning might be less important in particular disciplines, affective learning is the domain of learning that receives less attention from university teachers (McCroskey, 2002). Affective learning concerns students’ attitudes, beliefs, and
values toward a particular content area (Krathwohl, Bloom, & Masia, 1964). A student may know how to perform a specific behavior and have the necessary psychomotor skills; however, if the student does not have a positive attitude toward the activity, he or she will likely not engage in the behavior. Affective learning serves as a powerful antecedent that helps students predict certain benefits from continued learning in a particular field of study (Bandura, 1977). Students with high levels of affective learning often appreciate course content and tend to be actively engaged in the learning process (Titsworth, 2001b).

Cognitive learning emphasizes students’ ability to make sense of course concepts and ultimately master course content. Essentially, students can master course content through the retention of information, by analyzing and synthesizing information, and through critical evaluation (Bloom, 1956). In his classification of cognitive learning, Bloom (1956) distinguishes between various phases where students can begin by mastering course content through the retention of information, progress to analyzing and synthesizing information, and reach a stage that includes the critical evaluation of course content (Bloom, 1956). In this process, students begin as novice learners, progress through a series of phases, and evolve into more advanced learners. Essentially, students progress beyond simple recall and retention of material to higher levels of learning to analyze, synthesize, and critically evaluate course information. Students who learn more will recall information and also be able to apply that information to practical situations and create connections among course content. In contrast, students who learn less will find difficulty in remembering information and engaging in higher order cognitive
processes such as making direct applications, evaluation, or connections among course material.

A vexing problem confronting scholars concerns the operationalization of cognitive learning. Objective exams and tests of recall offer important consistency and standardization across participants, but by their very nature, they are typically applicable only to a single course or subject area (Chesebro, 2003; Titsworth, 2001a). This limitation poses practical challenges for researchers. Course grades, uniform measures of success in a class, are potentially influenced by teacher bias, student attendance, and participation (Andersen & Andersen, 1982), whereas self-reported estimates of perceived learning are subject to individual student bias (McCroskey, Sallinen, Fayer, Richmond, & Barraclough, 1996; Richmond, Gorham, & McCroskey, 1986; Richmond, McCroskey, Kearney, & Plax, 1987). Confidence testing is a method that requires a student to answer a normal test question and then respond to an additional item that asks the student to estimate his or her confidence in the previous answer (Hopkins, Hakstian, & Hopkins, 1973; King & Witt, 2009). This method has been coupled with students’ self-reports of learning to critique the validity of perceived learning measures (King & Witt, 2009). Collectively, these cognitive learning measures might function as limited indicators of learning, as most tend to focus on the product rather than the process of learning. To emphasize the processual nature of learning and provide a theoretical foundation for this dissertation, the theory of information processing offers a more robust and theoretically driven approach to the study of student cognitive learning.
Information Processing

The information processing perspective on learning has dominated much of the educational psychology research conducted in the 1960s and 1970s (Mayer, 1996a). From this perspective, the role of the learner is to acquire new knowledge, while the teacher’s role primarily concerns the presentation of new knowledge to the learner. Succinctly, teachers are dispensers of information; learners are information processors. Learners take information that is input into short term memory, apply mental operations to the information, and, through this process, the information is added to long term memory (Mayer, 1996b). Practically speaking, scholars have utilized a human-computer analogy to explain the information processing view:

Computers take symbolic input, recode it, make decisions about it, and give back symbolic output. By analogy, that is most of what cognitive psychology is about. It is about how people take in information, how they recode and remember it, how they make decisions, how they transform their internal knowledge states, and how they translate these states into behavioral output. (Lachman, Lachman, & Butterfield, 1979, p. 99)

Important to the information processing metaphor is a distinction between rote learning and meaningful learning (Ausubel, 1968; Katona, 1940). Rote learning occurs when learners create connections among information by simple recitation and repetition. Through meaningful learning, however, learners achieve “insight into a situation” or “understanding of a procedure” (Katona, 1940, p. 5). Meaningful learning involves assimilating information to schema—a process through which the learner acquires new
information and connects it with (or assimilates it with) some existing cognitive structure (or schema). The product of learning is a newly organized cognitive structure that integrates old and new knowledge, which then likely serves as an assimilative schema for subsequent learning (Mayer, 1977).

Comparing rote learning and meaningful learning and considering the role of assimilation-to-schema, three conditions must be fulfilled to achieve meaningful learning:

1. reception of the to-be learned material, 2. availability of a meaningful structure of familiar ideas that can be used to organize and assimilate new incoming material, and (3) activation of this meaningful set during learning. On the other hand, a rote learning set requires only the fulfillment of only the first condition so that new information is assimilated within a much narrower or emptier existing structure. (Mayer, 1977, p. 370)

Two predictions have resulted from this version of assimilation-to-schema theory. First, Ausubel (1963, 1968) suggested that providing more anchors for new incoming information should result in more learning as quantitatively measured by the amount of retention. Simply put, as a learner receives more information, the amount of schema will increase. Second, scholars have offered a more robust prediction, indicating that learning should result in qualitatively and structurally different learning outcomes as measured by the pattern of transfer (Mayer, 1975; Mayer & Greeno, 1972). From this perspective, as a learner assimilates more information to schema, he or she will begin to think differently about the information. Mayer and Greeno (1972) summarized their prediction:
…new learning involves the development of cognitive structure that results from assimilating new ideas and accommodating existing structures. According to this idea about learning, different instructional procedures could activate different aspects of existing cognitive structure. And since the outcome of learning is jointly determined by the new material and the structure to which it is assimilated, the use of different procedures could lead to the development of markedly different structures during the learning of the same new concept. (pp. 165-166)

This prediction further bolsters the claim that teacher behaviors can impact student learning. For example, effective teaching behaviors can trigger cognitive knowledge structures in students and influence the likelihood that they will assimilate important course information to schema. Nonverbal teacher behaviors such as gesturing, smiling, and speaking with vocal variation can influence students’ emotional interest, cause them to be more engaged in their learning, and serve to activate knowledge structures as part of information processing (Titsworth, 2001b). In addition, clear teaching behaviors, such as organizational lecture cues (Titsworth, 2001a), can make information clearer for students, cause them to become cognitively interested and engaged in the course, and stimulate information processing as course material is assimilated to schema.

The Role of Communication in Teaching and Learning

Over 35 years have elapsed since communication scholars acknowledged the importance of communication in the teaching and learning process and summoned a call for research in this area (Scott & Wheeless, 1977). Following that charge, instructional communication scholars have produced countless research reports and theoretical essays
claiming that effective communication in the classroom can ultimately impact students’ learning. In essence, the corpus of instructional communication research is grounded in the assumption that effective classroom communication behaviors are crucial components in the teaching and learning process (Nussbaum, 1992; Scott & Nussbaum, 1981). Despite decades of research establishing the importance of communication in teaching and learning, one study has questioned the relationship between communication and learning and found that, in fact, communication primarily influenced student liking rather than learning (Hess, Smythe, & Communication 451, 2001). Other scholars have questioned the operationalization of learning and the accompanying variables that moderate the communication and learning relationship (Christophel, 1990; Rodriguez, Plax, & Kearney, 1996).

Despite conflicting evidence from a few studies (e.g., Hess, Smythe, & Communication 451, 2001), scholars have consistently asserted that effective teaching requires effective communication (Mazer, Murphy, & Simonds, 2007; Scott & Wheeless, 1977). Since Scott and Wheeless (1977) first noted the importance of communication in teaching and learning, two teacher behaviors—immediacy and clarity—have emerged as two variables with the potential to impact student learning.

**Teacher Immediacy**

Since Andersen (1979) first introduced the immediacy construct in instructional communication research, scholarship exploring the construct has flourished. Subsequent to Andersen’s (1979) original study, several others that followed (e.g., Andersen & Andersen, 1982; Kearney, Plax, & Wendt-Wasco, 1985; Richmond, Gorham, &
McCroskey, 1986), and recent research reports (e.g., Rester & Edwards, 2007) have
drawn on the work of Mehrabian (1971, 1981) to explain the construct, manifest
behaviors, and how students might approach or avoid a teacher who utilizes or does not
utilize immediacy behaviors.

Mehrabian (1971, 1981) indicated that the effects of immediacy on a receiver in a
communication interaction might be best understood through a proximity metaphor. In
essence, immediacy behaviors can produce a sense of liking, which might lead the
receiver to approach the speaker perceived as more immediate. Conversely, non-
immediate behaviors typically do not produce feelings of liking, which lead the receiver
to avoid the speaker. In his seminal work in this area, Mehrabian (1981) explained
approach-avoidance as a phenomenon that subsumes:

1) physical approach versus avoidance, as when we move toward or away from a
person or an object, (2) degree of attending to and exploration and examination of
an entity, as when we pay attention to and explore the statements of another
person in contrast to ignoring him or her, and (3) the degree of striving to get
close to or away from an entity even though actual movements toward or away
are socially inappropriate or unacceptable, as when a bored conference participant
turns away from the speaker. (p. 22)

According to Mehrabian (1971, 1981) immediacy involves specific behaviors exhibited
by a speaker that ultimately reduce the amount of perceived psychological distance with
the receiver(s). After a receiver processes an immediacy behavior, the receiver will
typically feel a sense of liking toward and be more inclined to approach the speaker.
These distinctions can be appropriately applied to the classroom context where teacher immediacy has the potential to impact student learning. A teacher who exhibits immediacy behaviors can stimulate a sense of liking on the part of students. This heightened sense of liking will lead students to approach and engage with the teacher. On the contrary, a teacher who is highly non-immediate will likely not stimulate feelings of liking in students, which would lead to students avoiding the teacher. Consistent with the work of Mehrabian (1971, 1981), subsequent research indicates that teacher immediacy functions as an important component of the teaching and learning process.

Communication scholars have amassed decades of immediacy research. Early in this process, though, Andersen and Andersen (1982) identified categories of immediate behavior that ultimately guided the immediacy program of research: (1) proxemics (space between individuals), (2) haptics (touching behavior), (3) vocalics (vocal inflection and cues other than words), (4) kinesics (body language such as facial expressions and gestures), (5) occulesics (eye behavior), (6) classroom environment (seating arrangement, size, lighting, etc.), and (7) chronemics (use of time). Teachers can draw upon these categories of immediacy behaviors to stimulate a sense of liking in students. Depending on how teachers use these behaviors, students will perceive them as more or less immediate.

Although a majority of the immediacy research has characterized the construct from a nonverbal perspective, Mehrabian (1967, 1981) initially argued that verbal immediacy referred to stylistic differences in expression which led to feelings of liking and/or disliking. For example, a verbally immediate speaker would say “This person
needs help” rather than “That person needs help” or make inclusive comments such as saying “we” instead of “I.” Gorham (1988) explored verbal elements of teacher immediacy, argued that verbal and nonverbal behaviors function together to generate immediacy in the classroom, and advanced a measure of teacher verbal immediacy. However, scholars have asserted that the verbal immediacy scale lacks face validity and predictive validity (Robinson & Richmond, 1995), and consequently, a majority of our conclusions related to immediacy are primarily comprised of elements of nonverbal communication.

Synthesizing decades of teacher immediacy research, Richmond (2002) concluded: (1) teachers can use immediacy behaviors effectively to influence students, so long as the teacher continues to use them throughout the course; (2) students are more inclined to approach teachers they trust and perceive as competent and caring, and will likely avoid teachers they do not trust or perceive as competent and caring; (3) teacher immediacy permits the instructor to practice positive forms of behavioral control, rather than using coercive strategies; (4) immediacy largely determines the amount of liking between teacher and students, and consequently, (5) students are more likely to comply with, rather than resist teacher requests, if the teacher is liked, respected, and admired by students.

Instructional communication scholars have advanced two primary theoretical propositions explaining the relationship between teacher immediacy and student cognitive learning. The first proposition suggests that a teacher’s use of immediacy behaviors indirectly affects students’ cognitive learning (Rodriguez, Plax, & Kearney,
1996). That is, as teachers engage in immediacy behaviors, those behaviors impact students’ affect, which then influences student cognitive learning.

The second theoretical explanation posits a curvilinear relationship between teacher immediacy and student cognitive learning; a relationship best characterized as an inverted U (Comstock, Rowell, & Bowers, 1995). According to this proposition, extremely low and extremely high levels of teacher immediacy result in low levels of student cognitive learning. That is, a teacher’s use of excessive immediacy behaviors will lead to high levels of arousal, which in turn, debilitates a student’s ability to pay attention (Easterbrook, 1959; Smith, 1982) and process information (Greene, 1988). Arguing from a similar position, Rester and Edwards (2007) explored the influence of teacher biological sex and setting and found that students interpret excessive immediacy behaviors from female teachers as caring; however, the same behavior from male instructors is viewed as controlling and offensive. Furthermore, students were more likely to perceive excessive immediacy from male and female teachers as sexual harassment when it occurred in settings other than the classroom.

In addition to the relationship between teacher immediacy and students’ cognitive learning, research also suggests a positive association between immediacy and affective learning. In fact, scholars have consistently reported positive relationships between teacher immediacy and student affect toward instruction, affect toward the course content, and affect toward the teacher (Kearney, Plax, & Wendt-Wasco, 1985; Rodriguez, Plax, & Kearney, 1996; Sanders & Wiseman, 1990). Additional teacher behaviors can also stimulate affect in students. Teacher clarity, in particular, can arouse student
attention toward course material, promote positive feelings toward the course content, and result in positive affect toward the teacher.

Considering the influence of teacher clarity on student learning can further explain the role of communication in the teaching and learning process. Clarity is inherently a communication behavior that, when executed in the classroom, can have important implications for learners. Scholarship supports the importance of clear teaching in learning situations.

Teacher Clarity

Research on teacher clarity has been notably present in the education literature for decades. Since Rosenshine and Furst (1971) reviewed 50 process-product studies and subsequently identified clarity as a promising program of research, scholarship in this area has evolved at a rapid rate. In fact, reflecting upon the results accumulated by decades of clarity research, Metcalf and Cruickshank (1991) labeled teacher clarity as “one of the most productive and exciting lines of inquiry into effective teaching of the past several decades” (p. 107). These fruitful lines of research have resulted in teacher clarity being considered a vital component of the teaching and learning process. In fact, when Hurt, Scott, and McCroskey (1978) penned the first book on classroom communication, they argued that the difference between knowing and teaching is communication. That is, a teacher may be an expert in a particular subject area, however, if he or she cannot communicate that knowledge to students in a clear and effective way, learning cannot be achieved. For instance, teachers might utilize preview statements and internal summaries to guide students’ comprehension of a lecture and implement
computer technology to supplement the presentation and more accurately communicate course content. Therefore, the study of teacher clarity is particularly relevant for communication scholars.

Scholars have debated and studied the definitions of teacher clarity as high-inference and low-inference behaviors. Civikly (1992) noted that “the struggle encountered with the teacher clarity construct begins at the definitional level; specifically, what is teacher clarity and how do I know when I see and hear it?” (p. 139). Generally speaking, the primary difference between low-inference and high-inference approaches to defining teacher clarity rests with the degree of specificity used to highlight salient behavioral characteristics. For example, Rosenshine and Furst (1971) identified nine dimensions contributing to teacher clarity: (1) clarity, (2) variability, (3) enthusiasm, (4) task orientation, (5) criticism, (6) teacher indirectness, (7) criterion material, (8) structuring comments, and (9) levels of questions. With these dimensions in mind, they identified several descriptions of the behavior such as clarity of presentation and whether the points that teachers made were easy to understand. The descriptions were inferential rather than behavioral in nature, which resulted in a high-inference definition of teacher clarity. High-inference behaviors assume a shared point of view, are often ambiguous and difficult to study, and challenging for teacher training purposes.

Several challenges emerge when teacher clarity is studied at the high-inference level. First, high-inference variables are difficult to generalize because they are commonly operationalized differently from study to study. Second, the use of teacher clarity as a high-inference variable typically results in little benefit for teacher training.
programs because it is difficult to recommend specific behaviors to include in a training program. Third, high-inference variables often result in low reliability estimates when they are measured by trained observers, who might interpret instances of clear teaching differently. Questioning the use of high-inference definitions to study teacher clarity, Hines, Cruickshank, and Kennedy (1985) argued:

> Clear teaching in natural classrooms rarely has been defined operationally prior to its observation. Instead, global ratings of clarity have been used. Consequently, the reliability and validity of clarity measures in process-product research is suspect. Moreover, resultant findings have provided little information about the specific behavioral referents of clarity for either further analysis or direct use in the improvement of teaching. (p. 88)

Without a doubt, a challenge in teacher clarity research has been to operationalize the construct so that behaviors can be observed free of assumptions. Several scholars have responded to this challenge by developing low-inference descriptors of teacher clarity. Bush, Kennedy, and Cruickshank (1977) explored teacher clarity by asking over 1,000 junior high school students to list up to five specific behaviors that were frequently used by teachers who they perceived to be most clear. Following data analysis, 110 relatively low-inference teacher clarity behaviors were identified. The researchers then presented the 110 behaviors to another sample of junior high school students, half of whom were asked to indicate the extent to which these behaviors were characteristic of their clearest teacher. The remaining half responded in terms of their most unclear teacher. Discriminant analyses revealed relatively low-inference behaviors discriminated
well between clear and unclear teachers. Factor analysis of student responses indicated the presence of two primary factors—explaining through examples and providing for student understanding. Explaining through examples includes low-inference teacher behaviors such as explaining the answers to questions, repeating questions and explanations if students do not understand them, and writing on the board and explaining as he or she writes. Providing for student understanding includes low-inference behaviors like stressing difficult points, taking time to explain, and making students aware of the standards and rules to be followed.

In a study that built on the work of Bush et al. (1977), Kennedy, Cruickshank, Bush, and Myers (1978) used a refined clarity instrument and found even greater discrimination between clear and unclear teachers. Results were consistent with the previous study and highly consistent over three geographical locations—Ohio, Tennessee, and Australia. In a replication of the 1978 study in the university context, Hines (1981) obtained results similar to those found in the junior high school studies. She found consistency with the behaviors that discriminated between clear and unclear teachers. Hines, Cruickshank, and Kennedy (1985) found significant positive associations between teacher clarity and student achievement and satisfaction. In particular, they found similar relationships across a triangulation of measurement sources (observers, students, and teachers) and measurement levels of teacher clarity (low-, intermediate-, and high-inference). Interestingly, students’ perceptions of teacher clarity mediated the relationship between the clarity of teachers and student achievement and satisfaction,
suggesting that students’ reactions to clarity behaviors can influence important classroom outcomes.

With these definitional debates and seminal findings in mind, communication scholars have explored the impact of teacher clarity on student learning. Civikly (1992), one of the first to introduce the construct in instructional communication research, reviewed over 50 articles related to teacher clarity and argued for an expansion of the construct “to include (a) the clarity of the message or content, and (b) the role of the student as clarifier” (p. 138). She also argued for a more constructivist view of clarity by including the learner in the teaching, clarity, and learning relationship. Other communication scholars conducted more direct explorations of the clarity-learning relationship. Chesebro (1999) developed the “Profile of the Clear Teacher” to include findings from several programs of research (Cruickshank & Kennedy, 1986; Kiewra, 1985; Rosenshine, 1987; Smith & Cotten, 1980; Smith & Land, 1981). His profile includes behaviors related to structural clarity and verbally clear teaching. Structural clarity includes behaviors such as the teacher explaining the objectives of each unit, stopping to summarize ideas, and providing visual displays through instructional media. Verbally clear teaching includes the absence of vocalized pauses (e.g., “uh,” “um,” or “like”), explaining the material in a straightforward manner, and pacing instruction so students have time to comprehend. In his research, Chesebro (2003) found that students taught by a clear teacher learned more than students taught by an unclear teacher, experienced less state receiver apprehension, and had more positive affect for the instructor and course content. Despite the potential benefits of including multiple
behaviors from varied programs of research in his profile, Chesebro (2003) essentially manipulated several clarity behaviors simultaneously in his study. Unlike scholars who experimentally manipulated one clarity behavior (e.g., organizational lecture cues) and drew claims from the effects of that particular behavior (Titsworth, 2001a, 2004; Titsworth & Kiewra, 2004), Chesebro’s (2003) claims cannot be attributed to specific clear teaching behaviors. As a result, his findings offer little specific detail for teacher training programs.

In a series of studies, Titsworth and colleagues found that a specific teacher clarity behavior—spoken organizational lecture cues—can impact student learning (Titsworth, 2001a, 2004; Titsworth & Kiewra, 2004). Teachers use organizational lecture cues to make the organization of material explicit for students. Cues can include clear transition statements that indicate the main and subordinate points of a lecture and previews and summaries of lecture organization. Titsworth found that students recorded more details and organizational points in their notes, and subsequently learned more, when they listened to lectures with prominent organizational cues. Unlike Chesebro’s approach to teacher clarity research where many behaviors are included yet not explicitly manipulated and tested, Titsworth’s focus on one clarity behavior (i.e., organizational lecture cues) and subsequent experimental tests of the behavior provide explicit evidence for what might constitute clear teaching. In addition, his findings offer important evidence for specific clarity instruction in teacher training programs.

