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Student Classroom Engagement: Rethinking Participation Grades and Student Silence

by

KEVIN R. MEYER

has been approved for

the School of Communication Studies

and the Scripps College of Communication by

Scott Titsworth
Associate Professor of Communication Studies

Gregory J. Shepherd
Dean, Scripps College of Communication
ABSTRACT

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Student Classroom Engagement: Rethinking Participation Grades and Student Silence

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Student classroom engagement and communication are more complicated than is often assumed. Student silence can be a major concern for instructors who want students to orally participate in class, or who believe that oral participation is necessary for learning. As a result, instructors frequently use participation grades to compel students to speak. At the same time, instructors fail to recognize silent forms of classroom engagement; yet, contemporary communication theory would recognize silence as a form of communicative engagement. Classroom silence is an active form of communicative engagement that signifies more than the mere absence of speech. Few studies to date have explored this topic by including the perspective of students. Importantly, the failure to include student perspectives has tended to neglect an examination of the reasons why some students remain silent in the classroom or the other ways in which they engage with the course content. The present study explored engaged classroom interaction by examining undergraduate and graduate students’ perceptions of student silence and participation grades.

Approved: _______________________________________________________________________

Scott Titsworth

Associate Professor of Communication Studies
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Those cites, including Picard, led me to other sources and a wealth of literature I had not previously discovered. Had you not shared that flyer with me, this literature review and study would be lacking the theoretical and philosophical underpinnings that it so desperately needed. Over the past four years, you have provided a great deal of encouragement and support to me, taken a real interest in my development as a scholar, provided me with multiple opportunities for expanding my professional horizons, and have helped craft the direction of my research. I cannot help but think of you as the consummate professional who is a real champion for the graduate students you work with.

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CHAPTER 1: PROBLEM STATEMENT

Based on the belief that student participation fosters critical thinking and learning (Davis, 1993; Fassinger, 1995), many teachers operate from the principle that students should be encouraged to orally participate in classroom discussions (Howard & Henney, 1998). As a consequence, most research efforts on student engagement have explored various methods (i.e., daily participation grades) for encouraging student participation. However, the assumption that participation should be oral is limiting; in fact, participation can stem from many different types of behaviors, actions, and attitudes. As a result, students’ levels of oral participation, not surprisingly, vary greatly. Some students speak in class on a daily basis, while others never speak the entire term (Fassinger, 1995). Whether a student chooses to participate orally or remain silent varies from student to student, and even from class to class (Meyer, 2007). Although participation grades would seemingly solicit more frequent participation from students, most remain silent in class and only a small proportion of students actually participate (Fritschner, 2000). Thus, despite efforts by instructors to encourage participation through grades, these efforts appear to have very limited utility.

Because instructors typically prefer to have students participate orally and often assign participation grades (Balas, 2000; Bean & Peterson, 1998; Fritschner, 2000; Jacobs & Chase, 1992), the factors that influence student oral participation, the reasons why students are motivated to orally participate or remain silent, and their feelings about participation grades are worthy of investigation. However, the reasons why students choose to participate orally or decide to remain silent have largely been neglected by
scholars. In fact, little research has explored classroom participation from the perspective of students or endeavored to uncover the reasons why some students chose to remain silent even when participation in classroom discussion is encouraged or graded. This dilemma raises a variety of questions about how students perceive participation, their instructors’ efforts to elicit participation, and their own motivations for either orally participating or remaining silent. In response, the present study extends previous literature by conceptualizing silence as a potentially active form of student engagement that can communicate more than the mere absence of speech (Picard, 1948/1952).

The Relationship between Speech and Silence

The relationship between speech and silence warrants closer inspection. All too often, there is a tendency, especially within the classroom context, to consider silence as the opposite or even the enemy of speech. However, there are two flaws in this line of reasoning. First, to think of silence as the absence of language is inaccurate. Picard (1948/1952), characterizing silence as a positive and a reality unto itself, wrote that:

Silence is not simply what happens when we stop talking. It is more than the mere negative renunciation of language; it is more than simply a condition that we can produce at will. When language ceases, silence begins. But it does not begin because language ceases. The absence of language simply makes the presence of Silence more apparent. (p. xix)

In a similar vein, Dauenhauer (1980) cautioned that “there is no good reason for assigning ontological priority to discourse over silence. Each makes an irreducible contribution to the sense of the other and to that of the entire domain of signitive performances” (p. 106). Although the artificial binary between speech and silence would
suggest that where speech creates meaning, silence represents the absence of meaning, or only a meaning that is negative, silence is quite meaningful. “Human discourse does issue in new meaning. What is true of discourse is likewise true of silence” (p. 105). In other words, the connection between speech and silence cannot be severed. Even though speech is usually thought to be the opposite of silence, such a notion oversimplifies what is actually a more complex relationship and, still further, ignores the silence that is conveyed in every utterance. Although the majority of communication is typically considered to involve speech, Jaworski (1993) argued that “the absence of speech does not imply the absence of communication” (p. 46). The implication, therefore, is that “instead of treating silence as a negative phenomenon with respect to speech, it is more plausible to place silence and speech on a communicative continuum” (p. 46). In fact, “silence together with speech should be considered relevant for the study of communication, of which they both are integral parts” (p. 35). Thus, speech and silence complement one another and have the capacity to perform similar functions and express similar meanings (Jaworski, 1993).

Second, silence is not the enemy of speech. As Picard (1948/1952) observed, speech can itself be silent: “Silence can exist without speech, but speech cannot exist without silence” (p. 13). Thus, as he explained, silence is not in competition with speech: Silence is a world in itself, and from this world of silence speech learns to form itself into a world: the world of silence and the world of speech confront each other. Speech is therefore opposed to silence, but not as an enemy: it is only the other side, the reverse of silence. One can hear silence sounding through speech. Real speech is in fact nothing but the resonance of silence. (p. 11)
In other words, even in speech we find that silence is present. Because every utterance is necessarily a choice not to vocalize other words, silence inherently accompanies every utterance. For example, Picard explained that “speech is in fact the reverse of silence, just as silence is the reverse of speech. There is something silent in every word” (p. 8). Consequently, rather than being diametrically opposed acts, speech and silence are always present at the same time. Similarly, Dauenhauer (1980) explained that because “discourse needs something apart from itself for its full authentication” (p. 97), silence and discourse “mutually involve one another” (p. 98). As Picard (1963) remarked, “man is involved in language even when he is silent. Silence is more than unspoken language. Words are present in the silence; they are an organic part of the human face and form” (p. 46). In essence, spoken language is the extension of a silent language.

Furthermore, silence adds meaning to communicative interactions. For instance, Dauenhauer (1980) claimed that “silence in its own right can be seen to make a positive contribution to the scope of the meaningful” (p. 104). He noted that silence paves the way for the potency of language since silence gives both birth and conclusion to speech. Thus, according to Dauenhauer, silence as well as speech is required to produce meaning, since discourse cannot exist without silence. Corradi Fiumara (1990) agreed that, rather than being absent, silence is meaningful communication. She described silence as “a very fertile way of relating, aimed at the inner integration and deepening of dialogue” (p. 102). Silence can appear or manifest itself in multiple ways (Dauenhauer, 1980), since silence mediates communicative events. Specifically, silence mediates communication and can communicate itself (Corradi Fiumara, 1990). In a like manner, Jaworski (1993) advocated for a “recognition of silence as a legitimate part of the communicative system comparable
with speech” (p. xii). He observed that silence is “a rich and powerful tool of communication” (p. xii). As such, then, silence deserves to be studied alongside communication.

Given pedagogical trends in education that emphasize a student-centered classroom environment in which participation is highly encouraged and even tied to a student’s grade, the relationship between speech and silence in the classroom ought to be more carefully examined. In classrooms that utilize participation grades based upon oral contributions, students can literally have their grade negatively impacted if they employ silence as a form of communicative engagement. Consequently, nowhere is it more important to study silence than in a classroom context.

Understanding Student Participation

*Defining Participation*

Faculty and student definitions of, and preferences for, participation in classroom discussions are not always harmoniously aligned (Dallimore, Hertenstein, & Platt, 2004; Fritschner, 2000), which has the potential to complicate classroom communication. The tendency is for faculty to define participation as oral, whereas student definitions are more diverse (Dallimore et al., 2004). Thus, what instructors consider as participation is often a source of confusion for students. When existing studies have examined student perceptions, they have often explored how students’ participation in classroom discussion affects their perceptions of professors and classroom climate. For instance, students who actively participate in class perceive their instructors more favorably than students who participate less (Crombie, Pyke, Silverthorn, Jones, & Piccininn, 2003; Fassinger, 2000). Lacking in this body of existing literature is evidence that all students want to participate,
need to participate in order to learn, or are comfortable with graded participation strategies. Importantly, existing literature concerning participation focuses on classroom discussions rather than formal speeches and presentations. In a similar manner, the present study will generally exclude formal speeches and presentations from any discussion of participation.

_Engagement as an Indicator of Participation_

_Linked Engagement and Learning_

If participation is only defined as oral, then when one student is talking (i.e., participating), by definition, everyone else in the classroom is _not participating_. Perhaps participation is most often silent, in the form of active listening or cognitive engagement, rather than oral? Too often, extant research and pedagogical thinking has operated from a dualist perspective that positions oral participation and silence as opposites. The present study takes a more dialectical position by considering both oral participation and silence under the broader notion of engagement. By reframing student engagement as a more complex and dynamic concept, both oral participation and silence can be seen as possible components. Engagement, therefore, avoids the binary logic that silence and orality are opposites and, instead, recognizes that active participation with course content can occur in silence. This perspective on classroom engagement directly challenges previous assumptions, practices, and studies that conceive of oral participation as a necessary prerequisite for student learning. Instead of approaching classroom communication from this type of a linear standpoint, studies and measures are needed that examine student participation and silence as interactional.
Ultimately, students make a choice to orally participate or remain silent. Just because students remain silent, though, does not mean that they are not participating in other ways. In part, the explanation for this pattern could be due to differences in how students and instructors define participation. For instance, instructors may need to reconsider the meanings they attribute to silence (Li Li, 2005) because silence is, sometimes falsely, assumed to mean that a student is not engaging with the class material. On the contrary, silence may, in fact, occur if a student is attempting to engage in different ways to fully grasp material. Three recent exploratory studies found that some students actively participate in the classroom through means of oral engagement, while others remain silent and report engaging through other means (Meyer, 2007, 2008, 2009; Meyer & Hunt, 2004); these findings suggest that there is a risk that instructors might incorrectly misinterpret students’ silence as disengagement when using conventional understandings of silence. These silent forms of participatory involvement may entail paying attention, taking notes, or thinking about the material presented in class (Meyer, 2007, 2008, 2009). It appears, therefore, that a closer inspection of how students engage in the classroom is warranted.

Extant literature has explored a variety of methods used to elicit student participation. Previous studies have investigated the practice of student hand raising (Sahlstrom, 2002), the use of questioning by instructors (Gayle, Preiss, & Allen, 2006), various traits of professors and the classroom climate they establish (Fassinger, 1995, 1996), and the effects of instructor gender on student participation (Howard & Henney, 1998). All of these studies, however, begin with the assumption that oral participation is beneficial and that all students are capable of and willing to do so if the structure of the
class encourages such participation. On the other hand, using experiential activities that generate non-traditional forms of student participatory involvement, rather than participation grades, may provide a mechanism to involve normally silent students in learning.

*Engagement Style Preferences*

Because students appear to have different ways of enacting classroom engagement, we might speculate that each student has a particular engagement style. A student’s engagement style preference could lean toward an inclination to participate orally or to engage silently; a continuum from active orality to active silence. For example, one line of research has found that students who are highest in willingness to communicate (WTC), which refers to the predisposition to initiate communication (McCroskey & Richmond, 1987, 1998), are more prone to speak out in class, whereas those lowest in WTC may simply prefer not to initiate communication (Chan & McCroskey, 1987; McCroskey, & Richmond, 2006). While silence can be a choice, reticence might not. Reticent students often remain silent, regardless of grades associated with participation. Consequently, the motivations for behavior could differ between silent and reticent students. Moreover, it is possible that students may possess both global and specific engagement styles. Specifically, a student’s global engagement style could indicate an inherent tendency or preference regardless of particular circumstances, whereas specific engagement style might vary depending on the specific classroom situation. In a similar example of the communication between fathers and sons, Schneider (1984) remarked that “it takes two to maintain a silence: the one who remains silent, and the other who either doesn’t ask questions or who is satisfied with unsatisfactory
answers” (p. 5). In a classroom environment, silence is often maintained by two parties: the student who remains silent and the instructor who does not ask questions of silent students. In some cases, students may be reluctant to volunteer oral participation unless specifically invited to speak by the instructor. Fritschner (2000) found a general reluctance on the part of professors to directly question students, which reinforces the expectation of reticent students that the “talkers” can be relied on to answer questions or make comments. Not surprisingly, most student talk is with teachers and not other students; but, required participation causes student internal discomfort because students do not perceive a responsibility to participate (Aulls, 2004).

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*Figure 1. Matrix of Engagement Styles.*

Given that some students prefer to remain silent in various situations, while others are more willing to talk in class, it seems reasonable to speculate that students have different preferences for participation in the classroom. Additionally, since one of the primary justifications for encouraging student participation hinges on the supposed link between oral participation and student learning, carefully understanding the nature of
student participation and engagement is important. Curiously, previous literature has failed to suggest possible combinations of participation levels and engagement styles. The framework proposed here (see Figure 1) recommends that several combinations of participation levels and engagement styles might exist. Importantly, these categories are not mutually exclusive. For instance, a student might be cognitively engaged, yet behaviorally non-engaged.

Initially, students’ participation levels could be expected to range on a continuum from silent to oral. However, students’ engagement styles seem more multi-dimensional. For instance, students might engage cognitively in class, regardless of where they fall on the silent-oral continuum of participation levels; in other words, they might be cognitively engaged regardless of whether they speak or remain silent. At the same time, speaking in class might not always be associated with cognitive engagement. Although oral comments would seemingly suggest that cognitive engagement is observable, students’ speech could actually conceal a lack of cognitive engagement, just as silence could. This is the very mistake made by those who assume speech translates into learning. Independently, students might engage through their behaviors in class. Thus, engagement could be said to have either cognitive or behavioral dimensions. Behavioral engagement would seem to be observable by nature, whereas cognitive engagement would be non-observable by nature. Within both cognitive and behavioral engagement styles, it is further likely that students might exhibit various levels of participation along the silent-oral continuum. For instance, students might demonstrate behavioral non-engagement through oral comments suggesting a lack of interest in the class or discussion topic.
In one recent study, by Prentice and Kramer (2006) who used classroom ethnography and interviews with students, the researchers found that students experienced and felt “dialectical tensions between their desire to participate and their desire to remain silent” (p. 347). Factors such as classmates, the instructor, and students’ own personality and self-image influenced this dialectic. Students felt that instructor responses to incorrect answers inhibited their desire to participate and “sometimes felt pressure from other students to remain silent” (p. 348). In some cases the instructor’s request for participation was not enough to overcome internal factors that lead to silence. “On any particular day, a student might feel more or less confident in speaking up in class” (p. 350). Some students may remain silent in class because they find it hard to insert their comments into the flow of discussion. They may not know when to interrupt or change topics. Not surprisingly, then, silence can become a pattern. The instructor could only influence some of the factors affecting participation. Thus, “classroom dynamics are influenced by complex intrapersonal, interpersonal, and group tension” (p. 358). If the teacher adjusts to or comes to accept silence as a given from particular students, then the lack of instructor initiated invitations to participate may contribute to the pattern of student silence.

A student’s choice between engaging in class through an oral or a silent style of participation might not be as easy to remedy as attaching a participation grade to the instructor’s syllabus. So, although instructors might desire to have students participate orally and offer incentives for doing so in the form of participation grades, such an approach is often unsuccessful (Fassinger, 1995, 1996). Moreover, how students feel about being graded on the basis of their participation could predict engagement style. For
instance, if students like participation grades, they might be inclined to engage orally in
the classroom. However, if students dislike participation grades, they might be inclined to
provide less oral participation or even remain silent.

Attributions about Participation and Silence

During interactions, people attribute and assign meaning to another’s silence. In
other words, silence can trigger emotions in the others. Specifically, silence may have the
effect of either reinforcing the emotions of the other person or moving the emotions of
the other person in another direction. Gates (2000) found that the emotions of instructors
and students not only influence judgment, but represent judgments themselves.
Importantly, this means that emotions are communicated in an interactional and dynamic
manner. The exact effect that silence may have on the other person could depend on a
variety of factors, including the previous relationship or history between the parties, the
context in which silence is enacted, how silence is enacted, and the cultural norms present
in the situation. Specifically, within a classroom context, teachers and classmates often
attribute meanings to the silence of reticent students. Unfortunately, instructors may
interpret silence as a criticism of their teaching.

Assumed Ethical Obligation to Participate

Some scholars question the ethical implications of silence and attribute blame to
silent students. Petress (2001), for example, claimed that students who refuse to actively
participate are acting unethically. In his view, student withdrawal, reticence, or fear of
interaction negatively influences classroom learning by depriving classmates and
instructors from the benefits of the silent student’s knowledge, insights, observations, and
experiences. Finally, he posited that reticent students are not as likely to apply, extend, or
transfer learning to other contexts as compared to students who orally participate. To the extent that silent students do not share their opinions or knowledge with the class, Petress’ perspective is a viable one. But, viewpoints such as this assign blame to silent students and do little to either change classroom participation patterns or improve instructional practices. When Petress’ position is contrasted with Wood’s (1996) observation that students have not been trained how to participate, the blame seems especially unwarranted.

Rather than scapegoating silent students as the cause of the problem, researchers would do well to investigate student motives for silence. Although Petress (2001) might be correct that silent students could meaningfully contribute to class discussions, thereby enriching the educational experiences of other students, he unnecessarily attacks the ethics of silent students without constructively furthering our understanding of the motives behind their silence. The danger of positions such as this is that they give license to teachers who may think that the existence of a participation grade on the course syllabus is sufficient to encourage participation by students who are more inclined to be silent.

Importantly, students and teachers do not share similar views of responsibility (Aulls, 2004). Student beliefs about ethics and their rights in the classroom, the role of oral participation in the learning process, and their perceptions of participation grades could be related to engagement style preference. If students see oral participation as their ethical responsibility as students, they might be more likely to have an oral engagement style. If, however, students believe they have a right to remain silent in the classroom, they might be more likely to have a silent engagement style. Not only do perception-
based variables make intuitive sense as predictors of global engagement style, but recent research has indicated that a connection exists between these student beliefs and their participation habits (Meyer, 2007; Meyer & Hunt, 2004).

*Assumption that Participation is Oral*

Although speech and silence have a relational communicative dimension, participation grades tend to primarily be based on the assumption that oral participation leads to student learning. Such a view is overly linear and falsely assumes that speaking translates into or is indicative of learning. Viewing silence as the opposite of participation is the result of a false dichotomy created by definitions of participation that favor oral student participation. Wood (1996) warned that “we must get away from the false assumption that the amount one learns is directly connected to the amount one does (or does not) talk” (p. 111).

Current beliefs that oral participation is required to stimulate student learning operate from the mistaken perspective that all students share similar learning preferences, while largely ignoring groups of students that may be disadvantaged by grading strategies requiring oral participation. Calls for increased student participation in the classroom and policies that grade oral participation seem especially unjust when we consider shy and reticent students or those who chose to exercise power by remaining silent. For instance, some students may use silence as an expression of power in resistance to the power that instructors wield in the classroom. Although existing literature supporting the educational benefits of oral participation for student learning could be true for some students, it seems foolish to jump to the conclusion that these claims are true for all students. In fact, Jacobs and Chase (1992) noted that “the extent of class participation often depends on the
student’s personality” and, thus, it is unfair to grade students on the basis of their personality traits (p. 196). They further argued that students, who are introverted, shy, or culturally diverse, are disadvantaged by such grading methods.

Assumption that Oral Participation is Linked to Learning

Participation grades are often included in instructor syllabi because participation is believed to be associated with student learning. The reasoning behind this belief is a hypothesized link between student oral participation and performance outcomes such as critical thinking and learning (Davis, 1993; Fassinger, 1995). Generally speaking, classroom participation is assumed to produce positive outcomes in terms of student learning and communication skills (Dallimore, Hertenstein, & Platt, 2006, 2008). In turn, the rationale for using participation grades is based upon the premise that such incentives encourage more frequent participation from a greater number of students (Dallimore et al., 2006, 2008). However, some scholars have posited a link between oral participation and learning, without collecting data that objectively measures students’ performance or learning outcomes (Davis, 1993; Howard & Henney, 1998; Fassinger, 1995). For example, Davis (1993) claimed that active participation contributes to student learning, without collecting data to demonstrate this link. Similarly, Sadker and Sadker (1994) found that students considered participation to be a factor related to their learning and that participation resulted in more positive views of the learning experience. Although students’ perceptions of learning are, indeed, important, actual learning outcomes could differ if students’ performances on examinations or other forms of assessment are not positively affected by their participation. Furthermore, previous studies have failed to examine whether student learning is positively influenced over the long term. Do oral
participants better retain information and exhibit greater learning after the end of a course than their silent counterparts?

Others have argued that participation grades enhance student learning. Some previous literature has advocated the practice of grading student participation (Howard & Henney, 1998). For instance, Bean and Peterson (1998) posited that participation grades cause students to make adjustments in their study habits in anticipation of class discussions. Furthermore, they contended that participation grades send positive signals about the kind of learning and thinking that is expected. Independently, several scholars have claimed that various participation grade systems increase the motivation of students (Covington, 1996; Maehr & Meyer, 1997; Rattenborg, 2003). In turn, then, some evidence indicates that motivation leads to learning (Frymier, 1994). Shindler (2003) speculated that participation grades help make problem students better students, and help make good students become leaders by keeping students on task and working cooperatively. Others have recommended self-assessed participation grades to promote student-owned behaviors, increase students’ internal locus of control, and promote self-esteem (Benham, 1993; Rennie, 1991).

Hypothesized Link between Silence and Learning

Connection and learning can occur without vocal contributions by students. As Balas (2000) pointed out, silence does not mean that students lack knowledge. Silence, if reflective, can certainly be a form of participation (Li Li, 2005). For instance, some students might hold strong beliefs about their ability to participate and learn in silent ways. In fact, this conclusion supports observations in recent research (Meyer, 2007; Meyer & Hunt, 2004) suggesting that students find silent ways of engaging cognitively.
with course material and some students prefer to do so rather than participating orally. It certainly makes intuitive sense that some students may learn more by listening to class discussions than by contributing comments orally. Obviously, not all students may feel this way, as evidenced by those who enjoy oral participation or perceive it to be a vital component of their learning. Yet, there are students who prefer to learn primarily through listening. Importantly, though, silence does not mean students are not mentally engaging with the class discussion to prepare or ready a response if they are called upon. Participation, from this perspective, means being prepared to respond, but not necessarily participating orally or volunteering to do without being called upon. For these students, active listening or an active readiness for class is the key component of participation, not oral comments. Being prepared to respond, however, does not ensure that a student is learning.

For certain students, the pressure to participate, whether real or perceived, could even interfere with learning. Specifically, if apprehensive students are worried about speaking or nervous about trying to make a certain number of oral comments to satisfy a grading requirement, it is possible that they will concentrate more on the comment or question they intend to contribute than the ongoing discussion. Consequently, apprehensive students might not listen carefully to or track the material being discussed. Thus, the link between oral participation and learning should be questioned.

Teachers’ Actions Regarding Participation

The Use of Participation Grades

Many college instructors attempt to encourage student participation through grading policies. Instructor syllabi often include participation as part of the student’s
grade (Peterson, 2001). In fact, most college students encounter a number of classes throughout their academic careers that grade participation (Balas, 2000; Bean & Peterson, 1998; Fritschner, 2000; Jacobs & Chase, 1992; Tatar, 2005). Although the method of assigning participation grades varies from one course to another, typically anywhere from 5% to 50% of the course grade may depend on participation (Peterson, 2001).

Participation grades may come in many forms and vary substantially in operation from one instructor to another, the general goal of increasing student involvement by offering grades as an incentive is similar (Bean & Peterson, 1998). The exact amount and expected quality of participation desired may also vary by instructor.

The mere presence of participation grades, however, often does little to encourage student participation (Fassinger, 1995, 1996). Some students participate orally on a daily basis in class, while other students never speak the entire term (Fassinger, 1995) despite encountering a number of classes throughout their college careers that include participation grades (Balas, 2000; Bean & Peterson, 1998; Fritschner, 2000; Jacobs & Chase, 1992; Tatar, 2005). Although it would seem that participation grades would encourage oral participation from a greater number of students, the vast majority of students remain silent while only a small proportion of students account for most of the oral participation in a class. For example, Fritschner (2000) found that in 344 observed class sessions, many of which used participation grades, an average of 28% of those in attendance verbally participated while 18% of those in attendance accounted for 79% of all the students’ comments in class. In another study, Howard and Henney (1998) found that “different types of students participate at different levels” (p. 9). More than half of the students did not make a single contribution to discussion. Consequently, even in
classrooms employing graded participation strategies, the vast majority of students remain silent.

Problems with Participation Grades

Lack of Training

If they chose to grade participation, instructors should train students to participate and specify clear criteria for assessing participation (Victoria University of Wellington, 2000). Disturbingly, students are seldom given explicit criteria to follow or trained how to participate. Wood (1996) argued that the best-case scenario for students is that “they have an instructor’s brief definition of class participation which appears on the course syllabus. At worst, students not only have no idea what the instructor means by class participation, they also receive no instruction in how to participate” (p. 108). Understandably, the expectation to participate for a proportion of their course grade can be a confusing and frustrating experience for some students. As Wood explained, “if instructors require students to participate in class, then instructors are required to teach students how to participate” (p. 122). Similarly, Jacobs and Chase (1992) concluded that training for students must accompany graded participation strategies.

Another aspect of classroom design concerns the style of classroom discussion employed by instructors. Unfortunately, most college instructors do not receive training about how to lead engaging classroom discussions (Talbot, 1997). Lack of training in leading discussions can further complicate student participation in a variety of ways. For example, Fritschner (2000) found a general reluctance by instructors to use cold calling—the practice of directing questions to particular students—which she explained as a factor reinforcing the expectation of reticent students that the “over-talkers” could be relied on
to answer questions or make comments thus permitting over-talkers to continue to monopolize classroom discussions. Certainly, undergraduate and graduate students could harbor different preferences with regard to cold calling; although, these preferences might be strongly influenced by the type of question asked. Moreover, some groups of students may feel that cold calling puts them on the spot. Interestingly, conversation analysis has revealed that student hand-raising is an indication of the willingness of the student to participate (Sahlstrom, 2002). It is likely, however, that the students who are inclined to raise their hands are pre-disposed to participating and do so at the expense of students who are more reticent.

In some cases, students may be reluctant to volunteer oral participation unless specifically invited to speak by the instructor. Some forms of cold calling that provide students an invitation to speak in response to a non-threatening question that does not call for a correct answer may generate oral contributions from otherwise reticent students. Bean and Peterson (1998) posited that cold calling provides instructors a means of assessing the quality of a student’s response during Socratic examination, as opposed to an open-discussion format. Dallimore et al. (2004, 2006, 2008) strongly recommended using cold calling with graduate students.