Much like their teachers, students must coordinate effective communication behaviors in the classroom. They must decide which information is worthy of their
attention, determine how to record that information for future studying and review, and how to seek clarification for material that poses confusion. In addition to these fundamental behaviors, students also experience emotion in classrooms, which can often serve as rich arenas for these expressions (Palmer, 1998). Student interest, in particular, can result in sustained engagement toward learning and create a context in which students actively seek to learn more about the course content. As important components of the teaching and learning process, student interest and teacher communication behaviors function together to impact student engagement and learning.

**The Role of Interest in the Communication and Learning Relationship**

Emotion is a fundamental, potent, and pervasive aspect of life. As one of the most consequential outcomes of interaction, emotion frames the interpretation of messages, shapes one’s view of the self and other, and contributes to one’s understanding of the relationship that led to the feeling. Because the experience of human interaction influences emotion, living a day without emotion is virtually impossible. In fact, Andersen and Guerrero (1998) argue that interpersonal schemata such as goals, needs, and expectations affect how and when emotion is experienced and communicated. In the classroom context, the goals, needs, and expectations that teachers and students maintain can indeed affect how each party experiences emotion in the classroom.

Students, in particular, experience a rich variety of emotions in the classroom. Research suggests that emotions specifically related to students’ academic experiences are positively related to student motivation, learning, and academic achievement (Pekrun, Goetz, Titz, & Perry, 2002). In fact, Andersen and Guerrero (1998) argue that emotions
can generate other emotions through interaction chains—noting that the emotional experiences of others can influence our own emotions and behaviors. In the classroom context, the behaviors of teachers (e.g., teacher immediacy and clarity) can potentially impact the emotions experienced by students.

Izard and Buechler (1980) proposed a set of emotions fundamental to the human experience, including joy, surprise, sadness, anger, disgust, contempt, fear, shame, shyness, guilt, and interest. In the instructional context, interest is essential to the teaching and learning relationship. In recent years, there have been an increasing number of studies exploring the effects of interest in the classroom (Renninger & Hidi, 2002). Scholars have noted that these studies have often led to contradictory findings that stem from the conceptualization and operationalization of the construct (Hidi & Harackiewicz, 2000; Renninger, 1998).

Some researchers have equated interest with positive affect that results from students’ ongoing exposure to subject matter, while other scholars have equated the positive affect that stems from an initial contact with the same subject matter with interest. Instructional communication has, perhaps, suffered by narrowly defining affect and its role in the teaching and learning process. These narrow definitions have resulted in confusion among variables that possibly moderate or mediate the immediacy and learning relationship. The construct of student interest and its accompanying theories can better explain the linkage between communication and learning. To better understand conceptual and methodological issues in interest research, it is important to consider the varied definitions of the construct.
Defining Interest

Scholarship in the area of interest and learning has been compiling for nearly a century. Various scholars, some writing in the early 1800s, have conceptualized interest in diverse ways. In the area of motivation and learning, Herbart (1806/1965), Dewey (1913, 1916), and Schiefele (1986) argue that interest is embodied in the person-object relation and that special relations with an object (e.g., a topic or subject matter area) lead to interest, which then, serves as a motivator. Other scholars, influenced by more cognitive-developmental theorists such as James (1890), Baldwin (1906, 1907), and Piaget (1940, 1981), explore interest in relation to a person’s activity within a larger socio-cultural environment (Deci, 1992; Pressley, El-Dinary, Marks, Brown, & Stein, 1992; Renninger, 1992; Valsiner, 1992; Voss & Schauble, 1992). Other scholars build on writing by Dewey (1913), Berlyne (1960), and Thorndike (1935) and view specific features of the environment as able to create interest and explore how and why those particular features might generate interest (Garner, Brown, Sanders, & Menke, 1992; Hidi & Anderson, 1992; Iran-Nejad & Cecil, 1992; Shirey, 1992; Wade, 1992). Taking a process-oriented view of instruction, Bruner (1960/1977) argued:

Ideally, interest in the material to be learned is the best stimulus to learning, rather than such external goals as grades or later competitive advantages. While it is surely unrealistic to assume that the pressures of competition can be effectively eliminated or that it is wise to seek their elimination, it is nonetheless worth considering how interest in learning per se can be stimulated. (pp. 14-15)
Interest involves stored knowledge, or cognitive representations stored from past experience, and value, or related emotional responses such as feelings of competence (Renninger, 1989, 1990). Given the inherent linkages between these emotions and cognitive structures, interest and knowledge develop and influence how an individual engages in current and subsequent tasks. This resultant persistent interest affects the ease and likelihood that material will be encoded in a student’s memory (Norman, 1976).

Despite the various approaches to the study of interest and accompanying components, one common assumption across the body of work is that interest is a phenomenon that emerges from an individual’s interaction with his or her environment. Although most scholars agree that interest is manifested in some form of person-environment interaction, two different areas of focus exist. One line of research emphasizes variations in individual or personal interests (individual interest), including their origins and effects on learning (Renninger, 1992; Voss & Schauble, 1992), while another body of scholarship has explored more specific characteristics of learning environments that capture the interests of many students (situational interest) such as interestingness of textual material (Garner, Brown, Sanders, & Menke, 1992; Hidi & Anderson, 1992; Wade, 1992).

Individual interest can be conceptualized in two ways: as disposition and as an actualized state. An individual’s dispositional interests are enduring characteristics that are assumed to exist over a period of time. From this perspective, interest is thought to influence learning in most, if not all, situations (Krapp, Hidi, & Renninger, 1992). Studies exploring particular conditions under which learning should occur are typically
less concerned with the dispositional aspect of interest. Instead, research in this area is more concerned with how interest is manifested in certain affective states, comprised of pleasurable feelings and concentration, which commonly characterize actualized individual interest (Krapp, Hidi, & Renninger, 1992). In fact, Hidi and Baird (1986, 1988) argue that actualized interest arises from an interaction between internal and external conditions. In particular, two sources are involved: the individual who brings his or her characteristics and attitudes, and the situation, which contains specific stimuli and conditions that arouse interest.

Situational interest commonly describes interest triggered in the moment by certain conditions and/or concrete objects (e.g., textual material) in the environment. Similar to individual interest, situational interest can be characterized from the perspective of the cause—the conditions that induce interest—or from the standpoint of the person who is interested (Krapp, Hidi, & Renninger, 1992). Research exploring the conditions eliciting interest has emphasized textual material of general interest to people (Hidi & Baird, 1988). From this perspective, situational interest is not unique to the individual; rather, situational interest tends to be common across individuals and can be regulated cognitively through individuals’ anticipations, intentions, and self-evaluations (Bandura, 1977).

Scholars generally agree that heightened attention, concentration, and positive affect characterize the psychological state of enduring interest (Krapp, Hidi, & Renninger, 1992; Pekrun, 2000; Prenzel, 1992; Schiefele, 1998). Consistent with this research, scholars argue that students with heightened attention, concentration, and
positive affect—all characteristics of interest—might also have more developed metacognitive strategies, achievement, and greater learning (Zimmerman & Martinez-Pons, 1990). In essence, the interest literature provides a broad theoretical approach to the role of communication in the teaching and learning process and illustrates that, perhaps, instructional communication scholars might have narrowly defined student affect and its accompanying construct of affective learning. For decades, instructional communication scholars have conceptualized and assessed affect through a simple evaluation of the course and the instructor and offered little theoretical support, which somewhat restricted the study of emotion in teaching and learning. Stemming from the broad interest construct, student emotional interest and cognitive interest and the accompanying theories more clearly explain the relationship between communication and learning.

*Emotional Interest and Cognitive Interest*

Although interest has received reasonable attention in the educational literature for decades (Bulunuz, 2007; Dimichino, 2007; Drake, 1978; Fillman, 1989; Gallagher, 1975; Gear, 2007; Renninger, Hidi, & Krapp, 1992; Scholz, 2007), the construct is relatively absent from the field of instructional communication. One notable exception is Titsworth’s (2001b) study exploring the immediate and delayed effects of interest cues and engagement cues on students’ affective learning. Specifically, Titsworth argued that interest cues refer to communication stimuli that increase students’ attention levels and prompt them to be inquisitive and emotionally connected to learning situations (Harp & Mayer, 1997; Hidi, 1990).
Harp and Mayer (1997) distinguish between two types of interest: emotional interest and cognitive interest. Emotional interest theory states that the addition of interesting but irrelevant material to a lesson energizes students so that they pay more attention and learn more. Emotional interest cues are seductive details in textual material or in a lecture that potentially excite and emotionally engage students. Exploring the role of interest in scientific text and illustrations, Harp and Mayer (1997) contend that emotional interest cues, such as seductive details, influence the reader’s affect by promoting his or her enjoyment of the passage. The increase in emotional arousal influences the reader’s cognition; that is, the increase in enjoyment causes the reader to pay more attention to and encode more of the material in the passage. (p. 93)

Titsworth (2001b) argued that such details often can be related to content material (e.g., examples or stories) and also include relational details such as teacher immediacy. Decades of research suggests that immediacy stimulates psychological arousal in students which ultimately leads to learning (Christophel, 1990; Christophel & Gorham, 1995; Frymier, 1993a, 1993b, 1994).

Cognitive interest theory states that cognitive interest adjuncts such as explanatory summaries influence students’ cognition by promoting their structural understanding of content. Harp and Mayer (1997) argue that those adjuncts, promote the reader’s construction of a causal chain by helping readers focus their selective attention on relevant pieces of information (i.e., the steps in the process) and on helping readers build internal connections among the pieces of information
(i.e., cause-and-effect relations). Then, this qualitative change in the kind of cognition processing influences the reader’s affect; that is, the attainment of structural understanding promotes a sense of positive affect about the passage. (p. 93)

Put simply, cognitive interest cues such as teacher clarity behaviors increase affective arousal because they make information clearer for students. Titsworth (2001b) argued that teachers can utilize explanatory summaries to highlight important relationships among lecture content, use clear transitions to help students follow the lesson content, and implement visual materials to make abstract and un-engaging material concrete and stimulating. In this study, Titsworth (2001b) found that only teacher immediacy had a significant effect on students’ affect. Results failed to reveal a significant effect for teacher clarity as operationalized as a teacher’s use of organizational cues (transition statements). Titsworth (2001b) reasoned that affect resulting from cognitive interest cues may be mediated by students’ perceptions of teacher clarity, and specific organizational cues manipulated in an experiment may not fully capture the essence of cognitive interest. For instance, clear and engaging examples and illustrations of course content are clarity cues that might have a greater impact on student affect than specific organizational cues such as transition statements.

Summary of the Interest, Communication, and Learning Relationship

The study of interest has been well documented in educational research; however, its study in the communication discipline has received little attention (Titsworth, 2001b). Given the inherent linkages between interest and communication as explained by
emotional interest theory and cognitive interest theory, the construct can assist scholars in achieving a better understanding of the role of communication in the teaching and learning process.

Situational interest refers to interests that are triggered in the moment by particular objects such as textual material or communication behaviors. Individual interest represents a person’s enduring predisposition to engage and persevere in work with specific content over time. Three major perspectives are reflected in the interest research: (1) interest as a characteristic of a person, (2) interest as a characteristic of the learning environment, and (3) interest as a psychological state. In essence, individual interest (when viewed as relatively stable preferences that are characteristics of the person) and features of the learning environment can arouse experiences and psychological states in an individual that are referred to as interest. Common characteristics of interest include increased attention, greater concentration, pleasant feelings, increased motivation to learn, and achievement (Krapp, Hidi, & Renninger, 1992).

Teacher communication behaviors can arouse interest in students. Immediacy behaviors such as smiling, moving close to and making eye contact with students, and using warm vocal cues and personalized examples can energize and emotionally engage students so that they pay more attention to course content and learn more. Teachers can also use clarity behaviors by previewing and reviewing main points of a lesson, defining major concepts, providing relevant examples, and creating appropriate linkages among concepts and examples. In this manner, teachers can cognitively engage students by
focusing their selective attention on relevant information and assisting them in building internal connections among content. This process can lead students to experience greater affect and, subsequently, higher levels of learning. In essence, the construct of interest offers a broader view of affect and better captures the role of affect in the communication and learning relationship.

**Summary and Problem Statement**

Literature reviewed in the preceding sections establishes the problem area for this dissertation. This dissertation proposes a conceptual process model of communication, interest, engagement, and learning (see Figure 1). This cyclical model explains how teacher communication behaviors (immediacy and clarity) can influence student emotions (cognitive interest and emotional interest) and lead students to become engaged members of a learning environment.
Based upon the literature reviewed and arguments presented in this chapter, the following problem statement is posed to guide the present study: How do teacher communication, student interest, and engagement function to influence learning?

Summary and Preview of Chapters

This chapter presented a conceptual foundation for the problem area for this dissertation. Specifically, relevant literature was reviewed to identify conceptual
definitions and establish a foundation for the literature reviewed in Chapter Two. Most importantly, the chapter identified a rationale for this study.

Chapter Two provides a systematic and comprehensive overview of literature and presents the research questions and hypotheses. The literature chronicles relationships between teacher immediacy, teacher clarity, student interest, and student learning. Guided by tenets of the conceptual model in Figure 1, the review of literature yields a parsimonious and operational model of the learning process which features communication, emotion, and engagement as the primary constructs in this model. The operational model proposes several research hypotheses and research questions.

Chapter Three presents results of a pilot study designed to construct appropriate research measures for this dissertation. The chapter begins by outlining the methods used and proceeds to highlight the results of scale construction.

Chapter Four offers a description of the methods used to collect, analyze, and interpret data as part of the primary study for this dissertation. The sampling method, participants, procedures, and methods of assessing teacher immediacy, teacher clarity, student interest, and student engagement are described.

Chapter Five reports the results of the primary study. The chapter describes the measurement model and the structural model. A final model of communication, interest, and engagement is advanced. Interaction effects are decomposed and tests for indirect effects are conducted.
Chapter Six discusses the findings, addresses theoretical and pedagogical implications of the project, assesses its limitations, and identifies areas for future research.
CHAPTER 2: REVIEW OF LITERATURE

The classroom is a highly interdependent system subsuming a multitude of teacher and student behaviors. Since instructional communication first emerged as an area of research (see Scott & Wheeless, 1977), scholars have been challenged to identify teacher and student behaviors ultimately having a profound impact on student learning. As a result, many scholars have been challenged to place isolated studies into a coherent framework providing a more cogent explanation of how communication functions in the teaching and learning process (Staton-Spicer & Wulff, 1984).

In an effort to provide a more systematic structure of research contributing to the current corpus of instructional communication, reviewing parallel research efforts in other disciplines is vital. Educational psychology, in particular, offers instructional communication scholars an opportunity to build a more comprehensive scholarly framework in which to explain, predict, and test the role of communication in teaching and learning. This venture can invigorate new areas of research, assist scholars in understanding how fragmented research programs interconnect and inform each other, and, in the end, further our knowledge of communication, teaching, and learning.

The purpose of this chapter is to review literature that establishes important connections between teacher immediacy, teacher clarity, student interest, student engagement, and student learning. The problem statement offered in Chapter One guides the selection and interpretation of relevant literature, while cognitive interest theory and emotional interest theory guide the arguments advanced in this chapter. Initially, arguments are developed regarding the relationship between teacher communication
behavior and student interest. The chapter continues by considering how communication and interest impact student engagement and learning. Guided by the tenets of the conceptual model proposed in Chapter One, the literature reviewed in Chapter Two yields an operational model of the learning process which features communication, interest, and engagement as the primary constructs of the model. The sections conclude with a statement of research hypotheses and research questions, while the chapter ends with an overall summary of the literature.

The Influence of Communication on Interest

Since Hurt, Scott, and McCroskey (1978) compiled one of the first books on communication in the classroom, instructional communication scholars have widely explored the impact of various teacher behaviors on student outcomes. Years of research have revealed that two such teacher behaviors—teacher immediacy and teacher clarity—foster the student-teacher relationship and have been thoroughly investigated with respect to their relationship to student affect and learning (Chesebro, 2003; Titsworth, 2001a, 2001b).

In the instructional context, affect may be considered a state of psychological and emotional arousal toward the course content, teacher, instructional approach, and classroom climate (Krathwohl, Bloom, & Masia, 1964). Affect can often manifest itself in many student behaviors including interest and engagement toward a class. This section addresses three types of student affect: attention, emotional interest, and cognitive interest.
Student affect, selective attention, and interest are interconnected constructs representing students’ orientations toward course material. Attention is often considered the first step in information processing on the part of students. In fact, scholars have noted that unless students are attentive to the task at hand, learning cannot occur (Slate & Charlesworth, 1989). Therefore, concluding that student attention is a prerequisite to learning is reasonable. Teachers have considerable power to influence students’ attention to course material. Considering strategies instructors might use to stimulate student affect, Slate and Charlesworth (1989) encourage teachers to:

(a) Use, but don’t overuse, novelty when presenting material. A novel procedure becomes routine if used continually. (b) Move around the room, use gestures, and avoid speaking in a monotone. (c) Help students focus on the most important information through voice inflection, pauses, writing on the board, or reviewing. (d) Cue students to material they will be asked to reproduce later by asking them to summarize important points in a presentation. (e) Ask student questions in a random manner. This enhances the probability that all students will be attentive. (f) When possible, eliminate any unnecessary distractions caused by lighting, noise, temperature, uncomfortable chairs, etc. (g) Make sure you have the student’s attention prior to presenting information. (pp. 2-3)

Combined, these teacher strategies draw upon teacher immediacy and teacher clarity behaviors as mechanisms for increasing student attention. Immediate teachers move about the classroom, use gestures, and speak with vocal variation. Clear teachers review main points in a lecture and summarize important information for students.
Teachers also have significant power to stimulate student interest toward course material (Harp & Mayer, 1997; Hidi, 1990). The importance of this teacher influence has been well documented in educational research. Hidi (1990) explained that “interest plays a major role in the course and outcome of our mental activities. Furthermore, the concept of interest should be recognized as an integral part of cognition and incorporated into expanded theories on the subject” (p. 549). Scholars have identified two primary interest cues related to students’ affect: emotional interest cues and cognitive interest cues (Harp & Mayer, 1997). Emotional interest results from the addition of interesting but irrelevant material to a reading or lecture. Essentially, the “seductive details” energize students so they pay more attention and learn more overall. Cognitive interest occurs when students understand a reading or lecture. Cognitive interest cues such as explanatory summaries increase students’ attention by making information clearer for the listener or reader. If a teacher utilizes emotional interest cues or cognitive interest cues, the outcome for student learning is often the same: attention to important information increases and students become more engaged in their learning.

Teacher immediacy stimulates psychological arousal in students and serves as an emotional interest cue (Kelley & Gorham, 1988). Students of immediate teachers should have more psychological arousal and subsequently report higher levels of affect and emotional interest toward a course, subject matter, or instructor. Non-immediate teachers likely stimulate low levels of affect and emotional interest in students. Similarly, teacher clarity behaviors such as explanatory summaries can serve as cognitive interest cues. These cues make course material more organized which can result in students selecting
and understanding information with less effort and, consequently, being more engaged in their learning. The sections that follow build upon these initial arguments relating to teacher immediacy, teacher clarity, emotional interest, and cognitive interest. This section concludes by identifying hypotheses illustrative of an operational model.

Teacher Immediacy and Student Interest

Decades of research in instructional communication suggests that teacher immediacy has the potential to increase student affect. Unfortunately, scant research has explored immediacy’s influence on student emotional interest. One notable exception is Titsworth’s (2001b) study exploring the effects of interest cues (i.e., teacher immediacy) on students’ affective learning. In the study, he argued that interest subsumed communication stimuli that increase students’ attention levels and cause them to be inquisitive and emotionally connected to learning situations (Harp & Mayer, 1997; Hidi, 1990). Aside from this investigation, we know little regarding how teacher immediacy can potentially influence student emotional interest. Considering this lack of interest literature and the well-documented claim that affect often manifests itself in interest, the potential relationship between teacher immediacy and emotional interest can be best understood by a review of literature relating to the immediacy-affect relationship.

The relationship between teacher immediacy and student affect has been documented with noteworthy consistency. Early studies documenting this relationship reported simple correlations pointing to the relationship between teacher immediacy and student motivation, a construct similar to affect. In an early report documenting the results of two studies, Christophel (1990) predicted that teacher immediacy first modified
student state motivation and that the combined effect of immediacy and motivation influenced student cognitive learning. Results of study one revealed that students who had highly immediate teachers tended to be more motivated and report greater learning than students who had non-immediate teachers. Regression analyses also indicated that immediacy and motivation covaried in accounting for variance in learning. Christophel (1990) concluded that immediacy must first influence student motivation, which then impacts learning. Similar findings were obtained for study two.