**Difficulties with Assessment**

Grading participation inherently raises assessment concerns. Consequently, oral participation grades should be re-examined as an approach to encouraging and assessing student engagement. For example, previous literature demonstrates that student participation is difficult to measure (Peterson, 2001) and to objectively assess (Jacobs & Chase, 1992; Victoria University of Wellington, 2000). In fact, Jacobs and Chase (1992)
observed that the main objective of grading is to assess what students have learned, not to assess student behavior. But, oral participation is just that—a behavior. Moreover, Wood (1996) argued that oral participation is an ineffective measure of a student’s abilities or engagement with the course material. She elaborated that participation grades do not promote participation and do not effectively measure what a student learns. She further contended that instructor assessment of student participation should not be restricted to oral interactions. In addition, grading policies for student participation often begins with the assumption that students already know how to participate or understand what level of participation is required for their grade. Even under optimal circumstances, measuring the cognitive involvement of students is difficult. Although participation grades might measure the frequency of student participation, they often do not account for the quality of that participation and cannot measure cognitive learning. As Wood (1996) explained, “what is abundantly clear is that a class participation requirement neither promotes participation nor does it effectively measure what a student learns in class” (p. 112). In addition, since participation grades typically fail to actually measure quality, it is doubtful that participation grades truly result in the type of participation desired by instructors. Thus, the use of participation grades presents a potential measurement problem.

Worse still, faculty frequently determine participation grades impressionistically as a “fudge factor” in the student’s final grade (Bean & Peterson, 1998). Jacobs and Chase (1992) contended that because instructors rarely teach participation skills, graded participation strategies constitute a subjective judgment of student behavior on the part of instructors. If teachers use participation grades arbitrarily, they may be viewed by students as a part of their grade over which they have no control or as a mechanism for
the instructor to reward favorite students and punish those he or she does not like (Shindler, 2003). Shindler (2003) noted that, when used inappropriately, students perceive graded participation as an instrument of favoritism and bias. Because some instructors rely on their own subjective judgments about who has participated sufficiently, the internal rationale used by instructors is seldom communicated to students. Additionally, some instructors may find it difficult to manage class discussion and assess participation simultaneously (Jacobs & Chase, 1992; Victoria University of Wellington, 2000). In addition, tracking student participation becomes particularly problematic when class sizes exceed 20 students (Peterson, 2001). Although good participation can be used to enhance student grades, scant participation should not be used to lower grades (Balas, 2000). Thus, according to previous literature, participation grades are problematic for both teachers and students.

*Participation Grades and Pseudo Critical Thinking*

A review of existing literature on participation grades quickly reveals that researchers have not yet reached a consensus on the value of grading student participation. One disadvantage is that participation grades might foster pseudo critical thinking while failing to encourage authentic critical thinking. For instance, participation grades could foster pseudo critical thinking by failing to encourage students to apply class concepts to other contexts. No extant literature provides support for the claim that students actually transfer these behaviors into other contexts. Thus, although participation requirements are not solely to blame for the failure of students to transfer learning to other contexts, to the extent that participation grades may foster a climate of pseudo critical thinking there is a risk that such practices may do more harm than good.
Specifically, Paul (1995) observed that, “when questions that require better or worse answers are treated as matters of opinion, pseudo critical thinking occurs. Students come to uncritically assume that everyone’s ‘opinion’ is of equal value” (p. 56). He worried that “the failure to teach students to recognize, value, and respect good reasoning is one of the most significant failings of education today” (p. 56). Thus, if ineffectively implemented, participation grades could do more harm than good.

Even if participation grades increase the amount or frequency of student participation, as proponents claim, they may not increase the quality of participation or the desired outcome of getting reticent students involved in class discussions. In a study using focus group interviews, several undergraduate students interviewed by Meyer and Hunt (2004) commented that graded participation changed the frequency, but not the quality of their participation. To receive their daily participation points students might raise their hands more frequently, but do students actually experience meaningful behavioral learning or do they merely engage in a compliance response? The prevalence of participation grades raises the possibility that any increased participation by some students is simply a compliance response (Balas, 2000). In other words, do students engage in these behaviors simply because they know they must to earn a good grade? Thus, participation grades might not stimulate learning.

Although participation grades are often used with the best of intentions, such as encouraging all students to become involved in class discussions, these grades can backfire on teachers. If participation grades simply give license to over-talkers and do not achieve the goal of getting all students involved in the class discussion, then the grades backfire on instructors in two ways. First, graded participation policies may increase the
amount or frequency of student participation, but not the quality of participation. In other words, the quality of participation may occur at the level of pseudo critical thinking. Second, graded participation may not achieve the desired outcome of getting quiet students involved in class discussions. Some research has suggested that participation grades inherently encourage or give license to “over-talkers” to dominate class discussions and conversations at the expense of their more reticent classmates (Bean & Peterson, 1998; Meyer, 2007; Meyer & Hunt, 2004). Thus, instructors would do better if they were to balance class discussions so that all members of the class have a chance to participate and to discourage over-talkers from dominating the discussion.

Expanding Engagement to Include Silent Engagement

 Defining Silent Engagement as Communication

Silence has been argued to be a means of communication (Acheson, 2008a, 2008b; Belanoff, 2001; Tatar, 2005). As a source of pedagogical knowledge, Li Li (2005) claimed that the “absence of speaking can be invaluable to facilitate reflections of human communication” (p. 74). Thus, silence can have educational benefits. Belanoff (2001), who noted that silence has positive outcomes, contended that American culture fears silence. It follows, then, that some instructors might grade participation because they fear student silence is an indication of disinterest or a lack of learning. Or, student silence could raise the uncertainty level of instructors. Still another explanation might be that student silence could cause discomfort on the part of instructors. But, silence and talk should not be viewed as binary opposites. For example, Li Li explained that, “while it is common to view silence as the opposite of speech, silence also complements speech. After all, silence and speech form a continuum of human communication” (p. 69).
However, the meaning attributed to silence by instructors and students can vary greatly. “Both intentional and unintentional silences have multiple meanings that are open to varied interpretations” (p. 69). For instance, student silence could be interpreted as being indicative of anything from anger to reticence.

Generally, though, there is intolerance for silence in the classroom. According to Li Li (2005), “all in all, silence and speech are inseparable foundations of human communication. However, the dichotomization of silence and speech misleads us to devalue silence and privilege speech” (p. 82). By encouraging participation and systematically through grading policies, instructors devalue silence in daily classroom interactions. Li Li further explained that:

In classroom settings, it is common for teachers to devalue silences and promote speech making. Teachers often enlist “participation” as an evaluation criterion. But, they do not recognize “silent active listening” as a legitimate form of participation. As teachers attend to students’ speech making, they frequently fail to acknowledge the significance of the silent interactions between teachers and students that reveal human desires, interests, and power relationships. Consequently, although teachers are able to compel students to engage in verbal participation in classroom settings, they are unlikely to hear and listen to students’ inner voices that do not meet their expectations. (p. 82)

Thus, the rush to encourage oral participation constructs a highly competitive environment which praises the talker and shames the listener or, at least, the silent student; educators would do better to endorse silent active listening or thinking as a legitimate form of learning (Li Li, 2005).
Motivations for Silence

Link between Silence and Emotions

Extant literature has neglected to explore how silence is linked to the emotions of teachers and students. According to Tatar (2005), the role of silence has been ignored by researchers. Silence, however, is an important factor in the emotional climate of the classroom. Student silence has an enormous impact on the emotions of their classmates and their instructors. The few scholars that have addressed the topic of silence have taken, whether consciously or unconsciously, an ideological position that active oral participation by students is both desirable and advantageous and have further assumed that instructors should encourage such participation through a variety of teaching strategies and grading policies. This ideology has reinforced negative perceptions of student silence and further perpetuated negative attributions of silence made by both instructors and fellow students.

Emotions are tied to behavior. According to Solomon (2000), “virtually all emotions get expressed (however minimally) in behavior” (p. 11). Mayring (2003) agreed that emotion is linked to cognition and behavior. Interestingly, Johnson-Laird and Oatley (2000) contended that emotions influence thinking and vice versa. Most scholars now contend that emotions are not solely an internal phenomenon, but are communicated between individuals. Emotions can be communicated vocally (Johnstone & Scherer, 2000) or through silence. In fact, Porter and Samovar (1998) observed that “emotion is expressed continuously during interaction” (p. 451). So, there are a variety of means by which to communicate emotions; some are vocal, some are not.
The emotional labor of students may be most observable through their engagement in the classroom. Emotions can trigger one of two reactions in the classroom: oral participation or silence. The silence of students may evoke a range of emotions in their instructors and fellow classmates. For example, silence can be met by classmates with anger (Jones, 2005). One explanation for a response of anger is that a threat to dialogue, like silence, has emotional force because it is also a threat to the dominant group (Jones, 2005). Jones (2005) explained that:

From the point of view of the silent other, the decision not to speak may be rather less troubling and rather more eloquent than it appears; it may be a pragmatic rejoinder to a set of conditions beyond their control. Silence may be a rational response to their (dominant) peers’ lack of ability to hear and understand. (p. 60)

In this scenario, then, silence is used as a communicative response. Thus, even silent students within a classroom culture are really constructing their emotions because of that particular class. On the other hand, oral engagement could be linked to the emotional labor of students. If, for example, students felt they had to portray certain positive emotions in their oral comments, they would be exercising emotional labor through the very act of speaking.

Silence as Power

For some students, silence may even be a method of exercising power because the behavior can act as a form of resistance as well as a form of identity. Student talk in class is ultimately an expression of the student’s power, status, and knowledge. Silence, likewise, also acts as an expression of the student’s power, status, and knowledge; often, for similar reasons and with similar effects. But, whereas instructors try to exert power
they already possess as authority figures, students tend to defy the power of instructors or claim power they do not naturally possess in the classroom (Li Li, 2005). For example, Li Li (2005) contended that, “students can employ silence as a device for resisting knowledge transmission” (p. 72). Even though resisting knowledge transmission might sound like an unhealthy reaction within the context of a learning environment, it is not impossible to imagine unique circumstances under which students might either correctly or incorrectly perceive the knowledge being transmitted to be oppressive. Thus, silence is “both a consequence of and a form of resistance to oppression” (p. 70). In sum, then, teachers and students use silence to negotiate power relationships in the classroom.

Importantly, participation grades have implications for how students perceive instructor power. Graded participation strategies are a tool used by instructors to coax students into participating and, thus, represent the reward or coercive power instructors might hold over students (see French & Raven, 1959; McCroskey & Richmond, 1983). Coercive power refers to students’ expectations that teachers will punish students if they do not comply with requests, whereas reward power refers to students’ perceptions that teachers are in a position to reward students for complying with requests (McCroskey & Richmond, 1983). Thus, although participation grades might empower over-talkers by encouraging their comments, it could also be viewed as an instructional tool that actually disempowers more reticent students. Of course, one response to this reasoning is that students could (re)claim their power if they were not reticent. However, for those reticent students who might be shy or apprehensive about oral communication in the classroom or culturally inclined to avoid initiating oral communication with instructors or classmates, the requirement to orally participate serves to disadvantage students whose barriers to
oral participation remain unchanged by the mere presence of a grading policy in the syllabus. Previous research has failed to question the power dynamics involved in grading policies that encourage student participation. Although instructors may intend to empower students, participation grades could be perceived as a weapon the instructor wields against the students. Importantly, there is no clear evidence that participation grades have any advantage over simply requesting that students participate and, in fact, could have detrimental consequences.

The most intriguing question is not how students choose to participate silently, but why they do so. Indeed, some evidence exists to suggest that a small portion of students remain silent because they react negatively to participation grades (Meyer, 2007; Meyer & Hunt, 2004). Psychological reactance theory explains why, when one’s autonomy is threatened or perceived to be, one will act out against the threat (Cialdini, 2001). Applications of psychological reactance theory could be particularly useful in explaining how emotions are related to silence and identifying the type of student who reacts with silence.

Psychological reactance theory (Brehm, 1966; Brehm & Brehm, 1981; Wicklund, 1974) could explain why some students remain silent even though they are being graded on their oral participation. The theory posits that an individual has an underlying belief in free will and an assumption that he or she is free to make decisions; thus individuals value choice and freedom behaviors (Brehm, 1966). When threats to or elimination of freedom behaviors occur, reactance is aroused (Brehm, 1966). The magnitude of reactance, which can range from weak to extremely intense, is influenced by the perceived value of the freedom, the proportion of the freedom with respect to other
freedoms, and the ability to recover the freedom (Brehm, 1966; Brehm & Brehm, 1981; Wicklund, 1974). In response, the individual may attempt to recover the lost or threatened freedom, cherish the freedom more than she or he did previously, or engage in related freedom behaviors (Brehm, 1966; Brehm & Brehm, 1981; Wicklund, 1974). Finally, reactance can result from implied threats (Brehm & Brehm, 1981) or occur as a result of social influence attempts (Wicklund, 1974). Subsequent scale development has shown that psychological reactance can be measured along the four dimensions of freedom of choice, conformity reactance, behavioral freedom, and reactance to advice and recommendations (Hong, 1992; Hong & Page, 1989). Most of these dimensions would seem to be applicable in explaining students’ reactance in a classroom setting.

Some students may chose not to participate precisely because the instructor is grading participation; a pattern that echoes the tenets of reactance theory. If students do not like participation grades, there may be a boomerang reactance effect (Quick & Stephenson, 2007). If, for instance, some students perceive that they have a right to silence in the classroom, then participation grades might be viewed as an encroachment upon that freedom. A student’s specific engagement style might be manifest in the student’s actual classroom participation. In a focus group study involving undergraduate students, Meyer and Hunt (2004) found that some students reacted against graded participation, using silence as a means of power. For instance, one female student in their study remarked:

I usually do not even say anything, because I do not actually agree with oral participation grades. Some people are just shy in class and do not want to raise their hand or do not want to be called on in front of a group of people. When I
know it is graded, I will not even speak. It does not even matter to me, because
usually participation points are really not that many points anyway. I just do not
agree with it, so I do not even raise my hand. (p. 19)

Even in these situations when students use silence as an exercise of power in reaction to
graded participation, they can still participate cognitively. When asked if she could still
track the discussion and learning, she continued, “I am still learning, I am still into
discussion. I will rarely ever zone out in class and discussion” (Meyer & Hunt, 2004, p.
19). In this particular case, the student provided an example of psychological reactance
theory at work, since she refused to participate in reaction to the instructor’s use of
graded participation. Her behavioral response might be said to be a boomerang effect,
wherein she chooses to remain silent because participation is graded.

*Silence as Resistance*

For other students, silence may be a form of resistance. This resistance could
indicate a reactance to participation grades. Laing (1972) explained that, “negative rules
may themselves generate actions they prohibit” (p. 113). Thus, rules against behaviors
can have the opposite effect of encouraging the prohibited behavior. He recommended,
“if you want people not to do something they are not doing, do not forbid it. There is a
better chance that I will not think what I have not yet thought, if you do not tell me not
to” (p. 113). In the classroom, some students might make a conscious choice not to orally
participate precisely because the teacher grades participation. Silence is a choice that
students make and when that choice is restricted, the predictions of psychological
reactance theory may occur. Silence might provide students a tool for expressing power
in a situation that is otherwise beyond their control. In the end, student engagement
cannot be forced. An overbearing teacher who attempts to force a student to participate may end up causing the opposite result. If the overbearing teacher tries to force participation, the effort may backfire and cause the student to retreat further into silence.

_Predictors of Student Engagement_

Many factors could influence and even predict a student’s engagement style in the classroom. The student’s biological sex, degree level, and class size have been shown to be related to participation and could influence engagement style. Previous studies have provided some indication of the relationship between biological sex and degree level to observed participation levels. Class size, gender, cultural differences, and disabilities could also influence student participation and silence. Yet, these factors have largely been ignored by existing research advocating graded participation.

_Biological Sex_

Biological sex may influence participation and classroom interaction in a variety of ways. For instance, some scholars have concluded that a “chilly classroom climate” exists for female college students (Fassinger, 1995, 1996; Jones, 1997) and previous studies also suggest that males are more orally active in the classroom. Some scholars speculate that students themselves may even contribute to a “chilly climate” (Fassinger, 1995, 1996; Jones, 1997). However, Howard and Henney (1998) found little support for the “chilly climate” hypothesis as females and nontraditional students participated more than did males and traditional students. Regardless, student sex has been found to be a significant component of student participation (Fassinger, 1995, 1996). Biological sex may influence participation and classroom interaction in a variety of ways. To encourage student participation, Fassinger (1995) has advocated developing student confidence.
Female students’ participation, in particular, is tied to self-confidence (Aulls, 2004). And, “a positive emotional climate can enhance the likelihood of class participation, particularly for females” (Fassinger, 1995, p. 94). Specifically, a positive emotional climate is created when students are cooperative and supportive and make friends in class (Fassinger, 1995).

Degree Level and Class Size

More research is needed that explores undergraduate and graduate students’ perceptions of classroom participation and silence. Surprisingly, given the number of courses that require and grade participation (Balas, 2000; Bean & Peterson, 1998; Fritschner, 2000; Jacobs & Chase, 1992; Tatar, 2005), students’ perceptions of participation grades have not received much attention in the literature. Tatar (2005) observed that few studies explore classroom participation from the perspective of students or endeavor to uncover the reasons why some students chose to remain silent even when participation is encouraged or graded. Both Fassinger (1995) and Tatar (2005) noted that most scholarship on classroom participation has taken the perspective of instructors or used children as subjects, rather than college-aged students. Previous studies on classroom participation have also ignored nontraditional student populations, young adults, and adult learners (Fassinger, 1995; Fritschner, 2000; Howard & Henney, 1998).

Degree level may have a relationship to engagement style due to the nature of courses, instructional methods, and previous classroom experiences common in undergraduate and graduate programs. Specifically, graduate courses tend to be smaller in size, use discussion-based instructional methods more frequently, and set expectations
for students to orally participate, as compared to undergraduate courses. Participation varies by experience, the age of the student, the course level, and the class size (Aulls, 2004). Specifically, the size of a class may directly influence the amount of student participation that can reasonably occur, as well as the likelihood for shy students to speak up. As the size of the class increases, the amount of student participation decreases (Constantinople, Cornelius, & Gray, 1988). Thus, the biological sex and degree level of the student may play a role in the choice of engagement style. Finally, it is possible that a combination of biological sex and degree level could also influence engagement style.

**Special Populations**

Some scholars have also speculated that grading student participation may disadvantage particular segments of students. International students, students from culturally diverse backgrounds, and students with disabilities are three such groups that are disadvantaged by oral participation requirements. Importantly, though, participation grades should not discriminate against or disadvantage particular groups of students (Victoria University of Wellington, 2000).

International students may feel uncomfortable with being required to participate in either smaller group activities or whole-class discussions because offering their own opinion or challenging another’s opinion may conflict with their cultural beliefs and traditions (Peterson, 2001). In addition to cultural traditions surrounding assertiveness, some cultures simply value silence. For instance, Tatar (2005) found that some international graduate students regard silence as a face-saving strategy, a sign of respect, and even a form of participation. Not all students enter the classroom with Western orientations toward dialogue and discussion. Some international students may come from
cultures where interrupting a professor with questions is considered impolite or actively participating in group discussions could be viewed as showing off (Balas, 2000). As a result, instructors ought to make accommodations and modifications based upon the learning and cultural characteristics of their students. Because international students may approach their education with different notions of the extent to which they should participate, instructors ought to consider the effects of participation grades on international students.

Additionally, graded participation is unlikely to fairly and accurately measure the knowledge of culturally diverse classrooms (Balas, 2000; Nance & Foeman, 1993). To better address culturally diverse classrooms, Davis (1993) suggested preventing any one group of students from monopolizing the discussion and using small group activities early in the term to make students of diverse cultural backgrounds more comfortable with speaking up in class.

Instructors could also consider modifying participation grades for students with certain disabilities. For instance, Davis (1993) contended that a range of alternative participation assignments ought to be arranged to meet the individual needs of students with disabilities. Generally, Davis suggested using strategies to improve the frequency and quality of student participation, such as rewarding student participation without resorting to assigning participation grades. For instance, rewards could entail praising and recognizing students’ ideas. Instructors could provide students a wide range of participation options in addition to offering oral comments in class, such as actively participating in classroom activities, participating in relevant activities outside the classroom, or providing written rather than spoken comments.
In sum, instructors ought to consider that student participation is influenced by a variety of factors. The willingness to participate may be affected by both gender and culture (Victoria University of Wellington, 2000). Certainly, there are students who also represent a cross-section of these characteristics. Female students from diverse cultures or international backgrounds who may also have special needs would seem to be particularly at a disadvantage in classrooms that grade oral participation. Yet, graded participation policies ignore factors such as gender and cultural differences. In the assumption that all students should be required to participate as a component of their grade and in the rush to conduct research studies supporting the benefits of oral participation on student learning, scholars have ignored certain populations of students. Rather than addressing the motivations of students who chose not to participate, literature has suggested a variety of instructional methods and activities designed to foster participation. That literature exploring classroom participation has ignored the reasons why students do not participate is nothing short of an injustice to these groups.

Classroom Dynamics

The classroom is a more dynamic communication environment than some variable analytic studies would seemingly suggest. For instance, students react to messages, their teachers, and their classmates all at the same time. The type of engagement style, silent or oral, that students chose could be based on both teacher and class variables. Students’ connection to the subject matter, their teacher, the characteristics of their teacher, their classmates, and the characteristics of their classmates could all influence their engagement style. Student-to-student interactions in the form of
group activities, study groups, or learning partners may increase the likelihood of student participation by fostering a positive classroom climate (Fassinger, 1995).

The present study, which examines student perceptions of and reactions to participation grades, is of importance to instructional communication theory because it merges research concerning relational and structural elements within a classroom context. Teacher-student interactions, as well as student-to-student interactions, are interpersonal in nature and exist within the organizational structure of a classroom environment and school setting. Thus, the present study extends knowledge of instructional, interpersonal, and organizational communication by examining the intersection of these subfields of communication study. Further, this study extends existing knowledge of student interaction, participation behaviors, motivations for participating, engagement with course content, and learning preferences by investigating undergraduate and graduate student perceptions of engaged classroom interaction. In so doing, this study informs instructional practices and conceptions of student engagement in the classroom.

**Instructor Behaviors**

Instructor behaviors may also influence how students perceive participation grades. For instance, Fritschner (2000) found that students perceive instructors to have a substantial influence on whether they or other students participate. She discovered that students perceive the verbal and nonverbal behaviors of instructors to be significant factors that could either encourage or discourage student participation. Interestingly, instructors were typically unaware of how their facial expressions, voice, and messages could be perceived as “talking down” to students, resulting in a general dampening of discussion. For example, Fritschner found that a vicious cycle of frustration can be
created by instructors who want the class to participate, but make students feel “put
down” by responding with negative feedback. On the other hand, instructor use of self-
disclosure tended to have a positive impact on facilitating class discussion, as did
instructors who were described by students as respected, trustworthy, and accessible. At
least initially, the responsibility to engage students in participation resides with the
instructor. The instructor’s communicative style and choice of instructional method
should inspire students and compel them to participate in discussions and learning.

Other factors influencing students’ participation and silence include teacher
characteristics and class designs. Interestingly, Fassinger (1995) reported that neither the
interpersonal style of instructors or instructors’ gender is related to students’
participation. However, she did find that students’ participation levels were influenced by
the design of the class. Specifically, class activities that create a supportive emotional
environment or develop student confidence have a greater impact on student participation
(Fassinger, 1995). In a later study, Fassinger (2000) reported that students in classes
described as having a high level of participation perceived the dynamics of the class more
positively than students in classes described as having a low level of participation. The
students were more prone to rate their classmates as cooperative, experience greater
levels of comfort, and have greater perceptions of peer support and respect. Informal
learning environments, which can include collaborative group learning, has been found to
improve student interactions and learning from pretest to posttest (Kuech, 2004).

Several studies reported that the amount of participation affects students’
evaluations of instructors. For instance, Crombie et al. (2003) discovered that students
who participate actively in class rate their instructors more favorably than students who
participate less. Thus, if a student actively participates, they are more likely to have a positive impression of their instructors than do students who are less active in participation (Crombie et al., 2003). In an earlier study, Fassinger (2000) reported that instructors whose classes were determined to generate higher levels of participation were perceived by students to be more supportive and approachable. As a result, the level of student participation in class can have an impact on student evaluations of instructors. However, although there are clear advantages to student participation, that does not constitute a need to use participation grades.

In a survey of preservice teachers, Aulls (2004) discovered that participation opportunities affect student perceptions of the quality of instruction. Participation has emotional consequences (Aulls, 2004). Poor teachers, for instance, suppress participation whereas good teachers encourage active participation which, in turn, leads to positive emotions (Aulls, 2004). Importantly, Aulls noted that emotions may contribute to or suppress participation in learning, thus providing a link between emotion and classroom engagement (oral participation versus silence). He concluded that students were more active participants in courses they characterized as good instruction, but more passive in poorly taught courses. Emotions can increase or decrease participation. Although Aulls’ conclusion is intriguing and provides an important implication because of the indications that participation patterns may suggest about the quality of instruction, some students remain silent even when the instruction is perceived as good.

Synthesis

To extend understanding of classroom participation, research integrating students’ perspectives is needed. To this point, most literature on student participation and
instructors use of participation grades has taken the perspective of instructors. When studies have surveyed students, they have typically not sought student opinions about the use of participation grades or the explanations that students have for remaining silent (Fassinger, 1995; Tatar, 2005). Most of these studies, furthermore, have failed to examine college-aged students (Fassinger, 1995; Fritschner, 2000; Howard & Henney, 1998). Since participation levels have been shown to vary by the age of the student and the level of the course (Aulls, 2004), specific investigations of participation in college classrooms is warranted. The few studies that have inquired about college-aged student perceptions have been exploratory in nature, thus indicating the iterative process of designing a line of research in this area (Meyer, 2007, 2008, 2009; Meyer & Hunt, 2004). As the next step in this line of research, the present study seeks to examine the perceptions of college students in regard to participation grades and explanations of classroom silence. By investigating students’ perceptions of and reactions to participation grades, the present study extends previous literature by seeking an explanation for the reasons why students chose to speak or remain silent in class, even when participation is graded.

In previous studies, the role of silence has virtually been ignored (Tatar, 2005). Typically, student silence has only been addressed as a barrier to participation and has, furthermore, been associated with negative student behavior or motives. No studies have taken Li Li’s (2005) advice of treating silence as an active form of communication in the classroom. Thus, the present study offers an important extension of previous literature by examining silence as an active form of student engagement that can communicate more than the mere absence of speech (Picard, 1948/1952).
Finally, the present study is regarded as an iterative investigation of several broad research questions. Although presuming that students have different classroom engagement styles ranging along a continuum from silent to oral, speculating about the variables that might influence and predict students’ engagement styles is more challenging. Consequently, the general aim of this investigation is to answer the following questions. Do students’ engagement styles in specific classes differ when compared to their global orientations toward engagement? What variables might predict students’ engagement styles? What factors might influence changes in students’ engagement styles? Do students regard silence as a form of engagement? With these broad questions in mind, this research project explores existing literature to flesh out more specific questions and hypotheses that will guide empirical examination.
CHAPTER 2: REVIEW OF LITERATURE

To the extent that oral participation grades have become commonplace, contemporary pedagogical thinking tends to regard student silence as negative in classroom interactions (Balas, 2000; Bean & Peterson, 1998; Fritschner, 2000; Jacobs & Chase, 1992) and claims that speech is a necessary precondition for learning are assumed to be unassailable (Davis, 1993; Howard & Henney, 1998; Fassinger, 1995). Holding up speech as the ideal condition for learning and mitigating silence to the realm of the unlearned is unfortunate. As admirable as it is for instructors to create student-centered classrooms, which invite student participation and welcome student voices into class discussions, demonizing silent students by attributing negative meanings to their silence and mandating oral participation through the power of grades is another matter.

The status quo of education is characterized by classrooms in which most students talk infrequently, if at all, despite the common use of participation grades (Balas, 2000; Bean & Peterson, 1998; Fritschner, 2000; Jacobs & Chase, 1992), while only a handful of students do the majority of the talking (Fritschner, 2000). Thus, questioning dominant assumptions about reasons why students choose to remain silent in the classroom as well as the role of silence in the learning process is warranted. Furthermore, if we are to advance pedagogical thinking in a way that might permit more students to become involved in classroom interaction, then we need to understand the variables predicting students’ participation. Only by expanding our framework for student participation to account for all forms of students’ engagement will we be able to explain and understand how students perceive and approach learning in the classroom.
Consequently, binary thinking about speech and silence in the classroom should be compared to existing philosophical literature on the relationship between speech and silence, the attributions made of silence, and the various uses of silence. By consulting literature concerning silence, the role of student participation in the classroom may be placed in clearer perspective. In addition, philosophical positions on the role of silence can then be compared to the body of literature addressing the various ways that student participation can be encouraged, the variables predicting student participation, and the effects of participation grades on student learning warrant closer inspection.