In another study, Frymier (1993a) explored the effects of teacher immediacy on students’ state motivation over the course of a semester. Guided by prior research, she hypothesized that students with highly immediate teachers would have higher levels of motivation throughout the semester. In addition, she posited that students with low to moderate motivation at the beginning of the semester would benefit more from an immediate teacher than students with high motivation at the beginning of the semester. Frymier (1993a) found that student trait motivation and teacher immediacy accounted for a significant amount of the variance in student state motivation over the course of the semester. In addition, she reported a positive association between teacher immediacy and student state motivation. Interestingly, Frymier found that students with differing levels of trait motivation early in the semester reacted differently to teacher immediacy behaviors as the semester progressed. In particular, students who began the semester with low or moderate motivation scores reported higher levels of motivation at mid-semester and at the end of the semester if they had an immediate teacher. In addition to indicating a positive relationship between teacher immediacy and student state motivation, the
findings of this study also suggest that the effect of teacher immediacy on student motivation is partly dependent on students’ levels of motivation at the beginning of a term.

Extending our knowledge of the immediacy and affect relationship, Mottet and Beebe (2002) examined the relationships between teacher immediacy, student emotional response, and student learning. Conceptualizing and measuring emotional response using a three dimensional approach—pleasure, arousal, dominance (Mehrabian & Russell, 1974; Russell & Barrett, 1999)—Mottet and Beebe (2002) found a significant positive association between students’ responses of pleasure, arousal, and dominance and affective and cognitive learning. In addition, the total emotional response set comprised of pleasure, arousal, and dominance accounted for 14% to 30% of the variance in affective learning. They found that only student pleasure (7%) accounted for more of the unique variance in student affective and cognitive learning than teacher immediacy (5%). The findings suggest that student pleasure (or how happy, comfortable, and satisfied a student appears to be) is more predictive of affective and cognitive learning than how aroused or excited a student appears to be. Without a doubt, Mottet and Beebe’s (2002) study began with important theoretical assertions; however, their use of simple bi-polar scales to measure complex student emotional responses creates a need to cautiously interpret their claims.

Literature exploring the association between teacher immediacy and student affect suggests a positive relationship between these variables. In essence, this important relationship is attributed to the emotional cues present in teacher immediacy behaviors.
Based on the corpus of research, students of immediate teachers are more inclined to have heightened attention and greater interest toward the course material. On the other hand, students of nonimmediate teachers are more likely to be less attentive and particularly uninterested in the class. Mottet and Beebe’s (2002) original proposition that students’ perceptions of teacher nonverbal immediacy and learning might be moderated by their emotional responses, or emotional interest, stands as an important area for further investigation.

Recall from Chapter One that the research question asked how teacher immediacy and teacher clarity impacted student emotional and cognitive interest. Based on the literature reviewed, immediate teachers can energize students, cause them to be emotionally connected to the material, and lead them to learn more. With this interpretation in mind, the following research hypothesis is advanced:

**H1:** Students’ perceptions of their teachers’ immediacy behaviors will positively predict students’ emotional interest.

Literature indicates that immediacy might largely impact student emotional interest rather than student cognitive interest. The primary argument present in the literature is that teacher immediacy stimulates higher levels of affect in students, which heightens their attention and causes them to pay attention and learn more. This line of reasoning leads one to conclude that immediacy will primarily impact student emotional interest. In a similar vein, cognitive interest is commonly generated when information is clear for students, which leads to an understanding of the course material (Harp & Mayer, 1997). In essence, clear teaching arouses students’ attention, and prompts them to pay
attention and learn more. With an understanding of how teacher immediacy heightens students’ attention and causes them to pay more attention, one might also conclude that teacher immediacy will lead students to achieve greater levels of cognitive interest because they are more engaged in the classroom and have a better understanding of the course material. Therefore, the following research question is posed:

RQ1: What is the relationship between teachers’ use of perceived immediacy behaviors and students’ cognitive interest?

**Teacher Clarity and Student Interest**

A teacher’s ability to clearly communicate in the classroom so that students understand is fundamental to effective instruction. Scholars have consistently identified teacher clarity as an important component of teaching effectiveness (Civikly, 1992; Cruickshank & Kennedy, 1986; Rosenshine & Furst, 1971; Rosenshine & Stevens, 1986). Years of instructional communication research have linked clear teaching to reduced state receiver apprehension (Chesebro & McCroskey, 1998b, 2001), affective learning (Chesebro & McCroskey, 2001; Titsworth, 2001b), and increases in cognitive learning (Chesebro, 2003; Titsworth, 2001a). Titsworth (2001b) examined the impact of cognitive interest cues (i.e., teacher clarity) on students’ affective learning. He argued that cognitive interest cues include communication behaviors (e.g., organizational lecture cues) that increased affective arousal in students because they made information clearer for the listener (see Harp & Mayer, 1997). Aside from this investigation, we know little regarding how teacher clarity can potentially influence student cognitive interest. Considering this lack of attention in the interest literature and the well-documented claim
that affect often manifests itself in interest, the relationship between teacher clarity and cognitive interest can be best understood by reviewing literature related to the clarity-affect relationship.

In an investigation exploring the relationship between teacher behaviors and student outcomes, Chesebro and McCroskey (2001) examined associations among teacher clarity, teacher immediacy, and student affect. Results revealed that the combination of teacher clarity and immediacy accounted for significant variance in affect for the instructor (62%) and affect for the course (30%). Based upon their findings, Chesebro and McCroskey (2001) concluded that clear and immediate teaching should be viewed as qualities essential to effective teaching.

The study of a particular clarity behavior—organizational lecture cues—has received noteworthy attention in the instructional communication literature due to its impact on student learning (Titsworth, 2001a, 2001b, 2004; Titsworth & Kiewra, 2004). In one study, Titsworth (2001b) tested the immediate and delayed effects of teacher immediacy and use of organizational lecture cues on students’ affective learning. Arguing that teacher immediacy served as an emotional interest cue and teacher clarity served as a cognitive interest cue, he hypothesized that students’ perceptions of affect toward instruction would be significantly higher when lectures contain immediacy behaviors and organizational cues. In addition, Titsworth (2001b) asked whether or not teacher immediacy behaviors and use of organizational cues influenced changes in students’ affect toward instruction after a delay.
With respect to delayed effects, students who heard lectures with high immediacy but without organizational cues reported sharper declines in affect than students hearing a lecture with high immediacy and with organizational cues. In terms of immediate effects, Titsworth (2001b) found a significant main effect for affect. Students in the high immediacy conditions reported higher levels of affect than students in the low immediacy conditions. Inconsistent with findings from previous research (Kiewra, 1984; Powell & Harville, 1990), organizational lecture cues did not significantly influence students’ affective learning. Unraveling this explanation, Titsworth (2001b) reasoned that cognitive interest cues (i.e., organizational lecture cues) might require teacher feedback before they can influence affect. He predicted that cognitive interest cues would result in higher levels of affect because they stimulate students’ understanding of the course material (Harp & Mayer, 1997). Thus, the experimental design of the study possibly limited the impact of organizational cues on student affect. Perhaps, students were not sure if they understood the lecture material because they could not solicit feedback from the instructor through discussion. Titsworth (2001b) further reasoned that affect resulting from organizational cues might be mediated by students’ perceptions of teacher clarity (Hines, Cruickshank, & Kennedy, 1985) and may not fully capture the essence of cognitive interest cues. Other elements of clarity such as using examples might have a greater impact on affect than organizational cues alone. A study executed outside the confines of an experimental design, and in a context where multiple clarity behaviors can flourish and be examined, might further explain the nature of teacher clarity and cognitive interest in teaching and learning.
When students have positive affect for course material, Chesebro (2003) argued that they are likely to attend to the content with greater energy and may be more likely to study it and pursue it outside of the classroom. With this argument in mind, Chesebro (2003) predicted that students of clear and immediate teachers would report significantly higher levels of positive affect for their instructor and for the course material than students of unclear and nonimmediate teachers. Results revealed a significant main effect for clarity and a significant main effect for immediacy. Affect for the instructor and course material was greater for students of clear teachers than unclear teachers and higher for students of immediate teachers than nonimmediate teachers. These results suggest that teacher clarity and teacher immediacy can each independently increase students’ affect.

Extending teacher clarity research from United States classrooms to Chinese classrooms, Zhang and Zhang (2005) explored the association between teacher clarity, classroom communication apprehension, student motivation, and affective and cognitive learning and found a significant positive correlation between teacher clarity and student affective learning. These findings are consistent with conclusions generated from United States classrooms (Chesebro, 2003; Chesebro & McCroskey, 2001; Titsworth, 2001a, 2001b) and suggest that, regardless of culture, clear teaching appears to influence student affect.

Combined, findings suggest that teacher clarity behaviors might influence student cognitive interest by making course information clearer for students (Harp & Mayer, 1997). Research has consistently found that clear teaching leads to increased levels of student affect and unclear teaching promotes decreased levels of student affect. It is
evident by the literature reviewed that teacher clarity heightens student attention, causes them to be more engaged in the classroom, and leads to greater levels of learning. This consistent finding suggests that teacher clarity can influence student cognitive interest because, through clear teaching, information is made clearer for students. These clear teaching behaviors can heighten student attention and cause them to be more interested in the course material because they have a greater understanding of the content. This interpretation leads one to reasonably argue that teacher clarity behaviors can positively impact student cognitive interest. Thus, the following research hypothesis is advanced:

H2: Teacher clarity behaviors will positively predict students’ cognitive interest.

Based on reviewed literature, teacher clarity might principally impact student cognitive interest rather than student emotional interest. The results present in the literature primarily suggest that teacher clarity stimulates higher levels of affect in students, which heightens their attention and causes them to pay attention and learn more. In essence, clear teaching makes information clearer for students, arouses their attention, and prompts them to pay attention and learn more. This line of thought leads one to conclude that teacher clarity will primarily influence student cognitive interest. Similarly though, teacher clarity might energize students and cause them to become more connected to the learning situation, which would result in greater levels of emotional interest. With the understanding that teacher clarity heightens students’ attention and causes them to pay more attention, one might also speculate that teacher clarity will cause students to experience greater levels of emotional interest because they are more engaged.
in the classroom and more enthused by the course material. Therefore, the following research question is posed:

RQ2: What is the relationship between teacher clarity behaviors and students’ emotional interest?

Interactive Effects of Teacher Immediacy and Teacher Clarity

Potential interactive effects of teacher immediacy and teacher clarity have interested scholars for decades. For instance, a series of studies exploring educational seduction found that effective delivery distracted students from recognizing that the teacher was presenting incoherent content (Abrami, Leventhal, & Perry, 1982). Scholars concluded that students’ ratings of instruction were subject to bias based on a delivery-induced halo effect. Other studies, however, found strong connections between teacher immediacy and student learning. These diverse sets of researchers were studying many of the same constructs but arrived at different conclusions. For several scholars, this raised an issue worthy of empirical investigation.

With respect to the immediacy-clarity interaction, scholars have proposed two explanations of the delivery distraction hypothesis and the additivity hypothesis. McCaleb and White (1980) reported that even trained observers preferred teachers who were great presenters, even when clarity was poor. The inference drawn from their observation is that good delivery by a teacher could distract students from paying attention to the lecture content. For this hypothesis to be supported one would expect studies to find that students prefer highly immediate lectures regardless of clarity and that student achievement would suffer with highly immediate teachers regardless of clarity. The additivity hypothesis is

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more straightforward; it assumes that both clarity and immediacy are positive teaching behaviors and that students will benefit most when both are present.

Compelling evidence points in favor of the additivity hypothesis. First, virtually no studies directly testing interactions between immediacy and clarity have found that students’ achievement suffers in high immediacy conditions. Titsworth (2004) found that in high immediacy conditions students recorded fewer details in their notes, implying that details that students do not record in their notes might be forgotten. However, another study found that extended retention was greatest when lectures contained both immediacy and clarity (Titsworth, 2001b). Therefore, while there may be a short-term distraction, in the longer-term, students benefit from immediate and clear teachers.

Calling for a need to advance causal conclusions related to the immediate and delayed effects of teacher behaviors on student learning, Titsworth (2001a) predicted that teacher immediacy and use of organizational lecture cues would interact to influence student cognitive learning and, in addition, notetaking would affect cognitive learning.

Titsworth (2001a) did not find an interaction between teacher immediacy and organizational cues as hypothesized. He concluded that teacher immediacy had no meaningful effect on student cognitive learning. On the contrary, organizational lecture cues had a significant main effect on cognitive learning. The results revealed that students who took notes scored 25% higher on a detail test and 11% higher on a concept test compared to their peers who did not take notes. Unique to Titsworth’s (2001a) study, notetaking appeared to function independent of teacher immediacy and use of organizational cues. That is, the findings suggest that notetaking facilitates student
cognitive learning and is important regardless of whether a teacher is immediate or uses lecture cues. Finally, results indicate that students who viewed the low immediacy lecture with organizational cues recalled more information on the immediate detail test than those who viewed the lecture without cues. However, their scores demonstrated a marked decline after one week. Students who viewed the high immediacy lecture with organizational cues scored lower on the immediate test; however, they were able to remember more information on the delayed detail test.

Titsworth’s (2001a) findings indicate that teacher immediacy has a positive effect on student cognitive learning over time. In addition, the findings suggest that teacher immediacy coupled with organizational cues appears to have important long-term learning benefits for students. Furthermore, additional student outcomes such as motivation (Christophel, 1990), affect (Rodriguez, Plax, & Kearney, 1996), and interest might influence the teacher immediacy and learning relationship.

In another study, Chesebro (2003) examined the effects of teacher immediacy and clarity on student cognitive learning. He predicted that a combination of clear and immediate teaching would lead to significantly more cognitive learning than a combination of clear and nonimmediate teaching. Analysis revealed a significant main effect for clarity on cognitive learning, while the results failed to reveal a significant main effect for immediacy and a significant interaction effect for clarity and immediacy on student cognitive learning.

According to Chesebro (2003), the lack of significant findings for immediacy and cognitive learning may be due to the presentation of immediacy via a videotaped lecture.
The same argument can be applied to Titsworth’s (2001a) meager findings for immediacy and learning. A videotape may possess less power to convey immediacy than a live format. This reasoning is consistent with prior research that explored the effects of immediacy on cognitive learning across three conditions—live, video, and PowerPoint with an audio feed (Carrell & Menzel, 2001). Carrell and Menzel (2001) found that teachers in the video condition were perceived as less immediate and their students were the least motivated, perceived the least amount of learning, and recalled the lowest amount of material.

The additivity hypothesis has received additional support in other studies (Chesebro, 2003; Comadena, Hunt, & Simonds, 2007). In each of the studies, large and positive main effect outcomes emerged in comparison to negligible interactive effects. Both patterns of simple effect means suggest that high immediacy and high clarity produced the greatest achievement and the low immediacy and low clarity conditions produced the least achievement. In essence, experiments designed to test interactions have shown that clarity and immediacy do interact; however, the interaction effect is generally consistent with a main-effects model where the two variables work together to produce an optimal learning condition for students. To explore potential interactive effects of teacher immediacy and clarity on student emotional and cognitive interest, the following research questions were posed:

**RQ3:** Do students’ perceptions of teacher immediacy and teacher clarity interact to influence students’ emotional interest?
RQ4: Do students’ perceptions of teacher immediacy and teacher clarity interact to influence students’ cognitive interest?

The Influence of Communication and Interest on Engagement

Most scholars would not dispute the claim that the chief purpose of instructional communication research has been to uncover how teacher communication behavior can influence student learning. A component of Bloom’s (1956) classification of learning types, cognitive learning emphasizes a student’s ability to understand course material and ultimately master its content. In his classification of cognitive learning, Bloom distinguishes between various phases: Students can master course content through the retention of information, by analyzing and synthesizing information, and through the critical evaluation of course content (Bloom, 1956). As students move beyond simple recall and retention of material, students progress to higher levels of learning to ultimately be able to analyze, synthesize, and critically evaluate course information.

Research indicates that teacher clarity is related to student state receiver apprehension (Chesebro & McCroskey, 1998b, 2001), achievement and satisfaction (Hines, Cruickshank, & Kennedy, 1985), motivation (Zhang & Zhang, 2005), and affective and cognitive learning (Chesebro, 2003; Chesebro & McCroskey, 2001; Titsworth, 2001a, 2001b; Zhang & Zhang, 2005). Unlike the trajectory of immediacy research, the use of empirically-tested models in teacher clarity scholarship has been notably limited. Instead, scholars have devoted much correlational and experimental research to studying the impact of teacher clarity on student cognitive learning.

Teacher immediacy and teacher clarity research has indeed made important contributions to our understanding of how communication functions in teaching and learning. Absent from this discussion, however, is a model bringing these important lines of research together to clarify the relationship between these teacher communication behaviors and student learning (Christophel, 1990; Kelley & Gorham, 1988; Rodriguez, Plax, & Kearney, 1996). Over 20 years ago, Staton-Spicer and Wulff (1984) noted that “there are too many isolated studies that cannot be placed into a coherent framework” (p. 384). Scholars have proposed two theories that can guide our study of the teacher immediacy, teacher clarity, and student learning relationship: emotional interest theory and cognitive interest theory. In fact, Titsworth (2001b) considered these guiding frameworks to explain the role of interest cues in teaching and learning and reasoned that teacher immediacy functions as an emotional interest cue, while teacher clarity functions as a cognitive interest cue. Teacher immediacy and clarity can stimulate in students
emotional and cognitive interest which can lead students to become engaged members of a learning environment.

On a daily basis, students engage in many behaviors inside and outside of the classroom that reflect their involvement in their learning. During a typical college class session, students likely have the opportunity to listen attentively, orally participate during discussions, take notes, and ask questions of the instructor. Outside of a regularly scheduled class session, students might prepare for class by reading the assigned material, review their notes, study for a test or a quiz, complete assigned homework, and talk about the class content with friends in a context removed from the classroom. Whether in class or outside of class, students might think about how the course material relates to their lives, how they can utilize their new knowledge and skills, and how the class content will benefit them in their future careers. These common behaviors reflect students’ engagement in their learning.

Student engagement can be fostered by effective teacher communication behaviors—such as immediacy and clarity—and stimulated by student interest. Early research in this area often utilized time-based measures (e.g., time-on-task) to assess student engagement rates (Brophy, 1983; Fisher, Berliner, Filby, Marliave, Cahen, & Dishaw, 1980; McIntyre, Copenhaver, Byrd, & Norris, 1983). More recently, however, scholars have noted that engagement refers to students’ willingness to participate in the learning process (Bomia, Beluzo, Demeester, Elander, Johnson, & Sheldon, 1997) and encompasses the intensity and emotional quality of students’ involvement in initiating and executing learning activities (Connell & Wellborn, 1991; Skinner, 1991). Skinner
and Belmont (1993) argue that student engagement includes both behavioral and emotional components:

Children who are engaged show sustained behavioral involvement in learning activities accompanied by positive emotional tone. They select tasks at the border of their competencies, initiate action when given the opportunity, and exert intense effort and concentration in the implementation of learning tasks; they show generally positive emotions during ongoing action, including enthusiasm, optimism, curiosity, and interest. The opposite of engagement is disaffection. Disaffected children can be bored, depressed, anxious, or even angry about their presence in the classroom; they can be withdrawn from learning opportunities or even rebellious toward teachers and classmates. (p. 572)

Chapman (2003) offered three interrelated criteria to measure student engagement: cognitive, behavioral, and affective. The cognitive dimension of engagement assesses students’ efforts at integrating new content with prior knowledge. Behavioral criteria assess the extent to which students are actively responding to learning tasks. For instance, students might ask questions for clarification and participate in discussions that center around a particular content area. The affective dimension considers students’ investment in and emotional reactions to the learning process, including their attitudes toward learning. This study explores the behavioral manifestations of student engagement by examining how students’ emotional and cognitive interest in a course might lead them to become more actively engaged in their learning. Emotionally and cognitively interested students might participate more in class
discussions, ask more questions of the instructor, think about how they can utilize their newly-found knowledge and skills, and be more inclined to talk about the course with friends outside of class.

Skinner and Belmont (1993) explored the relationship between teacher behavior and student engagement in the classroom for children in grades three, four, and five, and through an operational model, posited that the association between teacher behavior and children’s engagement would be mediated by children’s perceptions of teacher behavior toward the child. Skinner and Belmont (1993) found that teachers’ interactions with students, both directly and indirectly through their effects on students’ perceptions, predicted students’ behavioral and emotional engagement in class. Moreover, they found that students who perceived their teachers as clear and helpful were more likely to exhibit persistent effort. In addition, teacher involvement predicted students’ emotional engagement. The findings indicated that when children perceived teachers as warm and affectionate, children felt happier and more enthusiastic in class.

In a related study, Skinner, Wellborn, and Connell (1990) examined the impact of children’s perceived control on engagement and academic performance. Generally speaking, perceived control refers to a student’s perception as to whether or not they have control over their academic successes and failures. When children believe that they can exercise control over their success in school, they perform better on cognitive tasks (Skinner, Wellborn, & Connell, 1990). A teacher’s behavior toward students has been labeled an important determinant of children’s perceived control, which then has possible effects on engagement and school performance (Skinner, 1985). Skinner, Wellborn, and
Connell (1990) explored the impact of two teacher behaviors on students’ perceived control. Students rated teachers’ *contingency* behaviors—how frequently the teacher provided clear expectations and consistent feedback—and teachers’ *involvement* behavior—children’s perceptions about the extent to which the teacher displayed positive interest in learning more about them and considered their opinions when making decisions.

Guided by prior research, Skinner, Wellborn, and Connell (1990) advanced a process model, positing that teacher contingency and involvement would influence student engagement which, in turn, would impact academic performance as operationalized through students’ grades and standardized test scores. The results of a path analysis indicated that teacher context predicted positive perceived control. Positive perceived control predicted student engagement, which then explained a significant amount of the variance in students’ grades and achievement scores.

Although Skinner, Wellborn, and Connell’s (1990) study utilized teacher ratings of student engagement rather than students’ self-reports, the findings inform the engagement and learning relationship by detailing how specific teacher behaviors can impact students and their learning. Within the instructional communication context, clear and immediate teachers can influence students’ cognitive and emotional interest in the course. This sustained interest can influence student engagement and ultimately impact student learning. The sections that follow consider the roles of teacher immediacy and clarity, student emotional and cognitive interest, and student engagement and learning.
The sections conclude with a summary and statement of hypotheses and research questions for interest, engagement, and learning.

*Teacher Immediacy and Student Emotional Interest on Engagement*

Rooted in educational psychology research on textual material, emotional interest theory offers a substantive explanation for the relationship between teacher immediacy, student emotional interest, and learning. According to Harp and Mayer (1997), interesting content arouses the reader’s curiosity and interest in the topic and leads to greater learning. Further explaining the tenets of emotional interest theory, Harp and Mayer (1997) contend:

…Emotional interest adjuncts, such as seductive text or seductive illustrations, influence the reader’s affect by promoting his or her enjoyment of the passage. The increase in emotional arousal influences the reader’s cognition; that is, the increase in enjoyment causes the reader to pay more attention to and encode more of the material in the passage. (p. 93)

Using emotional interest theory as a guide and considering decades of research, teacher immediacy behaviors can heighten students’ attention, influence their excitement with the course, and promote greater cognitive learning.

Early in the evolution of immediacy-learning research, Richmond, Gorham, and McCroskey (1986) conducted two studies to examine the relationship between teacher immediacy and student cognitive learning. The results of the studies indicated a strong relationship between teacher immediacy and student cognitive learning. Further analysis revealed that all of the immediacy scale items were able to discriminate between the best
and worst teachers; however, not all of the immediacy behaviors appeared to be of equal importance. In particular, vocal expressiveness, smiling, and having a relaxed body position appeared to be the most important. The data also pointed to a possible curvilinear relationship between immediacy and learning where excessively high or low immediacy on the part of teachers can result in low reports of cognitive learning on the part of students. As noted previously, this finding was again discovered years later in immediacy and learning research (Comstock, Rowell, & Bowers, 1995).

Kelley and Gorham (1988) offered a theoretical explanation for the link between teacher immediacy behaviors and student cognitive learning, which has been dubbed the learning model. Guided by the tenets of information processing theory, Kelley and Gorham (1988) hypothesized a direct relationship between teacher immediacy and student learning. Four assumptions guided their theoretical rationale. First, a direct link exists between cognitive learning and memory and recall. Students who can remember more information generally perform well on tests of cognitive learning. Second, attention is a prerequisite for recall. Students must pay attention so information can be encoded for storage. Students who pay attention are more inclined to remember the information they encoded. Third, arousal impacts attention. When student arousal is heightened, students generally pay more attention than when arousal is low. Finally, teacher immediacy is related to student arousal. In essence, teacher immediacy behaviors influence perceptions of liking in students. Guided by these assumptions, Kelley and Gorham (1988) hypothesized that teacher immediacy would directly impact student cognitive learning because it increases emotional arousal, stimulates attention, and influences recall of
information. Following participants’ face-to-face meetings with a research confederate, Due to the lack of motivation and affect that could have been generated in the short span of the experiment, Kelley and Gorham (1988) concluded that teacher immediacy directly, rather than indirectly, influences student cognitive learning.

Advancing the motivation model, Christophel (1990) predicted that teacher immediacy first influences student state motivation. The combined effect of immediacy and motivation, she argued, impacts student cognitive learning. Christophel (1990) tested the motivation model across two studies. Results revealed that students who had highly immediate teachers tended to be more motivated and report greater learning than students who had non-immediate teachers. Christophel (1990) concluded:

The conclusiveness of this research reflects the critical role of teachers’ communicative behaviors, such as immediacy, which modify student state motivation, and should accordingly receive more prominent attention in the training and development of potential teachers. Although students conceivably enter the classroom with predetermined levels of trait motivation, their state motivation levels are modifiable by teachers. As demonstrated by this study, immediacy positively impacts all levels of learning, either directly or indirectly, in combination with student state motivation. (p. 339)

The affective learning model is the third and final theoretical explanation for the immediacy and cognitive learning relationship. In their report, Rodriguez, Plax, and Kearney (1996) first noted the primary assumptions of the immediacy-learning models that have been created and tested thus far—the learning model (Kelley & Gorham, 1988)
and the motivation model (Christophel, 1990). Advancing the affective learning model, Rodriguez, Plax, and Kearney (1996) proposed that affective learning served as the central causal mediator—not student motivation—between teacher immediacy and student cognitive learning. From this perspective, they argued that affective learning is not simply an outcome variable; rather, “affective learning is defined as a means to an end” (p. 296).

Rodriguez, Plax, and Kearney’s (1996) argument for advancing the parsimonious affective learning model is fourfold. First, the affective learning model subsumes and elaborates on Kelley and Gorham’s (1988) speculations behind the original learning model. All variables are included and offer a more precise explanation of the relationship between affective learning and cognitive learning without introducing additional variables into the model. Second, Rodriguez, Plax, and Kearney (1996) argue that prior research suggests strong and consistent correlations between teacher immediacy and student affective learning. These findings lead to the logical conclusion that, in addition to being positively related, immediacy and affective learning are directly linked as well. Third, they contend that student motivation is more precisely captured by the more pervasive affective learning construct. That is, students who experience positive affect are likely to be more motivated and involved in their learning. Finally, Rodriguez, Plax, and Kearney (1996) cite operational overlap between the measure of student state motivation and affective learning. In terms of face validity, they argue that the scales appear to measure highly similar affective states. With this fourfold argument in mind, Rodriguez, Plax, and Kearney (1996) conclude that the affective learning model provides
a stronger theoretical explanation and a more parsimonious explanation of the relationship between teacher immediacy and student cognitive learning than the learning model (Kelley & Gorham, 1988) and motivation model (Christophel, 1990).

Rodriguez, Plax, and Kearney (1996) employed a correlational design to test the affective learning model as a more precise explanation of the immediacy-learning relationship. Path analyses revealed that both models fit the data well. One statistical criterion and two theoretical criteria were employed to determine which model provided the better explanation of the immediacy-learning relationship. First, Rodriguez, Plax, and Kearney (1996) reasoned that when two models fit the data, the model that produces the least amount of error is the better explanation. They found that the affective learning model produced less, however, not significantly less, error than the motivation model. Second, they argued that the affective learning model has a theoretical advantage over the motivation model because it is more parsimonious, and thirdly, because it contains the most theoretical relevance when compared to the other immediacy-learning models.

Taken together, the learning model (Kelley & Gorham, 1988), the motivation model (Christophel, 1990), and the affective learning model (Rodriguez, Plax, & Kearney, 1996) offer important theoretical explanations for the relationship between teacher immediacy and student cognitive learning. Furthermore, using emotional interest theory as a guiding theoretical framework and considering prior immediacy-learning research, teacher immediacy behaviors can influence student emotional interest and learning.

Emotional interest theory can offer new insight into the immediacy-learning relationship and potentially offer some clarity with respect to immediacy’s indirect effect
on student cognitive learning. Applying its principles to the instructional communication context, the theory holds that teacher immediacy can influence students’ affect by positively influencing their enjoyment of the course and its content. This increase in emotional arousal can influence students’ cognition, which can cause them to pay more attention to and ultimately remember more of the course material. Using this theory as a guide and considering decades of instructional communication research, teacher immediacy behaviors can heighten students’ emotional interest and prompt them to become more engaged with their learning. This dissertation explores this potential relationship.

Recall from Chapter One that the research question asked how teacher communication, student interest, and engagement functioned to influence learning. Literature reviewed in this chapter clearly indicates that teacher immediacy can impact student emotional interest. Immediate teachers can energize students, cause them to be emotionally connected to the material, and lead them to learn more. Therefore, students who are emotionally interested in a course will be more engaged in the learning process. With these interpretations in mind, the following research hypothesis is advanced:

\[ H3: \text{Students’ emotional interest will positively predict their engagement}. \]

*Teacher Clarity and Student Cognitive Interest on Engagement*

Much like teacher immediacy, clear teaching is one strategy teachers can use to influence student interest in the learning process. Teacher clarity can increase affective arousal in students because information is made clearer for students. These clear teaching
behaviors can arouse student attention and prompt them to be more cognitively interested because they have a greater understanding of the course material. Cognitive interest theory offers a substantive explanation for this relationship. Cognitive interest theory states that adjuncts such as explanative summaries influence students’ cognition by promoting their understanding of the material. Further explaining the tenets of cognitive interest theory, Harp and Mayer (1997) argue:

…Cognitive interest adjuncts promote the reader’s construction of a causal chain by helping readers focus their selective attention on relevant pieces of information (i.e., the steps in the process) and on helping readers build internal connections among the pieces of information (i.e., cause-and-effect relations). Then, this qualitative change in the kind of cognitive processing influences the reader’s affect; that is, the attainment of structural understanding promotes a sense of positive affect about the passage. (p. 93)

Teacher clarity behaviors can heighten students’ attention, prompt them to be more cognitively interested because information is clear, promote a greater understanding of the course material, and result in higher levels of cognitive learning. Guided by cognitive interest theory, the proposed positive impact of teacher clarity on student cognitive interest is well-supported by studies that have yielded consistent findings related to textual material—students who read scientific texts with explanative summaries remember the explanation and solve problems concerning the explanation better than students who read material without summaries (Mayer, 1989; Mayer, Bove, Bryman, Mars, & Tapangco, 1996; Mayer, Steinhoff, Bower, & Mars, 1995).
In the early stages of teacher clarity research, clear teaching was often assessed as a high-inference variable utilizing global ratings, which often lack sufficient reliability and validity. Unfortunately, these studies provided little information about the impact of specific clarity behaviors on student learning (Hines, Cruickshank, & Kennedy, 1985). Guided by this line of research, Hines, Cruickshank, and Kennedy (1985) reported significant positive associations between teacher clarity, student achievement, and satisfaction. In particular, they found similar relationships across the triangulation of measurement sources (observers, students, and teachers) and measurement levels of teacher clarity (low-, intermediate-, and high-inference). Interestingly, certain teacher behaviors were most strongly related to learner achievement and satisfaction: using relevant examples during an explanation, reviewing material, asking questions to find out if students understood, answering student questions appropriately, repeating things students did not understand, providing sufficient examples, and presenting the lesson in a logical manner, among others. Ultimately, the results provide useful information related to the measurement of teacher clarity as consistent findings were detected across a triangulation of measurement sources.

Chesebro and McCroskey (2001) examined the relationship between teacher clarity, teacher immediacy, and student cognitive learning and found significant inverse relationships between teacher clarity and learning loss and teacher immediacy and learning loss. A comparison of correlations indicated that teacher clarity had a stronger correlation with cognitive learning than teacher immediacy. Considering a potential blurred indirect relationship between teacher immediacy and student cognitive learning,
the findings here begin to offer evidence of teacher clarity’s strong influence on student cognitive learning. However, Chesebro and McCroskey (2001) recognized the limitations of their design and recommended that future research consider experimental designs to provide stronger evidence of the clarity-learning relationship.

Answering the call for additional research, Titsworth (2001a) explored the effects of teacher immediacy and organizational lecture cues on student cognitive learning and failed to find an interaction between immediacy and organizational lecture cues. The main effect for teacher immediacy was not significant; however, organizational cues had a significant main effect on the detail test and accounted for 11% of the variance in students’ cognitive learning scores. Students who viewed the lecture with organizational cues scored significantly higher on the detail test compared to students who viewed the lecture without cues.

Titsworth’s (2001a) findings extend previous literature by considering the effect organizational lecture cues might have on certain types of learning. Results indicated that organizational cues significantly affected students’ scores on the detail test, but not the concept test. He reasoned that organizational lecture cues might assist students in encoding information to memory, but the same cues may not help students apply that information to new examples. Simply put, organizational lecture cues on the part of teachers may help students remember information but those same cues may stop short of helping students apply important course material in critical thinking situations.

When assessing the delayed effects of teacher clarity on student learning, Titsworth (2001a) found that organizational cues and student notetaking interacted to
influence a decline in students’ learning scores on the concept test. The findings indicated that students who viewed the lecture with organizational cues and took notes scored higher and retained more information than their peers who did not take notes and viewed the lecture without cues. Titsworth (2001a) noted that students in both notetaking groups scored similarly on the immediate concept test; however, students who viewed the cued lectures retained more information on the delayed concept test. The findings here point to the strong effect of teacher clarity on student cognitive learning in the immediate and long term.

Unlike Titsworth’s (2001a) approach to the study of clarity through a specific teacher behavior, Chesebro (2003) utilized his “Profile of the Clear Teacher” to guide the manipulation of clarity behaviors and explore the impact of teacher clarity and immediacy on student cognitive learning. The profile includes many behaviors related to structural clarity and verbally clear teaching. Structural clarity consists of behaviors such as the teacher explaining the learning objectives, stopping to summarize important ideas, and providing visual displays while teaching. Verbally clear teaching includes the absence of vocalized pauses (e.g., “uh,” “um,” or “like”), explaining the material in a clear manner, and pacing instruction so students are able to comprehend important ideas.

Chesebro (2003) predicted that students who received a combination of clear and immediate teaching will recall significantly more information than students who received a combination of clear and nonimmediate teaching. Additionally, he hypothesized that the combination of unclear and nonimmediate teaching will lead to lower amounts of recalled information than other combinations of clarity and immediacy. Analysis revealed
a significant main effect for clarity on cognitive learning. The results failed to reveal a
significant main effect for immediacy and a significant interaction effect for clarity and
immediacy on student cognitive learning. Similar to Titsworth’s (2001a) study, the
results suggest that teacher clarity has an important effect on student learning.

A review of the many studies that document the relationship between teacher
clarity and student cognitive learning offer two primary conclusions. First, clarity is an
important teacher behavior that has the potential to influence student cognitive learning.
Second, when compared to the immediacy-learning research, the relationship between
clear teaching and student learning is clear. That is, unlike teacher immediacy, one can
more certainly claim that clarity’s relationship to student learning is unlikely distorted by
strong indirect and curvilinear effects.

Research has consistently documented that clarity on the part of teachers
leads to increased levels of affect on the part of students. Unclear teaching, on the
other hand, promotes decreased levels of student affect. Literature reviewed in this
chapter suggests that teacher clarity heightens student attention, causes them to be
more engaged in the classroom, and leads to greater levels of learning. This
consistent finding suggests that teacher clarity might influence student cognitive
interest because, through clarity behaviors, teachers can make information clearer
for students. These clear teaching behaviors can heighten student attention and
prompt them to be more interested in the course material because they have a greater
understanding of the content. This interpretation leads one to reasonably argue that
teacher clarity behaviors can positively impact student cognitive interest.
Subsequently, these heightened levels of cognitive interest are likely to lead to a greater degree of engagement. That is, students who are cognitively interested in a course will be more engaged in their learning. With these arguments in mind, the following research hypothesis is advanced:

\[ H4: \] Students’ cognitive interest will positively predict their engagement.

*Interactive Effects of Emotional Interest and Cognitive Interest*

As conceptualized in this dissertation, emotional interest and cognitive interest are both positive experiences likely resulting in important benefits for students. Student engagement might be influenced by an additive effect of emotional interest and cognitive interest. That is, much like teacher immediacy and clarity, potential interactive effects between student emotional and cognitive interest might cause them to function together to influence student engagement. Students are likely to benefit most when they are emotionally *and* cognitively interested in a particular course. Unfortunately, prior research has not explored an interaction effect between student emotional interest and cognitive interest and its possible impact on engagement. To explore this potential relationship, the following research question is posed:

\[ RQ5: \] Do students’ emotional interest and cognitive interest interact to influence their engagement?

*Overall Summary of the Literature*

This chapter has reviewed a large body of literature situating teacher immediacy, teacher clarity, student interest, and engagement within the context of the learning
process. Stemming from the conceptual model proposed in Chapter One, the operational model articulated in this chapter assembles teacher behaviors—immediacy and clarity—and student outcomes—emotional interest, cognitive interest, and engagement—that, as argued thus far, are vital components of the teaching and learning process. Guided by emotional interest theory, arguments were presented that led to the prediction that teacher immediacy impacts student emotional interest and engagement. Considering the tenets of cognitive interest theory, research was reviewed that resulted in hypotheses that explain the relationship between teacher clarity, student cognitive interest, and engagement. In addition, this dissertation questioned the relationship between teacher immediacy and student cognitive interest and teacher clarity and student emotional interest. Collectively, these research questions and hypotheses comprise an operational model that reflects the teaching and learning process and explains the roles of communication, interest, and engagement in this assemblage (see Figure 2). The purpose of this dissertation is to test this model.
Figure 2. Operational model of communication, interest, and engagement.
This dissertation contributes to prior theory and research in several ways. First, this study unites two teacher behaviors into a concise model of teaching and learning. Research has indicated that teacher immediacy and teacher clarity can have an important influence on student learning. This study considers the combined influence of these variables on student outcomes. Second, this dissertation examines the role of student interest in the instructional context. In particular, this study explores how communication on the part of teachers can influence emotional interest and cognitive interest on the part of students. This component of the study can clarify what some scholars have labeled a blurred relationship between communication and learning (Hess, Smythe, & Communication 451, 2001). Guided by the tenets of the operational model, this dissertation can inform how teacher communication behaviors can influence sustained interest on the part of students. Furthermore, this study can reveal how levels of sustained interest can impact students’ engagement and learning.
CHAPTER 3: MEASUREMENT CONSTRUCTION

This chapter outlines the construction of measures for this dissertation. The chapter presents the results of a pilot study that served to develop measures of interest and engagement utilized in the primary study. The following sections describe the development of each measure and report the results of exploratory factor analysis and reliability estimates. All procedures were approved through the university’s Institutional Review Board.

Method: Scale Construction Procedures

Harp and Mayer (1997) developed a four-item interest inventory that explored the role of interest in learning from scientific text and illustrations. The items were: “While reading the passage I felt interested;” “While reading the passage I felt bored;” “I found the information in the passage to be useful;” and “I found the information in the passage to be worthless.” Participants responded on a four-point scale ranging from “completely” to “not at all.” In a follow up experiment, Harp and Mayer (1997) utilized two items to assess emotional interest—“How interesting is this material?” (with 1 as “boring” and 10 as “interesting”) and “How entertaining is this material?” (with 1 as “tiresome” and 10 as “entertaining”). The authors also used two items to measure cognitive interest—“How much does this material help you to understand the process of lightening?” (with 1 as “not at all” and 10 as “very much”) and “How helpful is this material for organizing the steps involved in the process of lightening?” (with 1 as “unhelpful” and 10 as “helpful”). Although the above items begin to capture the interest construct within the context of an experimental design (Harp & Mayer, 1997), the few items do not appear to provide an
exhaustive measure of emotional interest and cognitive interest. Furthermore, the items lack face validity as some questions might address “helpfulness” rather than cognitive interest and “general interest” rather than emotional interest per se. To provide a more accurate, thorough, and exhaustive measure of the interest construct, scale development procedures were undertaken for this dissertation.