**Philosophy of Speech and Silence**

Silence remains an under-researched and under-theorized concept in communication. Too often, communications scholars have privileged speech and neglected silence, except to treat silence as a negative condition to be discouraged or overcome through discourse. As Kalamaras (1994) explained:

> Particularly in the wake of poststructuralism, silence has most often been cast as the “bad guy,” a void promising some mysterious concept of transcendence but, in the process, robbing speaking subjects of the ability to construct meaning and, thus, the means to personal and cultural power. (p. xiii)

Casting silence as a negative begs the question of whether silence can function in positive ways. Furthermore, a portrayal of silence as the absence of speech raises other questions about the boundaries of speech. Jaworski (1993) asked “do we talk only when we are speaking?” (p. 25). Certainly, speech could be considered to extend beyond mere vocalization of language. Thus, more inquiry is needed into the meaning of silence (Bruneau, 1973). To reverse the tide of literature that either casts a negative light on
silence or ignores the contributions of silence to communication, more research is needed that addresses the function of silence in communication. Johannesen (1974) called for more communication research into the topic of silence after reviewing the available literature at the time and noting that few empirical studies addressed the function of silence in interpersonal communication or human communication more broadly. Over three decades later, little progress has been made with regard to examining the function of silence in communication. Clair (1998) urged further investigation of how silence communicates. A logical springboard for research into the functions of silence originates in philosophical thinking about the relationship between speech and silence. Understanding the limits and power of language is aided by examining the philosophical underpinnings of the interrelationship between silence and voice (Clair, 1998).

Several seminal works on the relationship between speech and silence outline fundamental philosophical thoughts about the role and importance of silence in communication. In two landmark books on the subject of silence, Max Picard (1948/1952, 1963) examined the ontological conditions of silence. In fact, Picard (1948/1952) argued that silence belongs to almost every dimension of human activity as an ontological principle. According to Picard, just as language is creative and formative, so too is silence. Following Picard, other scholars have argued that the relationship between speech and silence is much more complex than commonly held positions that regard silence as the absence of speech make it seem. Clair (1998) contended that reality is bound up in both discourse and silence. As she explained,

Silence, in all its diverse forms, contributes to the creation of our social realities, from the mundane micro-level practices of our everyday expressions to the
structuring of our macro-level institutions and back again. Subsequently, silence, as a topic of scholarly interest, has been explored from diverse philosophical approaches. (p. 24)

In other words, “silence and language create and re-create our social realities” (p. 20).

Silence is a Positive

Negative connotations of silence are potentially misleading. Rather than being thought of as an absence of communication, silence is better regarded as another means through which individuals communicate. Picard (1948/1952) claimed that thinking of silence as a negative condition characterized by merely by the absence of speech is an overly simplistic position that fails to recognize the functions of silence. “Silence is nothing merely negative; it is not the mere absence of speech. It is a positive, a complete world in itself” (p. 1). However, Picard worried that the world viewed silence as useless, valueless, and unproductive. Moreover, he warned that language is emaciated when its connection to silence is severed, since the origin of speech is found within silence. Clair (1998) agreed that, “silence was and generally is perceived as a passive background to the noisy activity of communication” (p. 8). She explained that being silent is similar to Burke’s idea that language originated in the negative. Picard was disturbed that silence had become to be treated as the mere absence of speech. He continued this attack by indicating that noise is a pseudo-language and a pseudo-silence. His counter-position was that, “silence belongs to language and therefore it is not opposed to light. Silence is not darkness” (Picard, 1963, p. 32). For Picard, severing the connection between language and silence is dangerous:
Today language has hardly any relationship with the interior language or with silence. It does not even know that it has lost its original wholeness. Words are isolated and specialized and becoming more and more attenuated. They have no depth; they do not reach down into depths of the silent language. They are always on the surface, one-dimensional. The silent language within no longer has any influence on words; words are impregnated with the verbal noise which replaces the interior wholeness of language. (p. 71).

The loss of a silent language, then, poses a danger in that individuals are not attuned to the deeper meaning and knowledge that silence is able to unlock. But, silence is natural and, therefore, an integral aspect of the human condition. “Silence is woven into the very texture of human nature” (Picard, 1948/1952, p. 14). In the end, Picard believed that silence has been lost and is no longer taken as something that is natural.

In a similar vein, Dauenhauer (1980) argued that the intertwined nature of speech and silence “are from the outset social” and, thus, “silence is not primordially a retreat into privacy” (p. 125). Consequently, he contended that silence has a certain primacy or preeminence over discourse since silence not only prepares the way for discourse but also allocates discourse space in which to appear. “It makes sense for man to engage in silence. And so the ontological issue is, not whether silence makes sense, but just what sense does it make” (p. 141). In other words, silence communicates meaning. And, as such, silence is a positive form of communication According to Dauenhauer,

Silence, just as much as discourse, is a type of positive performance. It is not, fundamentally, simply a cessation of some other type of performance. Along with
discourse, it is an irreducible way in which man expresses his life. As such, it has its own distinctive sense. (p. 141)

In sum, then, both Picard and Dauenhauer position silence as a positive communicative act as opposed to the mere absence of speech.

Silence, like speech, is a performative behavior that can function as a means through which meaning and knowledge are constructed (Acheson, 2008b). Thus, rather than regarding silence negatively as the absence of speech, silence ought to be recognized as an embodied and active, not passive, gesture (Acheson, 2008a). In fact, silences can serve communicative functions (Acheson, 2008a, 2008b).

*The Relationship between Speech and Silence*

Speech and silence are not binary opposites without a relationship to one another. Instead, the relationship between speech and silence is much more complicated. Picard (1948/1952) explained that speech is intrinsically related to silence. According to his conceptualization, silence and speech exist simultaneously. Speech or “language and silence belong together: language has knowledge of silence as silence has knowledge of language” (p. xx). The interrelationship between speech and silence, though, begins with silence. “Speech came out of silence, out of the fullness of silence” (p. 8). In fact, for Picard, silence legitimizes speech. “Whenever a man begins to speak, the word comes from silence at each new beginning” (p. 8). Importantly, then, speech finds its origin in silence. As Picard (1963) noted,

The spoken word detaches itself from the darkness of the silent language and enters the brightness of speech, but underneath it the whole interior language
continues to be heard. The darkness has not been abandoned; the spoken word is like an envoy sent out from the silent language within. (p. 68)

Speech and silence are not separate entities or opposites; rather, speech and silence are connected. He explained that, “language still exists unsullied, though deeply buried in a silence that is deeper than the silence of man. Unsullied language still exists in a menacing silence and above it is the verbal noise, a single loud muteness” (p. 91). Thus, one’s unspoken language is more pure than speech. As a result, silence is a necessary requisite from which language reflecting one’s self might reveal itself.

In a like manner, Dauenhauer (1980) explained that, as an active performance, silence is bound to and intertwined with discourse. He argued that “silence is a complex, positive phenomenon. It is not the mere absence of something else” (p. vii). Importantly, though, he recognized that silence is always, in some manner, connected to and intertwined with discourse; it is not the opposite of discourse. Silence can occur without sound or in conjunction with sound since “silence is a necessary condition for utterance” (p. 5). Dauenhauer criticized various philosophers for the tendency to attack silence as irrational in relation to the rationality of speech:

Discourse without silence would be merely atemporal language and silence without discourse would collapse into either muteness or nonsignitive vision. But genuine discourse and silence, in their inextricable interconnection, are ingredient in the living of the multiple modes of interpersonal involvement of which people are capable. (p. 96-97)

Just as there cannot be a condition of complete speech, it is equally impossible to produce a condition of complete silence. Dauenhauer explained that, “if speech cannot complete
itself and if there is no silence without speech, then just as there is no complete speech so there is no reason to think that there is any such thing as complete silence either” (p. 98). The implication, therefore, is that silence is intertwined with discourse.

More recently, Jaworski (1993) questioned the social implications of regarding silence as a monolith or absolute in comparison to taking a more relativistic stance that distinguishes among the various types of silence. Absolute silence is impossible since silence is a process of the mind (Bruneau, 1973). Taking a more integrative stance Jaworski noted, “silence and speech do not stand in total opposition to each other, but form a continuum of forms ranging from the most prototypical instances of silence to the most prototypical instances of speech” (p. 34). Jaworski argued that regarding silence only as a background to speech would be a drastic oversimplification. “Silence and speech are two intersecting and equally relevant communication categories” (p. 17). Along the continuum of speech and silence are “many intermediate, overlapping forms rather than two distinct, clear-cut and opposite categories” (p. 168). He posited that silence and speech cannot be considered discrete, functional opposites as “a very significant function of silence is to indicate the lack of any communication and social bondage. But this function can be achieved not only through the use of silence but through the use of speech as well” (p. 47). Silence is an activity; it is not mere inactivity (Jaworski, 1993). Just as with speech, silences vary in frequency, duration, and intensity (Bruneau, 1973). In sum, then, silence and speech exist on a continuum rather than as polar opposites to one another.

Yet another perspective is that speech and silence form a dialectical relationship with one another. Clair (1998) argued that silence and voice “should be thought of less as
bifurcated concepts and more as self-contained opposites” (p. xiii). Thus, silence and voice are complex, dialectical, and occasional paradoxes. She explained, “silent practices are pervasive and interwoven with linguistic practices” (p. 20). More specifically, “silence and discourse are bound up in innumerable ways. Their many nuanced meanings and functions are woven together into a complex tapestry” (p. 38). Thus, speech and silence function simultaneously. As Clair observed, “the idea that silence and voice exist as simultaneous expressions suggests that bifurcating the two may leave us with a partial understanding of who we are and how we live our everyday social realities” (p. 187).

Clair’s (1998) thesis was that “silence may be expressive” and “expressive activity can be silencing,” even deafening (p. 7). Each expressive activity, silence and speech, lend significance to the other. “Language (i.e., both gestural and verbal) is born in the expression of silence and silence is heard through language” (p. 15). Both language and silence are significant modes of expression. “Exploring silence as a fundamental part of communication, culture, and conflict may illuminate the complex nature of social relations. It is time to develop theories about the origin of silence and explore its continuing presence in our daily lives” (p. 4). She posited that communication can silence and silence can be expressive and noted, “we need to explore the silencing aspects of communication and the expressive aspects of silence” (p. 5). Importantly, Clair posited that the relationship between silence and language is a dynamic one: “A dynamic relationship exists that allows communication to both express and at times silence individuals, issues, and interests” (p. 38). In a like manner, however, silence also has the potential to sequester and express. “Silence as communication and communication as silence both create and perpetuate these subject positions” (p. 41) and function in ways
that position individuals within the social order. For instance, she observed that, “silence takes on varied forms and fulfills a variety of functions” (p. 187) as individuals use silence to express freedom, care, and responsibility.

Rhetorical perspectives that are sensitive to the dialectical relationship between speech and silence are also informative. Scott (1972) described silence and rhetoric as a dialectic stemming from human action. “Silence, as the act of preparing, serves rhetoric” whereas “rhetoric, as the act of carrying the fruit of contemplation, serves silence” (p. 151). Kalamaras (1994) also argued that silence is a form of symbolic rhetoric and “a way of making meaning” (p. 8). But, he warned that speech and silence should not be considered mutually exclusive rhetorical acts. Specifically, he charged that the “positioning of silence within an oppositional framework hostile to its very premise would serve to dislocate silence, casting it in ways that cannot account for its paradoxical complexity” (p. 65). Importantly, he cautioned that:

To perceive the experience of silence as a nihilistic emptiness, then, is to see the experience of emptiness as binarily opposed to fullness, a concept highly contradictory to the multidimensional understanding that is indicated by modern physics and that accompanies nonconceptual awareness. (p. 182-183)

In other words, the creation of a binary between speech and silence falsely relegates silence to the realm of emptiness, when, in fact, silence can communicate even without the accompaniment of speech. Kalamaras further clarified that he was not suggesting that “language holds no part in the experience of silence,” but rather, “language and silence can act in a reciprocal fashion, shaping one’s consciousness” (p. 121). Finally, he concluded that his view of silence as rhetoric is compatible with dialogical theories.
The Silence of Speech

Although speech is commonly thought to be the opposite of silence, such a position oversimplifies a more complex relationship between speech and silence and, further, ignores silence conveyed as part of every utterance. For instance, Baker (1955) explained that, according to the Theory of Silences, “the underlying (i.e., unconscious and unpremeditated) aim of speech is not a continued flow of speech, but silence, for the state of complete equilibrium, marked by elimination of interpersonal psychic tensions” (p. 161). Furthermore, the Theory of Silences conceptualizes an ideal silence as “one in which arguments and contention, whether expressed or not, have vanished, to be replaced by understanding acceptance on the part of the hearer (or hearers) and satisfied commitment on the part of the speaker” (p. 161). However, Baker’s explanation suffers from the bifurcation of silence into two types, positive and negative. Thus, his conceptualization is unfulfilling to the extent that it fails to recognize or address the multitude of ways in which the continuum of speech and silence may function in both positive and negative ways.

Picard (1948/1952) hypothesized a more satisfactory explanation of how speech can be silent when he noted that language only exists for short durations—as a break in the continuity of silence. “Silence is present in language,” noted Picard, since the silence underneath language helps language “to move freely in its own infinity” (p. 22). Picard claimed that language is ineffable, since “language never entirely corresponds to the things it is describing” (p. 25). From this perspective, “language comes from silence and returns to silence” (p. 29). Consequently, when we speak, we also leave much unspoken. Picard observed that:
As opposed to the word that is in silence, the spoken word is not merely communication with another person. It is qualitatively different from the word that is in silence. By becoming sound a word is not merely drawn out of the silence and communicated to others, but rather set off against the other words that are still in the silence. (p. 31)

The implication, then, is that the act of speech emphasizes the words that are spoken, but also gains meaning in comparison to the words which are unspoken.

The Power and Impact of Silence

Silence is related to power and makes a meaningful impact in communication. For those who can speak, both speech and silence represent a decision or choice (Corradi Fiumara, 1990; Steiner, 1967). Scott (1972) remarked, “every decision to say something is a decision not to say something else,” such that “in speaking we remain silent” (p. 146). The choice between speech and silence, then, conveys a great deal of meaning during communicative interactions. Moreover, Picard (1948/1952) observed that silence has a tangible impact. He claimed that although silence is not visible, its existence is quite apparent and can be felt just as concretely as we feel objects in the physical world. “Man does not put silence to the test,” he writes, “silence puts man to the test” (p. 1). In a similar vein, Dauenhauer (1980) suggested, “however habitual the performance is, all performances of silence are in some measure active” (p. 24). He further noted, “silence is polyvalent in the emotional impact it can have” (p. 24), which means that it can produce a range of emotional reactions. Dauenhauer explained that, “silence shows itself as an act that cannot be performed in radical independence. Someone must indeed act for there to be silence. But he must act in concert with someone or something which is fundamentally
distinct from him” (p. 24-25). Even when some students respond, the overall atmosphere of the class can be more silent than talkative. Dauenhauer argued that speech can get in the way of learning and disagreed with notions that silence does nothing to contribute to intelligibility. “Silence, then, far from intrinsically threatening to destroy or to obstruct discourse, actually is a necessary component in extending the capacity of discourse to bring reality to utterance” (p. 89). Thus, silence enhances rather than detracts from discourse.

In comparison to speech, Picard (1948/1952) privileged silence. “Silence towers above all the puny world of noise” (p. 6) since it is a primary and basic reality. Silence is more powerful than the spoken word. “Noise is powerful, but sometimes silence seems even more powerful—so powerful that it does not seem to notice whether noise is there or not” (p. 227). As Picard (1963) explained, “man is mute, but never silent” (p. 89). Additionally, silence is more powerful than speech. “The silent man seems to be more powerful than the speaking man; silence seems more powerful than language; but silence has this power only because it is from silence that language comes, because it contains language” (p. 121). Thus, one still has power in silence (Kalamaras, 1994). “Silence, in the final analysis, is an act of power” (p. 123). In this respect, then, even silence communicates since it conveys power.

*Silence and Knowledge*

Unfortunately, bifurcations of speech and silence tend to align speech with knowledge, understanding, and learning while relegating silence to the absence of those outcomes. But, the opposite might be a more appropriate explanation. For example, Kalamaras (1994) reiterated Lao-tzu’s observation that “those who know, don’t talk.
Those who talk don’t know” (p. 218). In fact, silence is related to thought. Picard (1948/1952) posited that silence was linked to knowledge since “silence was woven into the very texture of the whole approach to knowledge” (p. 63). Thus, silence is not opposed to learning and knowing. Picard argued that, as with language, truth exists in silence: “Man can meet this hidden fund of reality only with silence” (p. 67). Importantly, the absence of speech is not the same as silence. Thus, “simply not to be talking is not the same as to be silent” (p. 121). As opposed to muteness, Dauenhauer (1980) posited, “silence necessarily involves conscious activity” (p. 4). In the past, Picard suggested that human beings used to know much through silence: “Man did not need to know everything: the silence knew it all for him. And as man was connected with the silence, he knew many things through the silence” (p. 222). For Picard, though, noise is the enemy of and opposed to silence. Today, “man no longer thinks, he has thinking done for him” (p. 222).

Silence can serve to enhance linguistic knowledge. For instance, Corradi Fiumara (1990) wrote that silence could serve to enhance linguistic life because silence permits knowledge of that which cannot be spoken. Specifically, she reasoned that people are constantly speaking, thinking, or dreaming, which means silence cannot be unrelated to cognitive activity. Similarly, Picard (1963) observed, “unfinished thoughts venture out into the silence of this world or into human language” (p. 5). Taken together, then, these insights suggest that a host of meaning and information exist within our silence. Picard argued that the world of silence permits humans to confront the inexplicable in “a zone beyond the realm of language” (p. 16). An internal truth exists within silence. Silence and language are not opposed to one another, but “act in a reciprocal fashion in the
construction of knowledge” (Kalamaras, 1994, p. 8). He contended that learning could be derived from the practice of silence by facilitating student access to “inner speech” (p. 14). More specifically, he advocated “the intuitive awareness of silence” as a pedagogical practice (p. 30). This is because “something inexplicable, eternally unexpressed, exists in man which corresponds to the things that are pre-given. It is wrapped in silence” (Picard, 1963, p. 16). Spoken language fails to capture the truth of our internal language. As a result, “there is a surplus of truth in language which does not appear in the spoken word” (p. 52).

Silence provides a unique means of knowing. For example, Kalamaras (1994) argued that silence is an authentic mode of knowing. However, “the West has misinterpreted the meaning of silence, and therefore its casting of silence as a negative condition—specifically the practice and awareness of silence—is misguided” (p. 4). He argued that Western conceptions of silence as negative are largely erroneous. Thus, “by often positioning language against silence, they too admit a dichotomization into their theories of knowledge” (p. 4). But, traditional Western theories are not alone in making this dichotomy. Feminist theory also tends to situate language and silence as separate and conflictive (Kalamaras, 1994). As Kalamaras explained, “natural silences are not opposed to language but help shape it in dynamic and generative ways” (p. 5). His goal was to recast “the status of silence from a nihilistic to a generative condition” (p. 7). In other words, silence is capable of generating knowledge.

In a like manner, Steiner (1967) argued that intellectual and sensuous realities can be rooted in silence, rather than in language and discourse. In fact, he contended that since language is incapable of recognizing the ineffable, the highest contemplative act
lies in silence. Thus, silence is able to transcend language (Steiner, 1967). As Steiner explained, “language can only deal meaningfully with a special, restricted segment of reality. The rest, and it is presumably the much larger part, is silence” (p. 21). He complained that verbal inflation leads to devaluation of language. “We also speak far too much, far too easily, making common what was private” (p. 53). Silence paves the way for making oneself heard.

Silence and Listening

Silence is related to listening in important ways. According to Corradi Fiumara (1990), listening demands silence, whereas even the most articulate speech may not involve listening. Moreover, she explained that silence could be used as a tool for listening or as a form of nonverbal communication that may symbolize meanings ranging from acceptance to total refusal. According to Picard, silence is listening since,

Listening is only possible when there is silence in man: listening and silence belong together. Instead of truly speaking to others today we are all waiting merely to unload on to others the words that have collected inside us. Speech has become a purely animal, excretive function. Verbal noise is neither silence nor sound. It permeates silence and sound alike and it causes man to forget both silence and the world. (p. 174)

Listening originates from silence. But, speech interferes with our ability to listen. Thus, it would seem that if listening is a crucial part of the communication process, then silence and not speech holds the key to unlocking our ability to listen. Dauenhauer (1980) noted, “the silent ingredient in both speaking and listening is necessary for the preservation of my role as active participant in this dialogue” (p. 118). He further commented,
Dialogue thus requires a listening as its starting point. Only through first listening can a man join his own performances to those of others and thereby bring the world, in Merleau-Ponty’s phrase, to say what it means to say. This listening is accomplished through silence. (p. 184)

Importantly, “when two people are conversing with one another, however, a third is always present: Silence is listening” (Picard, 1948/1952, p. 9). Thus, silence is the third party in a conversation.

_Silence and Meaning_

Far from being meaningless, silence holds meaning for both the silent individual and others, in so far as other individuals assign meaning to silence. Johannesen (1974) specifically speculated that various attributions, or constructed meanings, are made of another’s silence. As he explained, “one human attaches meaning to the silence of another human being because it is assumed that thought processes are occurring. Human silence is pregnant with meaning because of this assumption” (p. 25). According to Johannesen, the commonly held notion that an individual cannot _not_ communicate leads one to conclude: “silence communicates because listeners and observers will attach meaning to the silence whether the sender wishes so or not” (p. 29). In human communication, “silence on the part of one participant may be viewed by other participants each in a different way” (p. 29). In addition, he recognized that silence varies from one individual to another. Specifically, “the personality, prior experiences, and cultural conditioning of an individual will influence how he perceives silence, what meaning he will attach to it” (p. 29). Thus, the meaning assigned to silence is by no means universal.
The meaning of silence is highly contextual. As Johannesen (1974) posited, silence must be interpreted contextually, because “silence takes on meaning only in a surrounding context of verbal and nonverbal symbols” (p. 26). Thus, he suggested that silence should be examined both situationally and contextually. Furthermore, attitudes toward and beliefs about silence vary among communities and cultures (Acheson, 2008a; Jaworski, 1993). For instance, Johannesen noted that the meaning of silence varies from one culture to another. “The roles assigned to silence in human communication vary from culture to culture” (p. 27). Specifically, he reported that Native American and Asian cultures place a higher positive value on silence than Western cultures. In “Western culture silence often is regarded as worthless (we must verbalize something) or is regarded as an act of unfriendliness. Silence generally is taken as an asocial if not antisocial with the lack of chatter at a cocktail party” (p. 27). Thus, “more often than not in Western culture silence is viewed more negatively than positively” (p. 27). Similarly, Dauenhauer (1980) noted that Eastern philosophies, and both Indian and Chinese thought, have assigned a positive character to silence. In essence, treating speech as normal behavior and silence as deviant reflects a typical Western bias (Jaworski, 1993). Even within Western cultures, however, tolerance of silence varies among culturally homogenous white Americans (Jaworski, 1993).

Silence can carry many meanings. Just as with discourse, “some silences reveal, others conceal” (Dauenhauer, 1980, p. 115). Based upon a review of available literature at the time, Johannesen (1974) categorized the following meanings for silence:

1. The person lacks sufficient information to talk on the topic.
2. The person feels no sense of urgency about talking.
3. The person is carefully pondering
exactly what to say next. (4) The silence may simply reflect the person’s normal rate of thinking. (5) The person is avoiding discussion of a controversial or sensitive issue out of fear. (6) The silence expresses agreement. (7) The silence expressed disagreement. (8) The person is doubtful or indecisive. (9) The person is bored. (10) The person is uncertain of someone else’s meaning. (11) The person is in awe, or raptly attentive, or emotionally overcome. (12) The person is snooty or impolite. (13) The person’s silence is a means of punishing others, of annihilating others symbolically by excluding them from verbal communication. (14) The person’s silence marks a characteristic personality disturbance. (15) The person feels inarticulate despite a desire to communicate; perhaps the topic lends itself more to intuitive sensing than to verbal discussion. (16) The person’s silence reflects concern for not saying anything to hurt another person. (17) The person is daydreaming or preoccupied with other matters. (18) The person uses silence to enhance his own isolation, independence, and sense of self-uniqueness. (19) The silence marks sulking anger. (20) The person’s silence reflects empathic exchange, the companionship of shared mood or insight. (p. 29-30)

Interestingly, Johannesen reported that some extant research had found that silence could be interpreted as being worse than making a negative remark.

One’s silence is open for interpretation by others. Thus, silence has the capacity to carry meaning (Acheson, 2008a; Jaworski, 1993). From this perspective, then, “the main common link between speech and silence is that the same interpretive processes apply to someone’s remaining meaningfully silent in discourse as to their speaking” (p. 3). As Dauenhauer (1980) explained:
Silence is the human performance in which this preeminence is most clearly expressed to the author as well as his audience. Silence holds sway over the whole range of a person’s performances, allotting to each of them its space to occur and linking it, by terminating it, to other performances of his. Silence plays this presiding role for itself and for other mediating performances, as well as for immediate performances such as perception. (p. 184)

He further rejected the notion that there can be such a phenomenon as complete silence, just as there cannot be complete discourse. Although he acknowledged that there are many situations in which “silence can be communicately empty” (p. xii). For instance, “our ability to use silence appropriately in our own speech and the adequate interpretation of the silence of others are indispensible for successful communication” (p. 4). In sum, then, the very interpretation of silence lends credence to the claim that silence conveys meaning.

In comparison to speech, silences are more likely to engender negative communication effects (Jaworski, 1993). Scott (1972) found that the silence of another could be taken as threatening. But, in addition to the potential meanings of disagreement to be found in silence, Scott suggested that silence also could be motivated by positive intentions or employed as a result of the inadequacies of language. Interestingly, Jaworski (1993) argued that silence is axiologically ambiguous since silence can do both bad and good in communication. For example, silence can function as a conflict-avoidance strategy since “it is easier to undo silence than it is to undo words” (p. 25). Importantly, though, an understanding of the motivations for remaining silent is required (Jaworski, 1993). Silence is a tool of expression and a component of various communicative
situations (Jaworski, 1993). Silence carries a high degree of uncertainty since “silence is ambiguous and susceptible to different interpretations” (p. 47). But, “the actual interpretation of someone’s silence takes place only when the communication process is expected or perceived to take place” (p. 34). Furthermore, “in order to be able to interpret correctly a particular instance of silence one has to analyze the verbal context preceding and following it and to consider such features of silence as duration, intensity, and location” (p. 69).