Similar to the interest literature, the corpus of engagement research is marked by diverse definitions of the construct stemming from a lack of consensus on precise definitions (Fletcher, 2005). For the purpose of this dissertation, engagement is defined as: student behaviors occurring inside and/or outside of the classroom that function as part of the teaching and learning process. Engaged students listen attentively in class, orally participate during discussions, take notes, and ask questions of the instructor. They prepare for class by reading the assigned material, reviewing their notes, studying for a test or a quiz, and talking about the class content with others.

Self-report measures of engagement present in the literature are not generally targeted toward college classrooms. For instance, Fredericks, Blumenfeld, Friedel, and Paris’ (2005) School Engagement Scale, which taps behavioral, emotional, and cognitive forms of engagement, is intended for use with elementary school children. The scale items reflect behaviors and activities that are more common among younger students: “I follow the rules at school;” “I get in trouble at school;” and “I feel happy in school.” Similarly, Anderman, Urdan, and Roeser’s (2005) Adaptive Learning Survey is targeted toward elementary and secondary school children with items reflecting its intended use:
“It is important to me that I learn a lot of new concepts this year” and “It’s important to me that I improve my skills this year.”

Although self-report scales are widely used, the validity of the engagement data can differ considerably due to students’ varying abilities to accurately assess their own levels of engagement, a limitation commonly directed toward younger student populations (Assor & Connell, 1992). To address this limitation, direct student observations are often utilized to confirm students’ reported levels of engagement in learning tasks. To confirm that measures are standardized across observers, interrater reliability estimates are necessary to ensure that observers agree on their interpretation of engagement behaviors. In addition to direct observations, a few studies have used teacher report scales to measure student engagement. For example, Skinner and Belmont (1993) and Skinner, Wellborn, and Connell (1990) asked teachers to assess their students’ willingness to participate in school tasks as well as their emotional reactions to tasks. A unique alternative to self-report measures, the method is primarily intended for use with young elementary school students who are unable to complete self-report measures. Although rigorous in measurement, direct observation methods and teacher report procedures would likely be difficult to execute in the college environment where students are often taught by many teachers, in various classrooms around campus, and on different days in a typical week.

Face validity of Frymier and Houser’s (1999) self-report Learning Indicators Scale, commonly employed as a measure of college student learning by instructional communication scholars, suggests that the instrument more accurately measures student
engagement rather than learning per se. The Learning Indicators Scale features items such as: “I ask questions to find out what others in class think about the content;” “I actively participate in class discussions;” and “I like to talk about what I’m doing in this class with friends and family.” Although the measure was revised to address its association with student engagement, the original nine-item measure provided a foundation for the engagement scale development for this dissertation.

_Student Interest_

Interest scale development began with a focused review of salient interest literature. The review revealed that interest has been conceptualized as: student attention, greater concentration, pleasant feelings, and increased motivation to learn (Krapp, Hidi, & Renninger, 1992). Aside from Harp and Mayer’s interest scale, the review yielded few measures of student interest. Weber, Martin, and Cayanus (2005) proposed the 18-item Learner Empowerment Scale as a measure of student interest. Although the instrument specifies characteristics that might be associated with student interest (e.g., meaningfulness, impact, and competence), the scale appears to assess several student behaviors, including participation, empowerment, and motivation. To better assess students’ emotional and cognitive interest, and guided by emotional interest theory and cognitive interest theory (Harp & Mayer, 1997), interest scale development procedures were undertaken for this dissertation.

During the spring 2008 quarter, scale development procedures were conducted. Scale development procedures included an open-ended questionnaire designed to solicit participants’ reactions to issues associated with interest. Students in Ohio University’s
400-person introduction to human communication course responded to the following open-ended questions as part of a pilot study:

1. You are likely to be very interested in some classes and not interested in other classes. What contributes to your interest in a particular class? Provide details to fully explain your thoughts.

2. What keeps you alert, attentive, engaged, and involved during class? This could be behaviors of your teacher, classmates, or things about the subject area. Provide details to fully explain your thoughts.

In all, 374 undergraduate students enrolled in the introduction to human communication course completed the open-ended questions (141 first-year students, 134 sophomores, 60 juniors, 39 seniors). The sample consisted of 157 males and 217 females, with an average age of 19.89 years (ranging from 18 to 34 years, \( SD = 1.77 \)). The racial/ethnic distribution was 91.4% Caucasians, 4.5% African Americans, 1.3% Hispanics, 1.1% Asian Pacific Islanders, .3% American Indian/Alaskan Native, and 1.3% Other.

The open-ended survey data and information gleaned from a review of relevant literature provided a base for item construction. Sixteen items were drafted to tap cognitive interest and emotional interest. To enhance the content validity of the new interest measure, three coders, blind to the purpose of the project, assisted with scale development during summer 2008. The coders were given a randomized list of interest items and a sheet containing a description of cognitive interest and emotional interest. Cognitive interest was described as an affective response in students who are interested in
the material/topics because they are able to understand, recall, and remember course material. Emotional interest was described as an affective response in students who are enthused, engaged, and excited by course content and the class experience. The coders were instructed to place each item in a single category (cognitive interest or emotional interest) and indicate the intensity with which each particular item tapped the interest category. The intensity rating allowed the coders to indicate the “strength” to which each item reflected the particular type of student interest (i.e., emotional interest or cognitive interest). Coders utilized a 1-10 scale for the intensity rating—with 1 indicating very weak and 10 indicating very strong. Coding results were inspected for evidence of content validity. Results revealed that the coders placed the items in the appropriate categories and provided suitable intensity ratings (ranging from 7 to 10). The results reveal that each coder placed each item in the appropriate category and strongly indicated (through the intensity rating) that the item was worded to fittingly tap the particular type of student interest.

**Student Engagement**

Initial engagement scale development procedures included an open-ended questionnaire designed to solicit participants’ reactions to and constructions of issues associated with engagement. During the spring 2008 quarter, the same 374 students in the university’s 400-person introduction to human communication course responded to the following open-ended question: Based upon your answers above (to the open-ended interest items), what are things you do inside and outside of class (e.g., read, study, take notes and participate in class) that are influenced by your interest? Provide details to
fully explain your thoughts. In all, a total of 374 surveys were collected and analyzed. The open-ended survey data and information gleaned from a review of relevant literature provided a base for item construction.

Twenty engagement items were drafted based upon participants’ responses. The items were related to engagement activities that might occur inside and/or outside of the classroom and permitted students to specify the frequency with which they engage in behaviors associated with the learning process (e.g., participating in class, listening to the teacher, asking questions of the teacher, talking about the content with others).

During the ninth week of the fall 2008 quarter, students \( N = 313 \) in the university’s 400-person introduction to human communication course completed the newly constructed interest and engagement measures. In all, there were 145 first-year students, 121 sophomores, 33 juniors, and 14 seniors. The sample consisted of 130 males and 183 females, with an average age of 19.13 years (ranging from 18 to 30 years, \( SD = 1.28 \)). The racial/ethnic distribution was 87.9% Caucasians, 7.7% African Americans, 1.3% Hispanics, 1.3% Asian Pacific Islanders, .3% American Indian/Alaskan Native, and 1.6% Other. After the participants completed the scales, the measures were subjected to exploratory factor analysis and reliability procedures.

Results: Exploratory Factor Analysis

Following the collection of quantitative data (Fall 2008) for the measurement construction portion of this dissertation, a series of exploratory factor analysis (EFA) procedures were conducted and employed principal axis factoring with varimax rotation. Varimax rotation was employed because rotating factor solutions produces a factor
matrix that is most interpretable (Mertler & Vannatta, 2005). Initially, the factor analysis procedure checked Kaiser-Meyer-Olkin (KMO) measure of sampling accuracy and Bartlett’s Test of Sphericity to determine if the data met the assumptions of factor analysis. To meet the assumptions of factor analysis, the KMO coefficient should be in the high .8s and the Bartlett’s test should be significant (Mertler & Vannatta, 2005; Meyers, Gamst, & Guarino, 2006). Factor structure was determined by analyzing several criteria for selecting items that cluster together into factors. Items were not retained if they did not meet the liberal 60/40 criteria for factor loadings; that is, the primary loading for an item should be at least .60 and no secondary loading should be greater than .40 or higher (McCroskey & Young, 1979). Eigenvalue scores and a visual inspection of the scree plot from the rotated factor matrix helped to determine how many factors to retain. According to Kaiser’s rule, only factors with eigenvalue scores greater than 1 should be retained (Mertler & Vannatta, 2005).

An iterative data reduction process was employed during the EFA of the interest and engagement scales. Specifically, principal axis factoring using varimax rotation was used to identify factors within the scales and eliminate survey items that did not adequately load onto a factor. As particular survey items were eliminated, new EFA procedures were conducted until a desirable final factor solution was reached. As each EFA procedure was conducted, the initial eigenvalues were examined for factors that exceeded eigenvalues of 1.00 and were above the bend or elbow in a visual inspection of the scree plot. Furthermore, the rotated factor matrix was scrutinized to determine which survey items did meet a factor loading criteria of .60 or greater on the primary factor and
a .40 or lower loading on the secondary factor. As the iterative process of data reduction proceeded, the item with the lowest primary factor loading that did not meet the 60/40 criteria was removed from the solution and a new EFA procedure was conducted (McCroskey & Young, 1979).

**Student Interest**

Participants reported their levels of emotional and cognitive interest using a five-point Likert scale with options ranging from *strongly disagree* to *strongly agree*. Factor analysis of the interest scale was conducted to provide a factor loading for each item. The Bartlett Test of Sphericity suggested that the data met assumptions necessary for factor analysis, $\chi^2 = 4711.99$ (120), $p < .05$. The factor analysis produced a two-factor solution that met this criterion. Examination of the items loading on these factors revealed one factor that addresses *emotional interest* and one factor that addresses *cognitive interest* (see Table 1).

All interest scale items began with the stem—“I am interested in this class because…” Based on the rotated factor matrix, the first factor contained nine items related to emotional interest and included items such as: “…The class causes me to feel energized” and “…The topics covered in the course fascinate me.” The first factor was subsequently labeled *emotional interest*. The second factor contained seven items related to cognitive interest and included items such as: “…I can understand the flow of ideas” and “…I can remember the course material.” The second factor was labeled *cognitive interest*. The two factors collectively accounted for 73.60% of variance in the scale.
After summing scores for the two factors, items comprising each factor were analyzed for reliability. Using Cronbach’s alpha, reliability estimates were calculated for the two factors: emotional interest $\alpha = .97$; cognitive interest $\alpha = .91$. All questions on the scale were analyzed to determine an overall reliability estimate for the scale ($\alpha = .96$).
Table 1

**Factor Loadings for Interest Scale**

<table>
<thead>
<tr>
<th>I am interested in this class because…</th>
<th>Emotional Interest</th>
<th>Cognitive Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. …I feel enthused about being in class.</td>
<td>.83</td>
<td>.37</td>
</tr>
<tr>
<td>2. …The class makes me feel excited.</td>
<td>.82</td>
<td>.38</td>
</tr>
<tr>
<td>3. …The class causes me to feel energized.</td>
<td>.79</td>
<td>.28</td>
</tr>
<tr>
<td>4. …The topics covered in the course fascinate me.</td>
<td>.78</td>
<td>.36</td>
</tr>
<tr>
<td>5. …Being in the class is enjoyable.</td>
<td>.77</td>
<td>.44</td>
</tr>
<tr>
<td>6. …The class experience makes me feel good.</td>
<td>.77</td>
<td>.48</td>
</tr>
<tr>
<td>7. …The material fascinates me.</td>
<td>.74</td>
<td>.40</td>
</tr>
<tr>
<td>8. …I like the things we cover in class.</td>
<td>.72</td>
<td>.49</td>
</tr>
<tr>
<td>9. …The class experience feels very positive.</td>
<td>.64</td>
<td>.57</td>
</tr>
<tr>
<td>10. …I can remember the course material.</td>
<td>.32</td>
<td>.76</td>
</tr>
<tr>
<td>11. …I feel like I am learning topics covered in the course.</td>
<td>.41</td>
<td>.74</td>
</tr>
<tr>
<td>12. …I can understand the flow of ideas.</td>
<td>.37</td>
<td>.73</td>
</tr>
<tr>
<td>13. …I understand the course material.</td>
<td>.33</td>
<td>.69</td>
</tr>
<tr>
<td>14. …The information covered in the course is making me more knowledgeable.</td>
<td>.44</td>
<td>.66</td>
</tr>
<tr>
<td>15. …The information in the course is useful.</td>
<td>.42</td>
<td>.64</td>
</tr>
<tr>
<td>16. …I realize what is expected of me.</td>
<td>.19</td>
<td>.56</td>
</tr>
</tbody>
</table>

Eigenvalue 10.49 1.28
% of Variance 65.59 8.01
Cronbach’s Alpha .97 .91

*Note:* Underlined factor coefficients indicate the primary factor loading.

Finally, a Pearson correlation was calculated for the pairwise combination of factors (r = .84, p < .01). Because the primary factor loadings were robust and the reliability estimates for each factor were high, the 16-item interest scale is best described by a two-factor solution that assesses two dimensions of interest: emotional interest and...
cognitive interest. Furthermore, a return to the guiding theories—emotional interest theory and cognitive interest theory—suggest the presence of two underlying factors of student interest.

**Student Engagement**

Participants reported how frequently they took part in each of the engagement activities using a seven-point semantic differential scale with a bipolar response option (never/very often). The semantic differential response option provided a greater degree of variability and gave participants more freedom to indicate the frequency of their behaviors as measured by the individual scale items. Factor analysis of the engagement scale was conducted to provide a factor loading for each item. The Bartlett Test of Sphericity suggested that the data met assumptions necessary for factor analysis, $\chi^2 = 3044.46$ (91), $p < .05$. The factor analysis produced a four-factor solution that met this criterion. Examination of the items loading on these factors revealed factors that address (1) silent in class behaviors (2) oral in class behaviors (3) thinking about course content (4) out of class behaviors (see Table 2).

Based on the rotated factor matrix, the first factor contained four items related to silent in class behaviors and included items such as: “Listened attentively to the instructor during class” and “Gave your teacher your full attention during class.” The first factor was subsequently labeled silent in class behaviors. The second factor contained two items related to verbal behaviors that a student might perform during class and included items: “Participated during class discussions by sharing your thoughts/opinions” and “Orally (verbally) participated during class discussions.” The second factor was labeled
oral in class behaviors. The third factor contained three items that addressed how students thought about the course content and included items such as: “Thought about how you can utilize the course material in your everyday life” and “Thought about how the course material related to your life.” The third factor was appropriately labeled thinking about course content. The fourth factor contained four items that addressed behaviors that students commonly perform outside of the classroom and featured items such as: “Studied for a test or quiz” and “Talked about the course material with others outside of class.” The fourth factor was subsequently labeled out of class behaviors. The four factors collectively accounted for 76.89% of variance in the scale. Although two items on the fourth factor did not exceed the .60 loading on their primary factors, they were retained because their secondary loading was relatively small (.30 or less).

After summing scores for the four factors, items comprising each factor were analyzed for reliability. Using Cronbach’s alpha, reliability estimates were calculated for the four factors: silent in class behaviors $\alpha = .86$; oral in class behaviors $\alpha = .96$; thinking about course content $\alpha = .92$; out of class behaviors $\alpha = .82$. All 13 questions on the scale were analyzed to determine an overall reliability estimate for the scale ($\alpha = .90$).

Frymier and Houser’s (1999) Revised Learning Indicators Scale was utilized to provide evidence of convergent validity for the engagement scale. Participants responded on a five-point Likert-type scale with items: never, rarely, occasionally, often, very often. The Learning Indicators Scale was reliable ($\alpha = .85$). To satisfy conditions for convergent validity, a measure should be significantly correlated with other measures that it is theoretically related to (DeVellis, 2003). The results of a Pearson correlation revealed a
significant positive association between the Learning Indicators Scale and the
engagement scale \((r = .72, p < .000)\), providing evidence of convergent validity.
Table 2

Factor Loadings for Engagement Scale

<table>
<thead>
<tr>
<th>Item</th>
<th>Silent in class behaviors</th>
<th>Oral in class behaviors</th>
<th>Thinking about course content</th>
<th>Out of class behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Listened attentively to the instructor during class.</td>
<td>.84</td>
<td>.08</td>
<td>.20</td>
<td>.20</td>
</tr>
<tr>
<td>2. Gave your teacher your full attention during class.</td>
<td>.74</td>
<td>.15</td>
<td>.21</td>
<td>.25</td>
</tr>
<tr>
<td>3. Listened attentively to your classmates’ contributions during class discussions.</td>
<td>.67</td>
<td>.30</td>
<td>.16</td>
<td>.22</td>
</tr>
<tr>
<td>4. Attended class.</td>
<td>.62</td>
<td>.18</td>
<td>.10</td>
<td>.05</td>
</tr>
<tr>
<td>5. Participated during class discussions by sharing your thoughts/opinions.</td>
<td>.16</td>
<td>.95</td>
<td>.14</td>
<td>.07</td>
</tr>
<tr>
<td>6. Orally (verbally) participated during class discussions.</td>
<td>.20</td>
<td>.92</td>
<td>.11</td>
<td>.06</td>
</tr>
<tr>
<td>7. Thought about how you can utilize the course material in your everyday life.</td>
<td>.18</td>
<td>.15</td>
<td>.87</td>
<td>.28</td>
</tr>
<tr>
<td>8. Thought about how the course material related to your life.</td>
<td>.22</td>
<td>.19</td>
<td>.79</td>
<td>.29</td>
</tr>
<tr>
<td>9. Thought about how the course material will benefit you in your future career.</td>
<td>.26</td>
<td>.12</td>
<td>.72</td>
<td>.27</td>
</tr>
<tr>
<td>10. Reviewed your notes outside of class.</td>
<td>.23</td>
<td>.00</td>
<td>.20</td>
<td>.88</td>
</tr>
<tr>
<td>11. Studied for a test or quiz.</td>
<td>.31</td>
<td>.02</td>
<td>.19</td>
<td>.61</td>
</tr>
<tr>
<td>12. Talked about the course material with others outside of class.</td>
<td>.20</td>
<td>.26</td>
<td>.30</td>
<td>.59</td>
</tr>
<tr>
<td>13. Took it upon yourself to read additional material in the course topic area.</td>
<td>.02</td>
<td>.26</td>
<td>.28</td>
<td>.58</td>
</tr>
</tbody>
</table>

Eigenvalue 6.35 1.88 1.49 1.05  
% of Variance 45.38 13.42 10.62 7.47  
Cronbach’s Alpha .86 .96 .92 .82

*Note:* Underlined factor coefficients indicate the primary factor loading.
Summary

Results of the pilot study yielded reliable measures to be employed in the primary study. In the next chapter, the validity of these measures will be further confirmed through confirmatory factor analysis and the methods implemented to conduct the primary study will be described.
CHAPTER 4: PRIMARY STUDY METHOD

Recall from Chapter One that the problem statement asked how teacher communication, student interest, and engagement functions to influence learning. An operational model was advanced in Chapter Two and followed a comprehensive review of literature that yielded several research hypotheses and research questions querying the relationship between teacher immediacy and clarity, student emotional and cognitive interest, and student engagement. This chapter describes the methods used to gather data to answer the overarching research question in Chapter One and test the operational model that was advanced in Chapter Two. The first section of this chapter describes the procedures. The next section outlines the measurement of variables. The remaining sections of this chapter describe the methods of data analysis.

Procedures

All procedures were approved through the university’s Institutional Review Board. This section outlines the sampling of participants, explains the research design, and details the data collection methods for this dissertation.

Sampling and Participants

The target population was undergraduate students enrolled for classes during the spring 2009 quarter at Ohio University. A random sample of 8,000 undergraduate students, balanced by biological sex and year in school, was provided by the campus computer services office in charge of providing e-mail addresses for students invited to participate in the research project. To secure a statistical power of >.85 and a medium effect size through structural equation modeling, approximately 400 undergraduate
students were the target sample size for this study (Kline, 2005). A series of emails were sent to participants to increase response rate and gift certificates were offered as incentives to entice participation.

Participants were 518 undergraduate students from Ohio University (130 first-year students, 129 sophomores, 131 juniors, 127 seniors). The sample consisted of 159 males and 357 females, with an average age of 20.56 years (ranging from 18 to 51 years, $SD = 2.61$). The racial/ethnic distribution was 93.2% Caucasians, 2.1% African Americans, 1.5% Hispanics, 1% Asian Pacific Islanders, .4% American Indian/Alaskan Native, and 1.5% Other. One participant failed to report year in school and ethnic background/race, whereas two participants did not report sex.

Participants reported on 518 teachers who taught classes from various academic disciplines (e.g., English, communication studies, psychology, journalism, chemistry). Of the teachers, 266 were male and 251 were female. One participant did not report teacher sex. In terms of class format, participants reported that 270 classes were mostly lecture oriented and 245 were mostly discussion oriented. Three participants failed to report class format. The average class size ranged from 6 to 250 with an average size of 31.59 students ($Median = 25.00; SD = 28.59$).

**Design**

The study adopted Campbell and Stanley’s (1963) pre-experimental one-group design. The design featured one participant group with one observation during the duration of the study. Although the one-group design is often criticized due to many possible confounding variables that might exist in an experimental setting (Campbell &
Stanley, 1963), the present study assumes a cross-sectional, nonexperimental design that is more amenable to the goals of this dissertation.

**Data Collection**

Research has revealed that student perceptions of teacher immediacy can change as the classroom culture develops and evolves over the course of a term (Frymier, 1994). With this issue in mind, online data collection occurred during the ninth week of the 10-week quarter. In addition to avoiding the hectic time that students commonly experience during the tenth and final week of the quarter, data collection during the ninth week allowed participants to comprehensively evaluate the target teacher’s level of immediacy and clarity and indicate their degrees of interest and engagement.

Participants were contacted via email using the email list from the university’s information technology department. A series of emails were employed to increase response rate (Cook, Heath, & Thompson, 2000). For studies using online data collection methods, Cook et al. (2000) recommend that three emails be sent to participants to invite their participation in the study, request that they complete the online survey, and remind them of the opportunity to participate. The first email was sent approximately three days before data collection began (see Appendix A for a copy of the first email). This email invited students to participate in the study, explained the study and available incentives, and alerted participants to a second email that will contain the online survey link. The second email asked students to participate in a study exploring teacher classroom communication behavior (see Appendix B for a copy of the second email). A link in the second email then directed participants to the online informed consent form. Participants
indicated informed consent by clicking the appropriate link. After indicating consent, participants were directed to the online survey. Using a similar method developed by Plax, Kearney, McCroskey, and Richmond (1986), participants were asked to identify the first class that they attended each week where they had the opportunity interact with the teacher inside the classroom. This served as the “target class” and “target teacher.” This method provided a representative sample of teachers and classes of many academic disciplines at the institution. Participants completed the questionnaire as they reflected upon the “target class” and “target teacher.” A third email was sent approximately four days following the second email to remind participants to complete the online survey (see Appendix C for a copy of the third email). Combined, the series of emails served to enhance response rate (Cook, Heath, & Thompson, 2000). See Appendix D for a copy of the survey.

Measurement

Quantitative measures of teacher immediacy, teacher clarity, student interest, and student engagement were employed. In the sections that follow, the measures are described and, where appropriate, the results of confirmatory factor analysis are reported.

Teacher Immediacy

Teacher immediacy was operationalized and measured using Richmond, McCroskey, and Johnson’s (2003) 26-item measure of nonverbal immediacy, the most recent version of the scale that has received widespread use. The teacher immediacy scale assesses the extent to which students perceive a teacher to use nonverbally immediate behaviors in the classroom. Participants responded using a five-point Likert-type scale
with items: never, rarely, occasionally, often, very often. Versions of the scale have enjoyed decades of widespread use with high alpha reliability estimates often ranging from .83 (Frymier, 1994) to .94 (Titsworth, 2004). In this study, the reliability was $\alpha = .82$.

**Teacher Clarity**

The early stages of teacher clarity research suffered from the lack of a precise conceptual and operational definition of the construct (Bush, Kennedy, & Cruickshank, 1977). In response to such imprecision, Bush and colleagues launched an intensive research program to define teacher clarity in terms of low-inference, observable behaviors and to then relate those behaviors to student learning (Bush, Kennedy, & Cruickshank, 1977; Kennedy, Cruickshank, Bush, & Myers, 1978). Scale development resulted in measures that treated teacher clarity as a low inference variable that was positively associated with student learning (Hines, Cruickshank, & Kennedy, 1985). Unfortunately, these instruments simply did not result in a record of use by other scholars. However, the work in developing and refining these scales marked a turning point in clarity research where reliance on high-inference assessments ended and allowed clarity to be studied with a stronger degree of precision.

Subsequent to Bush’s efforts, Powell and Harville (1990) developed a 15-item Teacher Clarity Scale (TCS) based on categories of clarity behaviors found in an unpublished manuscript. Unfortunately, no example items were provided; however, factor analysis resulted in a one factor solution for teacher clarity. Using the TCS as a foundation, Sidelinger and McCroskey (1997) revised the instrument and created an
expanded 22-item scale that included 10 items from the Powell and Harville scale and 12 new items to include both an oral and written dimension. Although factor analyses revealed that the expanded TCS was still one-dimensional, Sidelinger and McCroskey erroneously chose to interpret the scale as two dimensional: written clarity and oral clarity. Guided by the findings accumulated thus far, Chesebro and McCroskey (1998a) again revised the TCS to be shorter in length. The Teacher Clarity Short Inventory (TCSI) contained 10-items that were found to load on a single factor. Example items include: “My teacher is straightforward in her or his lecture” and “In general, I understand my teacher.” The one-dimensional nature of the TCS/TCSI can pose challenges for scholars because clarity is defined at its broadest possible level. For example, Chesebro and McCroskey (2001) observed a significant relationship between clarity and perceived learning; however, because of the broad nature of how clarity was operationalized their explanation for this relationship did not go beyond stating that clarity increases “understanding” and results in a “solid grasp of course content” (p. 67).

With these limitations in mind, this dissertation implemented a low-inference measure of teacher clarity that assesses verbal clarity and written clarity. This study employs the Clarity Behaviors Inventory, a 12-item measure that assesses the degree to which a teacher exhibits verbal clarity and written clarity (Titsworth, Novak, Hunt, & Meyer, 2004). Participants responded on a five-point Likert scale with items ranging from “strongly disagree” to “strongly agree.” In this study, the reliability was $\alpha = .91$. 

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**Student Interest**

To confirm the factor structure of the interest scale that was found during the exploratory factor analysis in Chapter Three, the data from the primary study were examined using a series of confirmatory factor analyses (CFAs), a technique that holistically and deductively tests data against a theoretical factor structure specified a priori by the researcher. The CFAs were conducted using LISREL 8.80 software. The confirmatory model for the interest scale indicated close model fit, $\chi^2 (8) = 20.94, p < .05$, RMSEA = .056 (90% CI: .027-.086), NNFI = .99, CFI = .99. Additionally, a visual inspection of the Q plot of standardized residuals confirmed that the data fit the model.

**Student Engagement**

To confirm the factor structure of the engagement scale, the data was submitted to CFA. The confirmatory model for the engagement scale indicated close model fit, $\chi^2 (59) = 207.27, p < .05$, RMSEA = .067 (90% CI: .057-.078), NNFI = .96, CFI = .97. Additionally, a visual inspection of the Q plot of standardized residuals confirmed that the data fit the model. Thus, the series of confirmatory factor analyses on the interest and engagement scales confirmed that the factor structures of the instruments were viable and compiled important evidence for construct validity by showing that the data theoretically fit expectations for the measurement instruments (DeVellis, 2003; deVaus, 2001; Frey, Botan, & Kreps, 2000).

**Demographic Information**

Demographic information pertaining to the student participants and target teachers and courses was solicited. Participants were asked to report their age, year in
school, sex, and ethnic background/race. To further describe the sample of target teachers and target classes, participants also reported information about the course and the teacher, including the course topic area, approximate class size, teacher’s sex, and whether the teacher generally utilized lecture methods or discussion methods throughout the quarter. In addition, participants were asked to report their name and email address for an incentive drawing. This identifying information was removed from the data file before analysis.

Data Analysis

Primary Quantitative Analysis

Research has revealed that student perceptions of classroom communication constructs (e.g., immediacy) can change as the classroom culture develops and evolves over the course of a term (Frymier, 1994). With this important issue in mind, a model was developed and tested with data—collected during the ninth week of the 10-week quarter—to provide a more accurate assessment of the constructs of immediacy, clarity, interest, and engagement.

A hypothesized model was estimated using structural equation modeling (SEM) with the LISREL 8.80 for Windows software package. SEM was used to address hypotheses one, two, three, and four and research questions one, two, three, four, and five. SEM is a flexible data analytic technique that purifies manifest variables of error variance, thus generating truer tests of association between latent constructs of interest. Following generally accepted procedures for SEM, data analysis included testing the measurement model via confirmatory factor analysis prior to testing the hypothesized
associations in structural equation models (Kline, 2005). Before latent variable analyses, an EM (expectation-maximization) algorithm imputed the trivial amount of missing data (less than 1%) in the data set (Vriens & Melton, 2002).

As compared to manifest variable statistical techniques (e.g., ordinary least squares hierarchical regression) that only allow piecemeal investigation of complex models, SEM permits the researcher to test overall global model fit in a single procedure. For both the confirmatory and structural models, this dissertation assessed model fit via four common fit indices: (a) model chi-square, (b) the root mean square error of approximation (RMSEA), (c) the non-normed fit index (NNFI), and (d) the comparative fit index (CFI) (Kline, 2005). Model chi-square is a basic statistic assessing model fit, with good fit indicated by nonsignificant chi-square values. One weakness of the chi-square statistic is that it relies strongly on sample size, such that moderately large samples almost always produce statistically significant chi-square values even when model misfit is negligible. The additional three fit indices corrected for this shortcoming. The RMSEA statistic assesses amount of model misfit per degree of freedom, with RMSEA values below .08 indicating acceptable fit (MacCallum, Browne, & Sugawara, 1996). The NNFI and CFI statistics indicate the degree to which the observed data fits the specified model better than a null model (i.e., with no specified relationships between latent constructs); for these fit indices, values above .95 indicate close model fit (Kline, 2005).

Parceling

The hypothesized measurement model included seven latent constructs: (a)
teacher immediacy, (b) teacher clarity, (c) the interaction of immediacy and clarity, (d) student emotional interest, (e) student cognitive interest, (f) the interaction of emotional interest and cognitive interest, (g) student engagement (see Figure 2). All first order constructs were formed by *parcelling* each respective scale into three parcels, which are “aggregate-level [indicators] comprised of the sum (or average) of two or more items, responses, or behaviors” (Little, Cunningham, Shahar, & Widaman, 2002, p. 152). Three parcels were created for each latent construct—teacher immediacy, teacher clarity, student emotional interest, student cognitive interest, and student engagement. Each parcel was assembled by averaging two or more items from the respective scale in thirds. That is, every third item was selected and the chosen items were averaged to form a parcel. The parceling technique, which reduces the number of manifest indicators for each latent construct, has several advantages over using individual items as indicators, including greater reliability, more precise identification of the latent construct, and fewer parameter estimates (Kline, 2005; Little et al., 2002). The interaction effects were modeled by creating orthogonalized interaction terms, a method that more effectively removes multicollinearity than Baron and Kenny’s (1986) method of mean-centering predictors prior to computing the interaction term. Using procedures described by Little, Card, Bovaird, Preacher, and Crandall (2007), a series of nine product terms were formed between the mean-centered parcels for each construct (e.g., all possible multiplicative interactions between one of the three teacher immediacy parcels and one of the three teacher clarity parcels). These product terms were then regressed onto the first-order parcels and their unstandardized residuals were saved. These unstandardized residuals
were then combined into three parcels such that each interaction term parcel contains only one instance of each of the first-order parcels (see Marsh, Wen, Hau, Little, Bovaird, & Widaman, 2007), resulting in indicators that are entirely orthogonal to the first-order indicators (for an example of this procedure see Ledbetter, Mazer, DeGroot, Meyer, Mao, & Swafford, in press; Soliz & Harwood, 2006).

Summary

The primary purpose of this chapter was to explain the sampling and data collection procedures for this dissertation. This chapter described the participants, presented measures of teacher immediacy, teacher clarity, student interest, and student engagement and explained the methods of data analysis. The next chapter will report the results of this dissertation.
CHAPTER 5: PRIMARY STUDY RESULTS

This chapter reports the results of this dissertation. The chapter describes the measurement model and the structural model and addresses the hypotheses that were advanced in Chapter Two. Descriptive statistics, including means, standard deviations, and Pearson product-moment correlations for all variables included in the study are reported in Table 3.
Table 3

Descriptive Statistics and Pearson Product-moment Correlations for all Variables

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<td>15. E – Parcel 3(^b)</td>
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</table>

*Note.* TI = teacher immediacy. TC = teacher clarity. EI = emotional interest. CI = cognitive interest. E = engagement. All correlations are significant at *p* < .01. \(^a\) Responses solicited using a 5-point scale. \(^b\) Responses solicited using a 7-point scale.
Measurement Model

Consistent with standard two-step procedures for SEM (Kline, 2005), confirmatory factor analysis first evaluated the fit between the manifest indicators and their respective latent constructs. The measurement model demonstrated close model fit, $\chi^2(168) = 396.24, p < .01$, RMSEA = .051 (90% CI: .044-.057), NNFI = 0.98, CFI = 0.99, and examination of the modification indices did not suggest any necessary alterations to the model. Each of the indicators loaded well on their respective latent constructs, and thus, the final measurement model, which includes loadings for the indicators and the corresponding residuals, is provided in Table 4.
Table 4

Estimates for Lambda Loadings, Theta Epsilon Residuals, and Correlation Matrix among Indicators and Latent Constructs

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<tr>
<th>Latent Construct</th>
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</tr>
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<td>7. Engagement</td>
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<td>.62</td>
<td>.58</td>
<td>.14</td>
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Note. All factor loadings and latent correlation estimates are standardized and significant at $p < .01$. Excluded from this note are the relationships between the interaction terms and their first-order components, which are listed as .00.
Structural Model

The primary purpose of this dissertation was to test a process model of teacher communication, student emotional and cognitive interest, and engagement. After establishing close fit for the measurement model, the hypothesized regression paths in a structural equation model were tested (see Figure 2). The structural model demonstrated close fit, $\chi^2(178) = 463.51, p < .01$, RMSEA = .054 [90% CI = .048-.061], NNFI = .98, CFI = .98, but revealed the presence of one nonsignificant regression path. The trivial nature of a single nonsignificant path did not warrant model trimming as described by Kline (2005). The final structural model is illustrated in Figure 3.
Figure 3. Final structural model of communication, interest, and engagement.

Note. All parameter estimates are standardized.

**p < .01.

* p < .05.
**Teacher Immediacy and Clarity Main Effects**

Hypothesis one proposed that teacher immediacy would positively predict student emotional interest and research question one asked whether teacher immediacy would predict student cognitive interest. As expected, teacher immediacy positively predicted student emotional interest ($B = 0.68$, $\beta = 0.51$, $z = 7.85$, $p < .01$). Teacher immediacy also predicted student cognitive interest ($B = 0.43$, $\beta = 0.32$, $z = 5.25$, $p < .01$).

Hypothesis two stated that teacher clarity would positively predict student cognitive interest and research question two queried the relationship between teacher clarity and student emotional interest. Teacher clarity positively predicted student cognitive interest ($B = 0.55$, $\beta = 0.41$, $z = 7.14$, $p < .01$) and student emotional interest ($B = 0.27$, $\beta = 0.20$, $z = 3.72$, $p < .01$).

In sum, the final model revealed significant main effects between teacher immediacy and clarity and student emotional interest and cognitive interest.

**Decomposition of Teacher Immediacy and Clarity Interaction Effect**

Research questions three and four queried the nature of the relationship between the interaction of teacher immediacy and clarity and student emotional interest (RQ3) and student cognitive interest (RQ4). The interaction effect between teacher immediacy and teacher clarity significantly predicted student cognitive interest ($B = -0.13$, $\beta = -0.10$, $z = -2.67$, $p < .01$), but not student emotional interest ($B = 0.04$, $\beta = 0.03$, $z = -0.84$, $p > .05$). Together, the main and interaction effects explained 43.1% of the variance in emotional interest and 45% of the...
variance in cognitive interest.

To further probe the nature of the association between teacher immediacy and clarity and student cognitive interest, the interaction effect was decomposed using the method described by Cohen, Cohen, West, and Aiken (2003). Decomposition began by plotting the relationship between teacher immediacy and cognitive interest at three different levels of teacher clarity (i.e., at two standard deviations below the mean, at the mean, and at two standard deviations above the mean). That decomposition suggested further probing the interaction effect at an additional level of teacher clarity. Therefore, the relationship between teacher immediacy and cognitive interest at four different levels of teacher clarity was plotted (i.e., at two standard deviations below the mean, at the mean, at one standard deviation above the mean, and at two standard deviations above the mean). Figure 4 presents the results of this decomposition.
Though teacher immediacy positively predicts student cognitive interest when teacher clarity is low, increased levels of clarity weaken the strength of this association. Specifically, teacher immediacy significantly predicts student cognitive interest at two standard deviations below the mean ($B = 0.70$ [95% CI = 0.45:0.95], $\beta = .52$ [95% CI = .33:.71], $p < .01$), at the mean ($B = 0.43$ [95% CI = 0.27:0.59], $\beta = .32$ [95% CI = .20:.44], $p < .01$), and at one standard deviation above the mean ($B = 0.30$ [95% CI = 0.11:0.49], $\beta = .22$ [95% CI = .08:.36], $p < .01$); however, the association is nonsignificant at two standard deviations above the mean ($B = 0.17$ [95% CI = -0.09:0.42], $\beta = .12$ [95% CI = -.07:.31], $p > .05$).

Taken as a whole, these results suggest that, at low levels of clarity, immediacy appears to have a strong influence on cognitive interest. In essence, nonimmediate teachers can heighten student cognitive interest by engaging in clear teaching behaviors. Similarly, at low levels of clarity, immediacy can strongly impact cognitive interest. That
is, teachers can suppress the negative implications of unclear teaching by using immediacy to heighten students’ cognitive interest. Ideally, though, teachers should maximize the use of both immediacy and clarity behaviors to stimulate cognitive interest in students. As the graph indicates, the highest cognitive interest score was for students of teachers who were high in immediacy and clarity.

**Student Emotional and Cognitive Interest Main Effects**

Hypothesis three posited that student emotional interest would positively predict student engagement, whereas hypothesis four proposed that student cognitive interest would positively predict student engagement. The final model revealed significant main effects between student emotional interest and cognitive interest and engagement. As predicted, emotional interest ($B = 0.48$ [95% CI = 0.31:0.64], $\beta = .48$ [95% CI = .32:.65], $z = 5.77, p < .01$) and cognitive interest ($B = 0.17$ [95% CI = 0.01:0.32], $\beta = .17$ [95% CI = .01:.33], $z = 2.06, p < .05$) positively predicted student engagement.

**Decomposition of Student Emotional and Cognitive Interest Interaction Effect**

Research question five asked whether the interaction of student emotional interest and cognitive interest would predict student engagement. The interaction effect between emotional interest and cognitive interest significantly predicted student engagement ($B = 0.18$ [95% CI = 0.09:0.28], $\beta = .14$ [95% CI = .07:.21], $z = 3.69, p < .01$). To further examine the nature of the association between student emotional and cognitive interest and engagement, the interaction effect was decomposed. The relationship between student cognitive interest and student engagement at three different levels of student emotional interest was plotted (i.e., at two standard deviations below the mean, at the mean, and at two standard
deviations above the mean). Figure 5 presents the results of this decomposition.

![Figure 5. Decomposition of the interaction effect between student emotional interest and cognitive interest on student engagement.](image)

Though student cognitive interest inversely predicts student engagement when emotional interest is low, increased levels of emotional interest make more positive the association between cognitive interest and engagement. Specifically, student cognitive interest significantly predicts student engagement at two standard deviations below the mean ($B = -0.32$ [95% CI = -0.62: -0.02], $\beta = -0.33$ [95% CI = -0.64: -0.02], $p < .05$), at the mean ($B = 0.17$ [95% CI = 0.01: 0.32], $\beta = 0.17$ [95% CI = 0.01: 0.33], $p < .05$), and at two standard deviations above the mean ($B = 0.65$ [95% CI = 0.35: 0.95], $\beta = 0.67$ [95% CI = 0.36: 0.97], $p < .01$). Examination of the graph indicates that the regression lines converge at a cognitive interest value at more than two standard deviations below the mean. Solving the regression equations for this point of convergence reveals that it occurs when an individual’s cognitive interest score
is approximately 1.93 standard deviations below the mean. In other words, when an individual’s cognitive interest score approximates this point, that individual’s level of engagement will tend to be approximately .33 standard deviations below the mean (i.e., slightly below a mean response of 3, ‘Neutral’) regardless of that individual’s level of emotional interest.

Taken together, the findings suggest that students tend to be the least engaged at low levels of emotional interest and at high levels of cognitive interest. Low levels of emotional interest produced a significant decrease in engagement. Similarly, at low levels of emotional interest, cognitive interest does not appear to be as strongly associated with engagement than at average or high levels of emotional interest. The greatest engagement appears to occur when students experience high levels of emotional and cognitive interest.