Silence is capable of expressing different functions and carrying out different meanings (Acheson, 2008a; Jaworski, 1993). Inherently, silence is ambiguous because it is nonverbal. Jaworski elaborated that:

Silence definitely belongs to the nonverbal component of communicative behavior, so in principle it relies on the ostensive-inferential mode of communication and it is weaker than verbal communication in that it cannot make assumptions manifest to an audience in an equally strong manner. This, I assume, is the sole important reason that explains the widely held view that silence is, in and of itself, a highly ambiguous form of communication. (p. 85)

But, “the use of words need not be always connected with effective communication” (p. 136). In other words, the nonverbal nature of silence need not indicate a lack of communication. Jaworski defended “communicative silence” as “communication through silence” (p. 104). However, just like speech, “silence per se is neither communicative nor noncommunicative” and “can be communicatively relevant or irrelevant” (p. 95). In sum, then, “silence means and communicates” (p. 169).
Silence is a medium of communication, according to Jaworski (1993). But, compared to the medium of speech, silence requires greater active participation on the part of the receiver to interpret the message. In other words, “silence is a medium of communication whose processing requires more cognitive effort than speech” (p. 141). Extending Marshall McLuhan’s original conception of the message being the medium, Jaworski argued:

If speech is a relatively cool medium, then silence must be even cooler. That is probably why silence is generally not considered to be a suitable medium of communication, although whether and to what degree this is the case is an interesting empirical question worth investigating in the future. Admittedly, communicating in silence may require from the participants more filling in, more completion, and higher participation than communicating in speech. (p. 141) Interestingly, this explanation serves to illustrate why silence might be regarded negatively or seen as the absence of communication. However, Jaworski concluded, “silence is more important and widespread in communication than may be commonly admitted” (p. 167). He further explained that silence is an extremely diverse phenomenon encompassing a multitude of “forms ranging from the absence of audible noise to not saying what is expected in a given situation” (p. 167). Importantly, though, “silence can convey various messages as accurately as speech” (p. 62). As a result, silence is a medium for communication, albeit an extremely cool one.

The silence of one individual inevitably results in circumstances wherein other individuals attribute meaning to the silence. Silences during interactions among individuals lead to inferences and judgments about the relational partner, and especially
lengthy silences permit each interactant to make inferences and judgments about the character and motives of the other (Bruneau, 1973). In some situations, new ideas are typically met with initial silence (Bruneau, 1973). Interestingly, Bruneau (1973) identified the many communicative uses of silence. For instance, he explained that silence could serve to gain the attention of the other. Or, he observed, silence may represent righteous indignation. Bruneau found that silence is also associated with strong emotions, such as anger, fear, and love. At the same time, he explained that silence could be a creative force.

**Strategic Uses of Silence**

Silence can be used in a variety of strategic ways (Acheson, 2008a, 2008b), as a diverse range of communication scholars have demonstrated. On the one hand, silence can be coupled with speech to heighten the impact of one’s speech. In political situations, silence can serve a strategic function (Jaworski, 1993). For example, in an analysis of Frederick Douglass’s oration “What to the Slave is the Fourth of July?”, Terrill (2003) claimed that silence is employed strategically to first bear witness to the inconsistencies of slavery and then to suggest complicity with the horrors of slavery. By silencing himself through pauses in the speech, Douglass creates ironic silence. He also shows that white silence about slavery is inappropriate.

On the other hand, silence can function as a means to encounter and understand the experiences of others. Ehrenhaus (1988) developed a phenomenological view of silence, which emphasizes the interpretation of silence rather than the treatment of silence as an object, through an analysis of the Vietnam Veterans Memorial. He argued that silence is a potential response to all modes of symbolic expression since silence permits
authentic self-discovery. He also remarked that not enough scholarship has addressed the topic of silence. “Quite reasonably, our first impulse is to view silence as the absence of speech, whether absent by design or not. Our expectation, in other words, is for the presence of speech, as the pervasive mode of symbolic expression” (p. 42). Ehrenhaus argued that “silence contributes to human relationships” by removing obstructions (p. 42). “In speaking to one issue, we are mute on countless others” (p. 42). He observed, “unlike verbal communication, silence cannot direct interpretation” (p. 42). More specifically, “as with language games of speech, encounters of silence have no one feature in common, no necessary and sufficient conditions that define them” (p. 45). Silence affords an opportunity to learn about ourselves in relationship to others, since silence permits insights into conscience; as explained by Ehrenhaus (1988), “encounters-of-silence are bound to time and place” (p. 46). The Memorial opts for silent expression as a means of permitting visitors to discover their own truths rather than preaching a collective Truth. He concluded:

The power of the Vietnam Veterans Memorial results from our encountering silence where we expect ‘speech’; it arises in the dialectic of subject and object.

The Memorial offers us the opportunity for authentic self-discovery by learning to play a language game of silence. (p. 55)

In encountering the Vietnam Veterans Memorial, though, Ehrenhaus argued that some misunderstand the message. He explained that, “expecting ‘speech,’ they find silence, and mis-hear silence’s call” (p. 49-50). Specifically, “some mis-hear silence’s call; others answer it” (p. 51).
Silence also provides a means to attain freedom. Kirkwood (1987) analyzed two ancient Indian fables that address knowing when to be silent. One of the morals of the fables is that an individual’s true self is ultimately revealed once he or she speaks. Furthermore, Kirkwood claimed that the fables indicate a need to remain silent at all levels of human experience, from the intrapersonal to the interpersonal. Importantly, a key lesson is when to speak and when to keep silent. He suggested that Indian philosophy contains vital insights about speech and silence. Specifically, Indian philosophy suggests freedom is tied to silence, in that it is only through silence that the highest degree of spiritual freedom can be attained. Kirkwood remarked, “silence is essential for the exercise of freedom” (p. 5). He concluded, “the master of silence is truly free to exercise the power of speech” (p. 2). Kirkwood posited, “the tension between speech and silence is at the core of all communication” (p. 3). But, there is a danger in speech. According to Kirkwood, speech makes it possible to confuse “the self with what the self experiences” (p. 7). He further explained, “speech is nothing less than the means by which one becomes (and remains) enmeshed in a false sense of self and hence suffers pain and limitation” (p. 7). Kirkwood concluded that his call for recognition of the importance of silence does not devalue the meaning or power of speech. Perpetual silence is not necessary; only a temporary silence until one is able to master silence and “overcome the tyranny of incessant speech” (p. 9).

Kane (1984), in an exploration of how playwrights use silence, argued that there is a freedom in silence. A silent response relies upon nonverbal communication to express fear, uncertainty, or incompleteness (Kane, 1984). In fact, Kane rejected the commonly accepted and narrow definitions of silence as merely the absence of speech.
Rather, she viewed silence as also including indirect expression and “a multidimensional mode of expression intentionally chosen” (p. 15). Among the various expressions of silence, Kane found:

The dumb silence of apathy, the sober silence of solemnity, the fertile silence of awareness, the active silence of perception, the baffled silence of confusion, the uneasy silence of impasses, the muzzled silence of outrage, the expectant silence of waiting, the reproachful silence of censure, the tacit silence of approval, the vituperative silence of accusation, the eloquent silence of awe, the unnerving silence of menace, the peaceful silence of communion, and the irrevocable silence of death illustrate by their unspoken response to speech that experiences exist for which we lack the word. (p. 14-15)

Kane further contended, “silence is a moment in language” (p. 17). Thus, “in social situations we are coerced into response that may take the form of active participation, speech, or passive participation ranging from active listening to silence” (p. 18). Silence plays a role in language games since “the active listener, like the active speaker, participates in the interrelational language game by forcing the speaker to redefine and refocus his speech” (p. 18). Consequently, there are silent language games as well as vocal language games. Kane contended that there is much that can be learned by comparing silence to its opposite, speech. Just like speech, silence is “interrelational and manipulative. Nonparticipation in the speech act does not constitute nonparticipation in the social act” (p. 20). Thus, “one chooses to remain silent or avoid silence, to control or be controlled” (p. 20). Playwrights have used silence to “indicate manipulative relationships” or “make words more significant by their contrast with silent response” (p.
Kane pointed out that “speech is inadequate to express our deepest emotions, and even the confidences it would impart are rejected” (p. 24). She further elaborated that “silence, on the other hand, is infinite. A nonverbal, nonanthropomorphic mode of communication, neither bound to nor fragmented by time, silence is a perfect medium for the multiplicity of human responses antithetic to place, time, and clarity” (p. 179). Thus, Kane concluded, “silence is both medium and message” (p. 179).

Speech and Silence in the Classroom

Just as common assumptions about the functions of silence need to be re-examined, so too must assumptions about students’ silence in the classroom. Typically, student silence is regarded negatively in classroom situations, while speech is believed to be a necessary component of the learning process. More specifically, those concerned with communication in the classroom and pedagogical issues have given silence a negative connotation and held speech in higher regard. In fact, Armstrong (2007a) called silence “an under-theorized and under-researched” topic in education. The resulting research bias in favor of speech has served to marginalize the role of silence in the classroom. For example, MacKinnon (1999) noted that little educational research emphasizes silence. More critical research on the relationship between learning and silence is needed (Armstrong, 2007a). Tatar (2005) proclaimed, “the role of silence as a means of communication has been mostly ignored” in research (p. 284). Importantly, “studies have failed to take into account students’ own perceptions” preferring instead to investigate instructor perspectives (p. 284). To better understand why students remain silent and how silence is related to learning, more attention needs to be paid to the functions of student
silence in the classroom. Such an endeavor requires us to rethink our assumptions about student silence.

Rethinking Student Silence

To this point, most studies investigating classroom communication have treated silence as an obstacle to effective interaction that must be overcome in order to facilitate student learning. However, the unquestioned premises of these studies should be examined critically. For instance, in one noteworthy study, MacKinnon (1999) argued that measuring the success or failure of education by student silence in the classroom is a myth that should be dispelled. The results of three surveys administered to 55 students at different time periods led her to conclude that the assumption that talk in the classroom is good and silence is bad should be questioned. Importantly, she suggested that commonly shared assumptions by educators that silence represents an absence of something are misleading. Normative judgments are made wherein talk is considered good and silence is regarded as bad. She found that instructors do not automatically associate silence with learning processes, thinking, and listening. Thus, silence is not recognized as having multiple communicative functions (MacKinnon, 1999). Although speech is commonly assumed to be the best measure of critical thinking, MacKinnon questioned whether the lack of talk truly indicates a lack of participation and critical thinking. She further worried that increasing emphasis on student centered learning wherein classroom interaction and participation are desired in higher education could risk overlooking the plethora of functions that silence performs in the classroom. In part, she attributed cultural biases to education’s devaluation of silence. Thus, she called for an alternative view of silence that inverts the existing paradigm—a paradigm placing silence as
subservient to talk. Her findings indicated that students attribute silence to learning, listening, thinking, information processing, and notetaking in most instances and to boredom and thoughts about other things in fewer instances. She also found that the language instructors use in the classroom often determines the performance of silence by students. Finally, she noted that instructors and students often interpret silence differently. As a result, she recommended that instructors find ways to better accommodate the various learning preferences of students in the college classroom.

Although students’ silence is typically regarded as meaningless, silence can actually be meaningful communication. For example, Armstrong (2007a) observed, “invariably, silence connotes meanings which are interpreted not as empty, but full of meaning” (p. 19). However, the meaning of silence is culturally dependent. More specifically, in another article, Armstrong (2007b) concluded,

The salience of silence is very dependent on underpinning cultural beliefs in the classroom. The cultural differences around the interpretations of silence as politeness and respect towards the teacher can have the effect of, intentionally or not, silencing and thereby marginalizing the students. (p. 5)

Constructions of meanings associated with silence are highly influenced by cultural backgrounds, as evidenced by favorable perceptions of silence among Navajo, Australian, Chinese, and Japanese students (Armstrong, 2007a). Silence is constructed both socially and culturally (Armstrong, 2007b). Although silence would seem to be either positive or negative, the reality of silence in the classroom is typically much more complex and contextually dependent (Armstrong, 2007b). There are different kinds of silence (Armstrong, 2007b). For instance, silence can function to make a point
(Armstrong, 2007b). In other circumstances, “the use of silence is in itself an exercise of power, and this is applicable to the classroom as well as to the wider community” (p. 1). Consequently, assumptions that silence represents the absence of meaning should be questioned.

In addition, assumptions that silence is unrelated to learning should be re-examined. Armstrong (2007a) called the position that active participation through talk leads to effective learning a “largely unquestioned axiom” (p. 19). Silence is commonly considered to have a negative effect on learning (Armstrong, 2007b). Ironically, though, in libraries and other “formal learning situations, it is not uncommon for silence to be assumed as being conducive to learning” (p. 1). And, in testing and examination settings, silence is generally agreed on as a necessary condition that enables concentration. Thus, he cautioned,

We cannot assume that talk in learning settings is necessarily evidence of engagement in learning. Nor does silence connote that learning is not taking place. Yet there is an assumption in active theories of learning that students should not remain silent. (p. 1)

In other words, dualistic approaches that associate speech with learning and silence with the lack thereof are fallacious. Of course, at the same time, it is equally erroneous to take the opposite position that silence is always associated with learning. As Armstrong explained:

Invariably, it seems, that those who generally identify with the positive connotations of silence recognize that there are circumstances where silence may be indicative of resistance to learning, or indeed, confusion or lack of clarity
about what is being learned. Equally, those that typically think that silence indicates an absence of learning do understand there are situations where silence can be indicative that learning is being consolidated, often through a process of reflection. (p. 2)

The implication, therefore, is that hasty associations of either speech or silence with learning processes are overly simplistic and exclusionary. A more appropriate interpretation of the learning process is that neither speech nor silence can be assumed a priori to be necessary for student learning. Rather, the answer likely lies somewhere in between the two extremes and probably differs from one student to the next depending upon contextual factors.

Methodological considerations for the study of student silence also need to be rethought. For instance, according to Armstrong (2007a), observational research methods in the classroom and the subsequent interpretation of data are highly influenced by one’s cultural perspective on silence. Moreover, he claimed that identifying and measuring silence in the classroom is particularly problematic. If silence can exist even when talk occurs, then it would be tough to recognize and distinguish silence from genuine discourse. Thus, Armstrong suggested, “a basic distinction may also be made between intentional silence (the refusal to answer) and non-intentional silence (the psychological inability to answer)” (p. 23). In sum, then, methodological approaches to examining student silence in the classroom need to be refined.