**Indirect Effects**

In addition to direct effects on engagement, the model also leaves the possibility that teacher immediacy and teacher clarity indirectly predict engagement via emotional and cognitive interest. Sobel tests were conducted to assess indirect effects (Baron & Kenny, 1986; MacKinnon, Warsi, & Dwyer, 1995; Sobel, 1982). Sobel tests revealed significant indirect effects for teacher immediacy ($B = 0.39$ [95% CI = 0.28:0.51], $\beta = 0.30$ [95% CI = 0.26:.35], $p < .01$) and teacher clarity ($B = 0.22$ [95% CI = 0.12:0.32], $\beta = 0.17$ [95% CI = 0.12:.21], $p < .01$).

The results suggest that student emotional interest mediates the relationship between teacher immediacy and student engagement and teacher clarity and engagement. Cognitive interest, on the other hand, mediates only the relationship between teacher
clarity and student engagement. The interaction effect of teacher immediacy and clarity failed to emerge as a significant indirect predictor of engagement ($B = -0.04$, $95\% \text{ CI} = -0.10$ to $0.02$, $\beta = -0.03$, $95\% \text{ CI} = -0.08$ to $0.01$, $p > .05$). A summary of the indirect effects is provided in Table 5. Positioning student emotional interest and cognitive interest as mediators of teacher communication and student engagement, the final structural model accounted for substantial variance in engagement ($R^2 = .42$). Together, the direct and indirect effects explained 42% of the variance in student engagement.

Table 5

Sobel Tests for Indirect Effects

<table>
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<th>$B$</th>
<th>$SE$</th>
<th>95% CI (Lower, Upper)</th>
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<td>.07</td>
<td>.18, .46**</td>
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<tr>
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<td>.04</td>
<td>-.01, .15</td>
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<tr>
<td>Teacher Clarity $\rightarrow$ Emotional Interest $\rightarrow$ Engagement</td>
<td>.13</td>
<td>.04</td>
<td>.05, .21**</td>
</tr>
<tr>
<td>Teacher Clarity $\rightarrow$ Cognitive Interest $\rightarrow$ Engagement</td>
<td>.09</td>
<td>.05</td>
<td>.01, .19*</td>
</tr>
<tr>
<td>TI X TC $\rightarrow$ Emotional Interest $\rightarrow$ Engagement</td>
<td>-.02</td>
<td>.02</td>
<td>-.06, .02</td>
</tr>
<tr>
<td>TI X TC $\rightarrow$ Cognitive Interest $\rightarrow$ Engagement</td>
<td>-.02</td>
<td>.01</td>
<td>-.04, .00</td>
</tr>
</tbody>
</table>

Note. **$p < .01$; * $p < .05$. CI = Confidence Interval.

Summary

This chapter reported the results of this dissertation. The chapter described the measurement model and the structural model and addressed the hypotheses that were advanced in Chapter Two. Interaction effects were decomposed and indirect effects were
discussed. The next chapter discusses the findings of this study within the context of prior theory and research.
CHAPTER 6: DISCUSSION

This chapter outlines the findings of this dissertation and discusses them within the context of prior theory and research. Theoretical and pedagogical implications are offered. The limitations of the study and areas for future research are also outlined.

Summary of Findings

The primary purpose of this dissertation was to test a process model of teacher communication behavior, student interest, and engagement. The results support this model and suggest that teacher communication behaviors, such as immediacy and clarity, can arouse students’ interest. Immediacy behaviors such as smiling, moving close to and making eye contact with students, and using warm vocal cues and personalized examples can energize students, stimulate emotional and cognitive interest, and engage students so that they pay more attention to course content and learn more. The findings suggest that immediacy appears to more strongly predict student emotional interest ($\beta = .51$) when compared to cognitive interest ($\beta = .32$), a finding that is consistent with emotional interest theory (Harp & Mayer, 1997).

Teachers can use clarity behaviors by previewing and reviewing main points of a lesson, defining major concepts, providing relevant examples, and creating appropriate linkages among concepts and examples. In this manner, teachers can heighten cognitive and emotional interest in students by focusing their selective attention on relevant information and assisting them in building internal connections among content. Results indicate that teacher clarity appears to be a stronger predictor of student cognitive interest ($\beta = .41$) than it does of emotional interest ($\beta = .20$), a finding consistent with cognitive
interest theory (Harp & Mayer, 1997). Overall though, this process can lead students to experience heightened interest and, subsequently, higher levels of engagement and learning. In the final structural model, student emotional interest ($\beta = .48$) functioned as a stronger predictor of engagement when compared to cognitive interest ($\beta = .17$), a finding that points toward the importance of student enthusiasm, connection, and interest toward a course and its content.

This study also examined the interaction of teacher immediacy and clarity and its impact on student interest. Compelling evidence from prior research points in favor of the additivity hypothesis (Chesebro, 2003; Comadena, Hunt, & Simonds, 2007; Titsworth, 2001b), a proposition that both clarity and immediacy are positive teaching behaviors and that students will benefit most when both are present. To date, virtually no studies that directly test interactions between immediacy and clarity have found that students’ achievement suffers in high immediacy conditions.

In this study, the interaction effect between teacher immediacy and clarity predicted student cognitive interest, but not emotional interest. The findings provide additional evidence in support of the additivity hypothesis. Ideally, teachers should maximize the use of both immediacy and clarity behaviors to stimulate cognitive interest in students. As the results suggest, the highest cognitive interest score was for students of teachers who worked to balance immediacy and clarity in their teaching. Examining the interaction effect more closely, the findings suggest that, at low levels of clarity, immediacy appears to have a strong influence on cognitive interest. That is, nonimmediate teachers can stimulate student cognitive interest by engaging in clear
teaching behaviors. Similarly, at low levels of clarity, immediacy can strongly impact cognitive interest. That is, teachers can suppress the negative implications of unclear teaching by using immediacy to heighten students’ cognitive interest. Taken together, there are three primary findings that shed important light on the immediacy and clarity interaction. First, teachers who maximize the use of immediacy and clarity behaviors will stimulate cognitive interest in students. Second, teachers who may be low in immediacy can still heighten student cognitive interest by using clarity behaviors in the classroom. In essence, clear teaching can soften the potential negative impact of nonimmediate teaching. Third, teachers who are low in clarity can use immediacy to diminish the possible negative consequences of unclear teaching. That is, teachers who struggle to present information in clear and concise ways can still promote student cognitive interest by engaging in immediacy behaviors. Overall, results suggest that the importance of clear and immediate teaching bears stronger implications for students’ cognitive interest in course material, their ability to recall class content, and their perceptions of the utility of the course information, than it does for their emotional interest, their fascination with the course, and their enthusiasm for the class experience.

Student emotional interest and cognitive interest are both positive experiences that result in important benefits for students. Much like teacher immediacy and clarity, results suggest that a combination of emotional and cognitive interest can yield the greatest student engagement. Although scholars have examined the direct effects of emotional and cognitive interest on student learning (Harp & Mayer, 1997; Titsworth, 2001b), prior research has not explored how the two variables work together to influence student
engagement. The findings from this dissertation indicate a significant interaction effect for emotional and cognitive interest on student engagement. In particular, the findings reveal that the highest levels of engagement tend to occur when students experience high levels of emotional interest and cognitive interest. If the findings from this dissertation suggest that high levels of emotional and cognitive interest lead to the greatest engagement, one might subsequently conclude that low levels of both emotional and cognitive interest would lead to the least amount of engagement. In the present study, this is not the case. Decomposition of the interaction effect reveals that students tend to be the least engaged at low levels of emotional interest and at high levels of cognitive interest. Inspecting the interaction effect further, students who experienced low levels of emotional interest, appeared to be more engaged at low levels of cognitive interest than at high levels of cognitive interest. Said another way, cognitive interest seems to lead to less engagement at low levels of emotional interest than it does at average or high levels of emotional interest. In essence, emotional interest appears to make more positive the association between student cognitive interest and engagement, a finding that underscores the salience of student emotion in the classroom.

Constellations of emotion serve as pervasive, and at times, potent aspects of life in the classroom (Palmer, 1998). Just as it is nearly impossible to experience a class session that is free of emotion, it is nearly impossible to live a day that is free of emotion. Research suggests that emotions specifically related to students’ academic experiences are significantly related to student motivation, learning, and academic achievement (Pekrun, Goetz, Titz, & Perry, 2002). The absence of emotional interest appears to
diminish the positive association between cognitive interest and engagement. The findings point toward an ideal scenario where heightened levels of both emotional and cognitive interest can function simultaneously to influence student engagement.

This dissertation also revealed the presence of indirect effects for the relationship between teacher communication, student interest, and engagement. Contrary to Kelly and Gorham (1988), who argued for a direct relationship between teacher immediacy and student learning, the findings from this dissertation suggest that same relationship is mediated by student emotional interest. Similar indirect effect findings were reported in prior research by Christophel (1990) and Rodriguez, Plax, and Kearney (1996) who respectively argued for the presence of motivation and affective learning as mediators. In the present study, emotional interest also emerged as a mediator of teacher clarity and student engagement. Exploring the potential indirect effects of emotional interest, motivation, and affective learning in one study can prove useful to determine which variable serves as the strongest mediator of the communication, engagement, and learning relationship.

Students’ cognitive interest, on the other hand, mediated the relationship between teacher clarity and student engagement, but not teacher immediacy and engagement. Taken together, these findings further clarify what some scholars have labeled a blurred relationship between teacher communication and student engagement and learning (Hess, Smythe, & Communication 451, 2001). Additionally, these findings serve as a useful foundation for research that assesses the presence and magnitude of variables that might potentially mediate the communication-learning relationship (Christophel, 1990;
The secondary purpose of this dissertation was to develop and validate measures of student interest and student engagement. Interest, in particular, is an enduring characteristic that leads to greater student engagement and learning (Bruner, 1960/1977). Theoretically rich, the study of student interest has been notably absent from the instructional communication literature. Instead, scholars have for decades devoted attention to the study of student cognitive learning and, at times, have struggled with operationalizing the construct (McCroskey, Sallinen, Fayer, Richmond, & Barraclough, 1996; Richmond, Gorham, & McCroskey, 1986; Richmond, McCroskey, Kearney, & Plax, 1987). Objective exams, tests of recall, course grades, class attendance and participation, and students’ self-reported estimates of perceived learning are subject to a host of limitations that pose practical challenges for researchers. Despite the criticisms that have been leveled against the measurement of cognitive learning (Hess, Smythe, & Communication 451, 2001), recent research has continued to utilize these mechanisms to assess learning (Comadena, Hunt, & Simonds, 2007; King & Witt, 2009).

Student interest, on the other hand, has been regarded as an emotion that “pulls” students toward a subject matter and allows them to develop meaningful personal connections to a particular field of study (Bruner, 1960/1977). This dissertation has developed and initially validated measures of student interest and engagement. These instruments, which were created using guiding theoretical frameworks and students’ open-ended responses, achieved high reliability estimates and performed well in exploratory and confirmatory factor analyses across a series of studies. Although...
additional validity work is necessary, these measures can now be utilized to explore
interest as a theoretically rich construct that emphasizes for students the formation of
meaningful long term connections to a specific subject matter.

Theoretical Implications

Since communication scholars first acknowledged the importance of
communication in the teaching and learning process (Scott & Wheeless, 1977), research
in this area has flourished. Although much of the early research focused on individual
differences among students (e.g., communication apprehension, McCroskey, 1977),
recent research has focused on how teachers approach communication in the classroom
(Mazer & Hunt, 2008a, 2008b; Mazer, Murphy, & Simonds, 2007; Mottet, Richmond, &
McCroskey, 2006). Unfortunately, the decades of research in this arena has yielded no
clear theory of instructional communication. Implicit theories and general models,
however, have been proposed and serve to synthesize the findings of past research
(McCroskey, Valencic, & Richmond, 2004; Mottet & Beebe, 2006). The operational
model developed and tested in this dissertation drew upon emotional interest theory and
cognitive interest theory to explain how communication, interest, engagement, and
learning function in the teaching and learning process (Harp & Mayer, 1997).

Future instructional communication research must devote further attention to
developing systemic theories of classroom communication. Having emerged from
educational psychology research, emotional interest theory and cognitive interest theory
provided an important theoretical foundation for this study. Notably though, the results of
this dissertation extend the propositions set forth in those theories to include actual
classroom communication behavior, in addition to interest adjuncts that might appear in textual material (Harp & Mayer, 1997, 1998). The final structural model advanced in this dissertation provides a visual and statistical explanation for how teacher behaviors can influence student outcomes in the classroom. Findings suggest that teacher immediacy and clarity and student emotional and cognitive interest can serve as vital components of a theory of classroom communication. Rather than having simple effects on student engagement and learning, the results of this dissertation suggest that teacher immediacy and clarity interact to influence student interest. Findings also reveal that the impact of emotional interest and cognitive interest on engagement is more complex than a simple main effect. The interaction of emotional and cognitive interest, coupled with the interaction of teacher immediacy and clarity, can be utilized to expand our current theoretical explanation of classroom communication and how students process information in the classroom.

To facilitate information processing as part of meaningful learning, scholars argue that students require a meaningful structure of familiar ideas to facilitate the organization and assimilation of new incoming material (Mayer, 1975; Mayer & Greeno, 1972). Introduced in the field of psychology by Crockett (1965), cognitive complexity refers to the relative number of constructs in an individual’s interpersonal construct system. That is, people with differentiated, abstract, and organized systems of constructs are considered cognitively complex. Scholars have argued that cognitive complexity is best understood as an information processing variable (Burleson & Caplan, 1998). Individuals
with developed construct systems have greater information processing capacity in a specific domain and therefore have greater expertise in that domain.

Burleson and Caplan (1998) synthesized years of expert-novice research and concluded that, on an assortment of information processing tasks, experts are better able to: (a) develop detailed and discriminating representations of phenomena (Lurigio & Carroll, 1985), (b) recall information from memory quickly (Smith, Adams, & Schorr, 1978), (c) organize information rapidly (Pryor & Merluzzi, 1985), (d) notice, recall, and use schema-inconsistent information (Bargh & Thein, 1985; Borgida & DeBono, 1989), and (e) resolve differences between schema-consistent and schema-inconsistent information (Fiske, Kinder, & Larter, 1983). In essence, cognitive complexity might reflect individual differences in students’ information processing capacity. That is, students with highly developed systems of constructs might be better able than students with less developed systems to acquire, store, retrieve, organize, and generate information about a specific content area.

In the classroom context, the way in which teachers communicate can notably impact student information processing and learning. For instance, clear teaching can assist students in processing course material more efficiently. Teachers who preview lectures, provide transitions between main ideas, and make clear connections between examples and course content can assist students in transferring their learning to practical situations, provide students with the opportunity to build connections among course topics, and heighten interest toward a class. Similarly, teacher immediacy can emotionally engage students, allow them to feel connected to learning situations, and
stimulate interest for the course and its content. Cognitively complex students might be better able to take advantage of immediate and clear teaching behaviors, and accordingly, those same students would be more likely to experience emotional and cognitive interest in a course. Combined, these experiences lead students to become more engaged in their learning.

Considering issues of emotional interest and cognitive interest, Bloom’s (1956) affective and cognitive domains of learning likely work in concert to explain a process whereby students move from becoming novice learners to more advanced learners. Simultaneously, this process represents the evolution of learners becoming more cognitively complex as they engage in information processing throughout the duration of a course. Collectively, immediate and clear teacher behaviors can stimulate emotional and cognitive interest in students and lead them to become more engaged in their learning as they process important course information, and at the same time, become more cognitively complex individuals. In concert with information processing, the theoretical underpinnings of cognitive complexity can offer a processual perspective to the study of student learning in instructional communication research.

Pedagogical Implications

Data reported by the National Center for Educational Statistics reveal that only 73% of high school freshmen graduate within four years; for those who enter college, only 55% attain a bachelor’s degree and just over 18% leave postsecondary education altogether (National Center for Educational Statistics, 2009). Although multiple factors undoubtedly contribute to academic risk, negative emotions and the lack of interest
associated with learning could be a substantial reason for students’ disengagement, withdrawal, and failure in school (see Skinner, Furrer, Marchland, & Kindermann, 2008).

Like Bruner (1960/1977), many teachers may hold strong to the belief that student motives for learning must be based as much as possible on the arousal of interest. Fortunately, findings from this dissertation suggest that teacher immediacy and clarity behaviors can work to enhance student emotional and cognitive interest. This heightened degree of interest can then lead students to become more engaged in the learning process. However, the results related to teacher behaviors and student outcomes must be interpreted within the context of prior research that has examined communication in the classroom. From these interpretations stem practical pedagogical implications that can benefit classroom teachers and their students.

Prior research proposes a curvilinear relationship between teacher immediacy and student cognitive learning and assumes this relationship is best typified as an inverted U (Comstock, Rowell, & Bowers, 1995). That is, extremely low and extremely high levels of teacher immediacy result in low levels of student learning. In other words, a teacher’s use of excessive immediacy behaviors will lead to high levels of arousal, which in turn, debilitates a student’s ability to pay attention (Easterbrook, 1959; Smith, 1982) and process information (Greene, 1988). In the case of the Dr. Fox experiments, Naftulin, Ware, and Donnelly (1973) found that an entertaining and charismatic teacher, who intentionally communicated nonsense in his lecture, received high evaluations from an audience. They concluded that the teacher’s personality can “seduce” students into the illusion of having learned, even when the lecture lacked the necessary educational
content (for similar findings, see also research by Abrami, Leventhal, & Perry, 1982; Perry, Abrami, & Leventhal, 1979; Ware & Williams, 1975). In the case of the present study, does this same trend hold true for teacher immediacy and student interest?

The teaching and learning process itself can indeed raise many questions for teachers. Similar to the case of teacher immediacy, what amount of interest leads to the greatest engagement and learning for students? Bruner (1960/1977) argued that:

Somewhere between apathy and wild excitement, there is an optimum level of aroused attention that is ideal for classroom activity. What is that level? Frenzied activity fostered by the competitive project may leave no pause for reflection, for evaluation, for generalization, while excessive orderliness, with each student waiting passively for his turn, produces boredom and ultimate apathy. There is a day-to-day problem here of great significance. Short-run arousal of interest is not the same as the long-term establishment of interest in the broader sense. (p. 72)

Without a doubt, an ideal level of student interest is difficult, if not impossible, for students to achieve and for teachers to assess. Specific immediacy behaviors such as using vocal variation and making eye contact with students in the class may produce beneficial short term effects for students. In terms of teacher clarity, PowerPoint presentations and video clips can stimulate “short-run” interest for students and likely have important short-term effects (Bruner, 1960/1977). But, what might a teacher do to establish “long-term” interest that is more inclined to have lasting effects on students?

Bruner noted that “the teacher is not only a communicator but a model. Somebody who does not see anything beautiful or powerful about mathematics is not likely to ignite
others with a sense of the intrinsic environment of the subject” (p. 90). Through immediacy, teachers can convey their excitement with the subject matter and take an important step to ignite long-term interest in students. As this dissertation suggests, immediacy has a meaningful impact on students’ emotional and cognitive interest. Important to the discussion, however, is when students might benefit most from a teacher who utilizes immediacy in the classroom. Considering students’ developmental levels, students in elementary classrooms likely benefit from a teacher’s energy and sense of enthusiasm, whereas students in late middle school and high school, and in large university courses, may perform equally well with a nonimmediate teacher. At the university level, teachers of large lecture courses might have to expend greater efforts to exhibit immediacy in the classroom as the nature of the course tends to increase the proximal distance between the teacher and students. Alternatively, teachers who lead small seminar courses likely do not have to go to great lengths to exhibit immediacy.

Although immediacy might initially function to secure student attention, its consistent use can create a classroom environment where students are comfortable, willing to participate, and free to approach the instructor with course questions and concerns. Immediacy might be part of a large repertoire of teacher behaviors that functions to stimulate long lasting student interest and create an environment that increases the likelihood of learning and success.

Teachers in multi-cultural classrooms should cautiously interpret the findings from this dissertation as immediacy has been shown to function differently in those contexts (Collier & Powell, 1990; Fayer, Gorham, & McCroskey, 1993). In particular,
Collier and Powell (1990) found that European American, Hispanic American, African American, and Asian American students each evaluated teacher immediacy differently. Without a doubt, these findings add to the complexities that surround a teacher’s use of immediacy in any classroom, regardless of size, educational level, and culture. Much like immediacy, teacher clarity behaviors subsume degrees of complexity that deserve mention within the context of this dissertation.

Specific clarity behaviors studied in programs of research (e.g., organizational cues, Titsworth, 2001b) may not substantively contribute to student interest, as the findings can point to the complexities surrounding the use of clarity in the classroom. Interest resulting from organizational cues might be mediated by students’ perceptions of teacher clarity and may not fully capture the essence of cognitive interest. Other elements of clarity such as using examples might have a greater impact on interest than organizational cues alone. In other words, clear teaching might feature a range of behaviors that teachers and students jointly utilize as part of the process of clarity. Therefore, a process-oriented view of clarity might be beneficial for teachers who seek to heighten student interest.

Starting with Bruner (1960/1977) and continuing with Civikly (1992) and Simonds (1997), scholars have noted that clear teaching occurs when teachers and students negotiate meaning through communication. For Bruner, this process begins when teachers select material and translate key principles of that material to knowledge structures appropriate to the developmental stage of the student. Civikly and Simonds expand this notion to include processes where students and teachers engage in various
clarifying behaviors like asking questions, reexplaining, and using additional explanation to elaborate on meaning. Consistent across these perspectives, is the role of the process of using clarity in the classroom.

Bruner’s (1960/1977) process-oriented view of instruction offers an important framework for understanding how teachers can effectively use clarity behaviors in the classroom. Bruner argued that effective instruction results from a process where teachers select learner-centered ways of structuring information. By learner-centered, Bruner suggested that knowledge must be translated for the student into easily understandable principles; the specificity and transferability of the principles increases as the learner moves along a continuum of novice to expert. For example, when teaching young children the principles underpinning the solar system, the principle might simply be that the planet Earth is part of the solar system. For older students, the principle might emphasize the characteristics of each of the planets in the solar system. For Bruner, the key issue is translation. His postulate that, “any subject can be taught in some intellectually honest form to any child at any stage of development” (p. 33), rests on the assumption that the teacher must find ways to adapt complex knowledge to the specific stage of development present in the student. Thus, clarity, or structuring, is a matter of guiding learners from where they are currently to where they need to be. These clarity behaviors can then stimulate in students interest in the course material and lead them to be more engaged in their learning. That is, if the course content is made clear for students, and students perceive the utility of the information, students are more inclined to experience heightened levels of interest and be more engaged in the learning process.
Limitations and Suggestions for Future Research

Overall, the results of this dissertation explain how teacher communication, student interest, and student engagement function in the teaching and learning process. Despite the contributions of this research, however, the results should be interpreted with caution given the inherent limitations of the research design. Although studies may find statistically significant results that affirm their hypotheses, no study is without limitations.

First, the use of self-report methods warrants caution, as does the nonexperimental design of the research. Statements of causality based on the results of statistical techniques useful for making causal inferences, such as structural equation modeling, must be treated with caution given the correlational data analyzed in this dissertation. Though it is tempting to make causal inferences from analytic methods that model endogenous and exogenous variables, the cross-sectional (or nonexperimental) nature of the data necessitates caution. Future research might address these limitations by conducting full experiments with random samples of students across different educational levels to examine the impact that teacher communication behavior might have on student interest and engagement.

Second, the homogenous sample (e.g., predominantly white, undergraduate students) might lead one to cautiously interpret the findings of this dissertation. Future research might consider how teacher communication and student interest and engagement function in elementary, high school, and college classrooms. Equally important to each of these educational levels, students’ perceived control on their engagement and academic
performance can play an important role in the teaching and learning process. Generally speaking, perceived control refers to a student’s perception as to whether or not they have control over their academic successes and failures. When children believe that they can exercise control over their success in school, they perform better on cognitive tasks (Skinner, Wellborn, & Connell, 1990). A teacher’s behavior toward students has been labeled an important determinant of children’s perceived control, which then has possible effects on engagement and school performance (Skinner, 1985). Future research might address how students’ perceived control might contribute to the developmental characteristics of interest, engagement, and learning across educational levels, and at the same time, broaden the scope of commonly utilized undergraduate student samples.

Furthermore, scholars might consider exploring the relationship between teacher communication, student interest, and more traditional achievement outcomes such as course grades and tests of recall. Studies in this area can illustrate how emotional and cognitive interest can influence cognitive learning outcomes for students.

Third, even though the interest and engagement instruments developed for this dissertation fared well in exploratory and confirmatory factor analyses and demonstrated robust scale reliabilities, the instrument could be further improved and scrutinized. Individual items might require revision to correct for redundancies in wording (see factor two of the engagement scale). Subjecting the instrument to Horn’s (1965) Parallel Analysis, which compares random data to the data collected in order to identify which factors emerge as having higher eigenvalues than the random data, would help to build evidence supporting the factor structure of the instrument. In addition, the survey
instrument should be compared to existing measures which have some degree of conceptual overlap with the interest and engagement scales. For instance, comparing the interest and engagement scales to the affective learning scale (Andersen, 1979), motivation scale, (Christophel, 1990), and Learning Indicators Scale (Frymier & Houser, 1999) would suggest potential similarities and differences and provide evidence about the concurrent validity (DeVellis, 2003; deVaus, 2001; Frey et al., 2000) of the measures. Moreover, subjecting the interest and engagement scales to a multi-trait, multi-method analysis would be a useful next step in expanding the construct validity evidence for the instruments (Campbell & Fiske, 1959).

Fourth, researchers might also examine how student emotional and cognitive interest develops over time. Longitudinal structural equation modeling can offer a series of time-sequenced snapshots of how student interest develops (or diminishes) over the course of a semester or longer (Farrell, 1994). If interest evolves over the course of students’ educational careers, the resulting theoretical and pedagogical implications of interest would be enhanced. Examining how interest develops and evolves across students’ experiences, in individual classes, or across specific subject matters and majors would further our knowledge of its role in teaching and learning. Such research endeavors would permit an evaluation of the process of teaching and learning, rather than a single snapshot of students’ interest. Therefore, future investigations might seek to ascertain how interest might develop or diminish over time.

Finally, qualitative data can be used to explore, in students’ own words, the development of interest. For instance, open-ended questions could provide a rich source
of data about students’ perceptions of interest, engagement, and learning. Schuman and Presser (1979) argued that open-ended questions are useful in discovering spontaneous and original responses, and providing a realistic picture of participants’ attitudes, beliefs, and experiences. Although the final structural model of communication, interest, and engagement provides a useful starting point as this line of research moves forward, qualitative evidence could further clarify the relationships between teacher immediacy and clarity and student interest, engagement, and learning. In a similar vein, in-depth interviews with students would provide greater insight into the evolution or deterioration of interest, and classroom ethnographic observations might prove useful in identifying verbal and nonverbal indicators of student interest in a particular class and its content area.

Advancing recommendations for much needed research, Bruner (1960/1977) chiefly claimed:

Principal among these were increasing the inherent interest of material taught, giving the student a sense of discovery, translating what we have to say into the thought forms appropriate to the child, and so on. What this amounts to is developing in the child an interest in what he is learning, and with it an appropriate set of attitudes and values about intellectual activity generally. (p. 73)

Explicit in the process-oriented perspective of Bruner (and others) is the notion that clarity is achieved through ongoing sequences of communication between teachers and students. Unfortunately, few studies exist to help us understand that process. And, although a diversity of students have been represented in clarity studies (e.g., students
ranging from young elementary students to college students), little if any work has attempted to understand how the process of clarity differs across situations involving students at different developmental levels (see Mottet, Garza, Beebe, Houser, Jurrells, & Furler, 2008 for a notable exception). Obviously, what constitutes clear teaching for elementary students would likely be inappropriate for advanced college students. As a result, students at these varied educational levels would likely experience mixed degrees of interest. Additional work exploring the developmental process of clarity would meaningfully expand our understanding of how clarity and interest function in the teaching and learning process. That research, then, can yield additional advice for teachers who might take a process-approach to communication in the classroom.

Conclusion

Teachers are, according to Bruner (1960/1977), communicators, immediately personal symbols of the educational process, and figures that can ignite in students an interest for a particular subject area. In many ways, this dissertation has emphasized the role of the teacher in the teaching and learning process. Teachers have in their arsenals a repertoire of behaviors that can positively impact students in ways that have immediate and long lasting effects on learning. Among them, immediacy and clarity are two such behaviors that can have substantive effects on student interest, engagement, and learning and promote a classroom environment where emotional and cognitive interest can flourish.

Bruner (1960/1977) noted that “it takes no elaborate research to know that communicating knowledge depends in enormous measure upon one’s mastery of the
knowledge to be communicated” (p. 88). Although sophisticated research designs with ground-breaking conclusions are not needed to substantiate this claim, studies that further explore how a teacher communicates his or her mastery of the subject matter can make noteworthy contributions to the corpus of research in the areas of student interest, engagement, and learning.
REFERENCES


Ware, J. E., & Williams, R. G. (1975). The Dr. Fox effect: A study of lecturer effectiveness and ratings of instruction. *Journal of Medical Education, 50*, 149-156.


Dear Ohio University Student:

You are invited to participate in a study that examines what you think about teacher classroom communication. As college students who interact with many teachers on a daily basis, I hope that you will be willing to contribute to my research by providing important information about how you react to specific forms of teacher communication. As an added bonus, you will have the chance to win one of four $20 gift certificates from amazon.com by filling out the survey!

You will be asked to complete a brief online survey. It will take approximately 10-15 minutes to fill out the survey and your responses will remain anonymous.

In the next three days, be on the lookout for your special invitation in a separate e-mail that contains a link to the survey and detailed instructions on how to participate in this project. Thank you for your time and interest in my study. I am looking forward to your participation in this project!

Respectfully,

Joseph P. Mazer
School of Communication Studies
Ohio University
Dear Ohio University Student:

Three days ago, you were invited to participate in my study examining what you think about teacher classroom communication. This email provides important information on how to win one of the four $20 gift certificates from amazon.com by filling out the survey!

As college students who interact with many teachers on a daily basis, I hope that you will be willing to contribute to my research by providing important information about how you react to specific forms of teacher communication. The survey will take approximately 10-15 minutes to complete. Your email address will not be associated with this survey in any way, so you can be confident that your responses will remain anonymous. To determine the winners of the gift certificates, four email addresses will be randomly drawn from participating students without associating them with the surveys. You will be notified via email within a few weeks if you won a $20 gift certificate.

There are no anticipated risks or discomforts associated with this project. The results of this research will help researchers to better understand the communication that occurs between teachers and students. Consequently, future students will benefit from this study.

This link will take you to the consent form which will explain your rights as a research participant: [insert link here]

Your participation in the study is completely voluntary. After you have read the Informed Consent Form, you will then need to click the “CONTINUE” button to be directed to the survey.

Thank you for your time and interest in my study. I am looking forward to your participation in this project! If you have any questions regarding this study, please contact me at jm161106@ohio.edu.

Respectfully,

Joseph P. Mazer
School of Communication Studies
Ohio University
APPENDIX C: THIRD EMAIL TO PARTICIPANTS

Dear Ohio University Student:

About one week ago, you were invited to participate in my study examining what you think about teacher classroom communication. I wanted to let you know that there is still time to complete a survey to have a chance at winning one of four $20 gift certificates from amazon.com! If you already completed the survey, please disregard this email message. This is the final message you will receive about completing this survey.

As college students who interact with many teachers on a daily basis, I hope that you will be willing to contribute to my research by providing important information about how you react to specific forms of teacher communication. The survey will take approximately 10-15 minutes to complete. Your email address will not be associated with this survey in any way, so you can be confident that your responses will remain anonymous. To determine the winners of the gift certificates, four email addresses will be randomly drawn from participating students without associating them with the surveys. You will be notified via email within a few weeks if you won a $20 gift certificate.

There are no anticipated risks or discomforts associated with this project. The results of this research will help researchers to better understand the communication that occurs between teachers and students. Consequently, future students will benefit from this study.

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Thank you for your time and interest in my study. I am looking forward to your participation in this project! If you have any questions regarding this study, please contact me at jm161106@ohio.edu.

Respectfully,

Joseph P. Mazer
School of Communication Studies
Ohio University
APPENDIX D: SURVEY

Classroom Communication Survey

For a chance to win one of four $20 gift certificates to amazon.com, you will record your first and last name and OU email address at the end of this survey. All answers on this survey will remain confidential.

First, we would like to get some information about you. Your answers to these questions will help us better understand the opinions you express in other sections of this questionnaire. Please answer the following questions about yourself.

1. **What is your age? _____**

2. **What is your sex? _____ Male _____ Female**

3. **What is your ethnic background/race?**
   - _____ African American/Non-Hispanic
   - _____ Caucasian/Non-Hispanic
   - _____ Hispanic
   - _____ Asian/Pacific Islander
   - _____ American Indian/Alaskan Native
   - _____ Other (Please specify: _____________________________)

4. **What is your year in school?**
   - _____ Freshman _____ Sophomore _____ Junior _____ Senior

Next, you will be answering questions about a “target instructor.” We ask that you identify the **first class** that you attend each week where you have the opportunity to **interact with the teacher**. Select a teacher of a **smaller class** (30 students or less). This is your target teacher.

So we can determine the characteristics and number of different target teachers people picked, please answer a few questions about the teacher and the class. All answers will remain confidential.

5. **What is the teacher’s sex? _____ Male _____ Female**

6. **Is the teacher a graduate student? _____ Yes _____ No _____ I don’t know**

7. **What is the course topic?** (For example, chemistry, biology, philosophy, etc.)

8. **On what day does your class meet?** (e.g., MW, TR, etc.) __________
9. **What time?** (e.g., 10-12pm) __________

10. **What is your best guess on the number of people in the class?** __________

11. **Is this class?** _____ Mostly lectured oriented _____ Mostly discussion oriented

12. **Is this class?** _____ Gen Ed (i.e., a Tier class) _____ Course for Minor/Second Major _____ Course for Major Other: ____________________

Below are several questions describing the behaviors of your TARGET TEACHER in your TARGET CLASS. Please answer the following questions about the instructor that you told us about above. We are interested in learning about how that instructor conducts a typical class period. For each item, check the number 1 to 5 that best represents your perception of that instructor.

**TEACHER IMMEDITACY**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Never</td>
<td>2</td>
<td>Rarely</td>
<td>3</td>
<td>Occasionally</td>
</tr>
</tbody>
</table>

13. The teacher sits/stands behind the desk or lectern while teaching.
   1 2 3 4 5

14. The teacher gestures while talking to the class.
   1 2 3 4 5

15. The teacher uses a dull/monotone voice while talking to the class.
   1 2 3 4 5

16. The teacher looks at the class while talking.
   1 2 3 4 5

17. The teacher smiles at the class while talking.
   1 2 3 4 5

18. The teacher has a very tense body position while talking to the class.
   1 2 3 4 5

19. The teacher moves around the classroom while teaching.
   1 2 3 4 5

20. The teacher sits on a desk or chair while teaching.
   1 2 3 4 5

21. The teacher looks at the board, visual materials, or notes while teaching.
   1 2 3 4 5
22. The teacher stands behind a desk or podium while teaching.
   1  2  3  4  5

23. The teacher has a very relaxed body position while talking to the class.
   1  2  3  4  5

24. The teacher smiles at individual students in the class.
   1  2  3  4  5

25. The teacher uses a variety of vocal expressions while talking to the class.
   1  2  3  4  5

**TEACHER CLARITY**

| 1 | Strongly Disagree | 2 | Disagree | 3 | Neither Agree or disagree | 4 | Agree | 5 | Strongly Agree |

26. The teacher verbally stresses important issues presented in the lecture.
   1  2  3  4  5

27. Written examples of topics covered in the lecture were provided to the class in the form of handouts or visual materials (e.g., powerpoint, overheads, or chalkboard).
   1  2  3  4  5

28. The organization of the lecture was given to me in written form, either on paper or as part of a visual aid like an overhead or the chalkboard.
   1  2  3  4  5

29. The teacher tells us what definitions, explanations, or conclusions are important to make note of.
   1  2  3  4  5

30. The teacher explains how we are suppose to see relationships between topics covered in the lecture.
   1  2  3  4  5

31. The teacher provides us with written descriptions of the most important things in the lecture.
   1  2  3  4  5

32. The teacher explains when she/he is presenting something that is important for us to know.
   1  2  3  4  5
33. The teacher provides us with written or visual definitions, explanations, or conclusions of topics covered in the lecture.

1 2 3 4 5

34. The teacher verbally identifies examples that illustrate concepts we are suppose to learn from the lecture.

1 2 3 4 5

35. Written explanations of how ideas in the lecture fit together are presented on the chalkboard, overhead, PowerPoint, or in handouts.

1 2 3 4 5

36. The teacher explains when he/she is providing an important definition or explanation of a concept.

1 2 3 4 5

37. Handouts, the chalkboard, overheads, or PowerPoint is used to emphasize important issues addressed in the lecture.

1 2 3 4 5

**INTEREST**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neither Agree or disagree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

I am interested in this class because…

38. …I understand the course material

1 2 3 4 5

39. …Overall, my classmates help me remain interested in this class

1 2 3 4 5

40. …The class makes me feel excited

1 2 3 4 5

41. …I can remember the course material

1 2 3 4 5

42. …Being in the class is enjoyable

1 2 3 4 5

43. …I can understand the flow of ideas

1 2 3 4 5
44. …The topics covered in the course fascinate me
   1  2  3  4  5

45. …Overall, this teacher interests me
   1  2  3  4  5

46. …The information in the course is useful
   1  2  3  4  5

47. …I feel enthused about being in class
   1  2  3  4  5

48. …I realize what is expected of me
   1  2  3  4  5

49. …It is an easy A
   1  2  3  4  5

50. …The material fascinates me
   1  2  3  4  5

51. …I feel like I am learning topics covered in the course
   1  2  3  4  5

52. …Overall, my teacher makes me interested in this class
   1  2  3  4  5

53. …The class causes me to feel energized
   1  2  3  4  5

54. …The information covered in the course is making me more knowledgeable
   1  2  3  4  5

55. …The class experience makes me feel good
   1  2  3  4  5

56. …Overall, this class interests me.
   1  2  3  4  5

57. …The class experience feels very positive
   1  2  3  4  5

58. …I like the things we cover in class
   1  2  3  4  5

165
59. …It is very easy

1  2  3  4  5

60. …Overall, this content area interests me.

1  2  3  4  5

ENGAGEMENT

Please check the box closest to the term that best represents how often you engaged in the following behaviors for your target class. For example, if you engaged in a particular behavior a lot you might check a box close to the “very often” adjective. On the other hand, if you never engaged in a behavior, you might check the box closest to the “never” adjective.

Never _____ _____ _____ _____ _____ Very Often

Over the course of the quarter, and during a typical class session, how often would you say you:

61. Orally (verbally) participated during class discussions

Never _____ _____ _____ _____ _____ Very Often

62. Participated during class discussions by sharing your thoughts/opinions

Never _____ _____ _____ _____ _____ Very Often

63. Took notes during class

Never _____ _____ _____ _____ _____ Very Often

64. Listened attentively to the instructor during class

Never _____ _____ _____ _____ _____ Very Often

65. Listened attentively to your classmates’ contributions during class discussions

Never _____ _____ _____ _____ _____ Very Often

66. Attended class

Never _____ _____ _____ _____ _____ Very Often
67. Asked questions of your teacher during class if something was unclear
   Never _____ _____ _____ _____ _____ _____ _____ Very Often

68. Gave your teacher your full attention during class
   Never _____ _____ _____ _____ _____ _____ _____ Very Often

Over the course of the quarter, and outside of class, how often would you say you:

69. Studied for a test or quiz
   Never _____ _____ _____ _____ _____ _____ _____ Very Often

70. Prepared for class by reading the assigned readings
   Never _____ _____ _____ _____ _____ _____ _____ Very Often

71. Reviewed your notes outside of class
   Never _____ _____ _____ _____ _____ _____ _____ Very Often

72. Talked about the course material with others outside of class
   Never _____ _____ _____ _____ _____ _____ _____ Very Often

73. Took it upon yourself to read additional material in the course topic area
   Never _____ _____ _____ _____ _____ _____ _____ Very Often

74. Completed the assigned homework
   Never _____ _____ _____ _____ _____ _____ _____ Very Often

75. Completed the assigned readings
   Never _____ _____ _____ _____ _____ _____ _____ Very Often

76. Contacted your teacher (in person or via email) about your progress in the course
   Never _____ _____ _____ _____ _____ _____ _____ Very Often
77. Applied/Used the course material in my interactions with others outside of class

Never _____ _____ _____ _____ Very Often

Over the course of the quarter, how often would you say you:

78. Thought about how the course material related to your life

Never _____ _____ _____ _____ Very Often

79. Thought about how you can utilize the course material in your everyday life

Never _____ _____ _____ _____ Very Often

80. Thought about how the course material will benefit you in your future career

Never _____ _____ _____ _____ Very Often

Please provide the following information for a chance to win one of four $20 gift certificates to amazon.com!

81. What is your last name? __________

82. What is your first name? __________

83. What is your OU email address? __________

Thank you for your assistance in this research project.
Your participation is greatly appreciated!

Please contact us if you would like to learn more about this project.