Silence and Learning

Thus far, most research concerning student communication in the classroom has sung praises for the effects of speech on student learning. The corollary, of course, is that
the absence of speech implies a lack of learning. However, another explanation is that the silent student is, indeed, learning in his or her own way. Tacit knowledge occurs when one is able to know without being able to articulate what one knows (Clair, 1998). Thus, silence can result in a positive learning outcome; although, it would be just as unfair to say that silence always entails learning as it would be to say that speaking always implies learning. For example, Caranfa (2004) leveled the following criticism of a position that regards speaking as essential to learning:

Past and present discussions on education all too frequently neglect the role that silence plays in learning. The various themes, the many arguments, and the abundance of empirical data that one encounters in educational literature, though convincing they may seem, are, nevertheless, permeated by a deep underlying flaw: they exclude silence from the dialogical pedagogies on which they are based. (p. 211)

Instead, Caranfa argued, “silence is the very foundation of learning” (p. 211). Moreover, he posited, “discourse, silence, and self-knowledge mutually implicate one another” (p. 218). Thus, “discourse is compatible with silence” (p. 226). Although instructors may find it difficult to stomach the idea that silence can translate into learning, students tend to more easily embrace such a possibility. As he observed, “students see learning primarily as a silent activity and embed their feelings and thoughts in it” (p. 230). Indeed, students who view silence as compatible with learning may have it right. More recently, Caranfa (2006) argued that contemplative silence is integral to learning. “Any knowledge or language that does not take into account silence is inadequate” (p. 91). Importantly, Caranfa claimed that silence is not opposed to discourse or critical thinking; rather,
silence is the source of both. More specifically, he explained, “without silence, critical thinking becomes empty words, merely a pretension to know” (p. 98). Consider that “in our silent encounter with the world, we still learn many things” (p. 100). Jaworski (1993) argued, “even when the foreign language classroom is a silent one and the student spends most time listening to the teacher and to the other students, it does not mean that no learning is taking place” (p. 52-53). He further claimed, “silence may be a state in which one gains knowledge, or it may be a state of idle ignorance or unlearning” (p. 69). At the very least, then, we have to embrace the possibility that learning can occur in silence. At most, though, we may need to recognize that certain forms of learning are more compatible with silence than with speech.

Toward this end, Caranfa (2004) urged that educators “find ways of using silence in our pedagogical practices so that our discourse does not degenerate into mere empty words (as though we do not listen to each other) but becomes a means to self-knowledge” that discourse cannot awaken (p. 211). Thus, he suggested embedding and introducing silence into classroom discussion in such a way that teaching becomes primarily about listening. An “education based on silence teaches students not only to think logically or critically or rationally, but also to see and to feel the whole of things” (p. 227). More specifically, Caranfa posited,

By shifting the mode of learning from discourse (knowing) to silence (unknowing), students come to value things not for the purpose of exploitation, profitability, and utility, but for the spirit they contain— that unspeakable source of being that cannot be taken up by human discourse and knowledge. (p. 227)
In the classroom, then, “the teacher and the student learn to hear each other’s words of silence as a prerequisite for creative learning” (p. 229). Recommending an aesthetic of silence as a method of learning, Caranfa (2006) suggested, “as teachers, we must recognise that learning issues forth from listening, which silences what we think we know” (p. 98). Of course, this position implies that many contemporary assumptions about pedagogy may be incomplete or, worse yet, disadvantageous. “The problem of education is a direct result of our failure to listen, to teach silence” (p. 98).

Silent engagement can be used among groups of individuals for educational purposes. Schools and libraries are among the places in which silence is an expected response (Bruneau, 1973). For instance, Lippard (1988) reported that in Quaker worship the use of silent meetings serve as a form of group identification and participatory rhetoric. Their practice of communal silence, silence is regarded as the highest desired achievement of human spirit rather than a passive state. In educational contexts, Quaker children are taught to sit in silence prior to making decisions and resolving personal conflicts. Silence is used both as an instructional method and as a subject of investigation. In the Quaker experience, silence allows the voice of truth to emerge. Lippard concluded that a rhetoric of silence could be applied to the classroom context.

**Attributions of Students’ Silent Behavior**

Various attributions are made of students’ silence in the classroom. Predominant attributions made by researchers, instructors, and other students tends to be negative to the extent that such attributions typically assign responsibility to the silent student and regard the reasons for silence as internal in nature, while failing to attribute the causes of silence to external factors. Thus, attribution theory may be useful in understanding how
others make sense of students’ silence in the classroom. Attribution theory posits that individuals assign meaning to the behavior of others as a way of interpreting and understanding given behaviors (Allen, Long, O’Mara, & Judd, 2008). However, attribution error can occur if individuals perceive the causes of their own behavior as due to external causes while perceiving the behaviors of others as originating from internal causes (Allen et al., 2008). In the classroom, students may be particularly prone to making attribution errors when forming perceptions of or evaluating their instructors (Allen et al., 2008). For example, students might “transfer their communication shortcomings in the classroom to the instructor” (p. 36). In a like manner, instructors and classmates might be prone to make attribution errors about student silence.

Instructors are particularly likely to make negative attributions of students’ silence and to also formulate global judgments of students based upon their silence. Disturbingly, instructors are further prone to base their evaluations on the global assessments. For example, Canary and MacGregor (2008) found that communication differences, such as participative or silent behaviors, between ideal and less than ideal students predicted instructor evaluations of students’ communication competence, defined as the quality of interaction behavior. Specifically, they discovered that ideal students were more likely to participate orally in class, whereas less than ideal students were more likely to remain silent (Canary & MacGregor, 2008). Thus, instructors described ideal students as those who participated daily, made contributions, and engaged in discussions. In contrast, less than ideal students were described by instructors as those who act shyly or remain silent. Importantly, the instructors surveyed in the study identified ideal students as more intellectually stimulated and participatory, but described less than ideal students as
absent, confrontational, and silent. Thus, “teacher perceptions of student communication vary considerably when considering ideal versus less than ideal students” (p. 56). Such perceptions can have very real impacts on students. Unfortunately, instructor perceptions of students’ communication can negatively affect students’ grades (Canary & MacGregor, 2008). Remaining silent during discussions, then, causes instructors to form negative impressions of students in part because the instructors attribute silence to a lack of interest in the class (Canary & MacGregor, 2008). In sum, then, instructors have been found to form negative attributions of students’ silent behavior in the classroom.

**Western Fear of Silence**

Western and American perspectives, in particular, on education place a great deal of value on student talk. Giving primacy to language is rooted in Greek and Christian traditions (Steiner, 1967). Kalamaras (1994) specifically credited the current negative perception of silence in Western culture as rooted in the classical rhetorical theories of Plato and Aristotle. He further argued that Western culture distrusts silence since it seems to hold an open disregard for rationalist thinking. It is not uncommon in American university classrooms in which instructors seek student participation for the instructors to be uncomfortable with students’ silence. This discomfort with silence extends beyond the walls of the classroom, however. As a culture, Americans are generally suspicious of and uncomfortable with silence. Belanoff (2001) observed, “we’re a culture fearful of silence” (p. 400), whereas many non-Western cultures value silence. According to Kalamaras (1994) “Western interpretations often privilege language over silence” (p. 211). And, “contrary to many Western perceptions, the awareness of silence is not a transcendental state but is itself an act of interpretation and, therefore, a symbolic form”
Traditions such as mysticism, Zen, Taoism, and Hasidism place a premium on silent communication and regard speech acts as assertion, presumption, intervention, vulgarization, or even blasphemy (Kane, 1984). Similarly, Jaworski (1993) observed that there is generally a Western bias in favor of speech over silence. He also found that most studies take a Western perspective on silence, despite the situationally and culturally specific nature of silence.

Questioning our cultural assumptions about silence can open our eyes to the value and meaning of silence. For instance, silence can produce positive and productive outcomes in the classroom (Belanoff, 2001). “It is not always true that one is not saying what one does not say. Silence communicates” (p. 420). Likewise, Jaworski (1993) argued, “viewing silence as a negative concept and speech as a positive one is, to a large degree, culturally biased” (p. 48). He explained that “on a number of planes, silence has two values: positive and negative” (p. 66-67). Importantly, though, “opinions about the negative communicative qualities of silence are culturally biased” (p. 62-63). As a positive concept, “silence can sometimes signal that the channel of communication remains open, or that one has no intention of closing it, while speech would precisely have the effect of overtly terminating the possibility of further communication between the participants” (p. 48). For instance, “remaining silent rather than uttering a complaint to another party has the benefit of not offending them and avoids the risk of terminating their relationship” (p. 49). Silence can also act as an indirect means of avoiding potential losses of face or as a means of avoiding the discussion of unpleasant topics (Jaworski, 1993). But, the ambiguous nature of silence can lead to misinterpretation and misunderstanding (Jaworski, 1993). For example, consider the axioms that “silence is
golden” and “silence is deadly.” In sum, though, our cultural fear of silence as an uncommunicative behavior seems misplaced. Furthermore, we seldom pause to examine what it is that is being communicated by another’s silence.

Silence and Meaning in the Classroom

In the classroom context, multiple meanings for silence may exist, whether they are recognized or not by students and instructors. For example, Jaworski (1993) suggested, “the teacher’s interpretation of the students’ silence is open to several possibilities” (p. 5). Importantly, though, “one instance of silence is differently interpreted by two individuals” (p. 5). Thus, “misjudging someone’s use of silence can take place in many contexts and on many levels” (p. 6). Importantly, “silence requires high participation involvement and a lot of filling in of information to be fully understood and interpreted” (p. 7-8). He speculated, “we accelerate our conversations with others and avoid pauses at all cost, because we think that whatever silences occur in discourse they inevitably indicate lack of mutual rapport between the interlocutors” (p. 6). Jaworski recognized the positive value of silence in communication. But, he cautioned, “healthy communication requires an accurate understanding of silence” (p. 11). Thus, “meaningful silence takes place only between two or more people” (p. 18).

Even in the classroom, the meaning of silence is contextual. For instance, Johannesen (1974) recommended that silence ought to be considered with regard to the verbal and nonverbal cues that precede and follow silence. He further contended that children acquire the ability to use silence in a manner similar to how they acquire the ability to use language. With Navajo, Japanese, Quaker, and Amish students, Jaworski (1993) argued that these groups are “at a disadvantage when the primary mode of
learning is the verbal one” (p. 22). He explained that “fighting for the floor can be quite frustrating especially, in a culture that values more talk and faster talk over less talk and slower talk” (p. 6). Remaining silent, though, is negatively stereotyped by most instructors (Jaworski, 1993). Johannesen also suggested that definitional differences lead some to regard silence as the absence of verbal communication, whereas others regard silence as also including a lack of nonverbal attempts at communication. Importantly, he argued that, based on previous studies, “reticent personalities are, among other things, disposed to be silent in varied situations (their silence seems more situation-free than situation-bound), sometimes find it necessary to break off communication because of fears, and have a self-image of being excessively quiet” (p. 35). He wondered “in the classroom, what is the most appropriate treatment for the silence of the reticent speaker or discussant?” (p. 35).

In the classroom context, however, there cannot be true silence. Jaworski (1993) observed, “silences occur and mean something all the time” (p. 8). For African American students, he claimed that previous research indicated that their silence, in combination with nonverbal behavior, signaled compliance with or defiance of directives and criticisms of teachers. For example,

Teachers’ silence always marks their dominant status over the students’. This is how they get and focus the students’ attention, interrupt them, or relieve the moments of tension. Students’ silence is subordinate, although it need not be submissive, as in the case of stylized sulking, which is a sign of the students’ reluctance to submit to their teachers’ authority. (p. 21)
Thus, student silence can function as a resistance to the power of teachers. Importantly, both instructors and students use silence in the classroom. As Jaworski explained:

The similarity lies in both teachers’ and students’ uses of silence in situations of negotiating power: exerting and displaying it in the case of teachers; defying and claiming it in the case of students. In either case, great emotional involvement and tension are present. (p. 21)

In some cases, silence might signal students’ lack of relevant knowledge to answer questions or it might reflect their hostility toward the teacher and an uncooperative attitude (Jaworski, 1993). Therefore, both strong positive and negative evaluative feelings are associated with silence (Jaworski, 1993).

Silence and Power

Silence and power are related in multiple ways, especially within the classroom setting. Initially, silence must be recognized as a potentially dangerous form of power. Petrovic (2003) argued, “silence is a speech act” (p. 163). As such, silence that serves to reproduce power or promote harm can be as powerful as other speech acts (Petrovic, 2003). Additionally, silence can be considered, in some instances, as a sign that individuals are being silenced by the power of others. Jaworski (1993) explained, “sometimes, silence may be regarded as a sign of someone’s power or control over others, or it may be a sign of a person’s weakness and submission” (p. 69). Consider, for example, that “silence can be a lack of words or a lack of being heard” (Belanoff, 2001, p. 402). In other words, within a classroom context, even the student who speaks may not be heard. Likewise, it is possible that a student may remain silent because he or she may feel as if their spoken contributions would not be heard.
Moreover, silence could be an indication, in certain situations, that dominant power structures are at play. Clair (1997) contended, “voice may simultaneously act to silence” (p. 333). Drawing upon Habermas, Clair (1998) explained that speech has often led to the privileging of certain persons or groups over others, thus creating power distinctions that prevent speakers from speaking freely. Thus, “the silences around the words are as powerful and as numerous in meaning and valence as the words themselves” (p. 23). She concluded, “communication can be silencing” through “naturalization, neutralization, topical avoidance, subjectification of experience, meaning denial and plausible deniability, legitimation, and pacification” (p. 38). In a classroom context, then, the power distinctions between instructors and students cannot be shed easily, if ever. But, silence also has the power to act as resistance (Clair, 1998). More specifically, silence can be a form of defiance or resistance (Clair, 1998). In other words, voices could function to marginalize others while silence may operate as a form of resistance. Thus, “silence can obviously marginalize and oppress members of society, but it can also express protection, resistance, and defiance. It may afford opportunities for emancipation or perpetuate the disappearance of the ‘other’” (p. 20).

At a constitutional level, Johannesen (1974) noted that despite the fact that American social contracts offer no specific right to silence, other than in the case of avoiding self-incrimination in criminal cases under the Fifth Amendment, that three existing categories for the right to silence were recognized, including: “(1) the right not to say what one does not believe; (2) the right not to say what one does believe; and (3) the right not to say what one knows” (p. 32). Thus, he suggested that researchers should
question what the constitutional dimensions of a citizen’s right to silence should be. He also observed that silence is sometimes recommended as a form of social protest.

Applebaum (2003) explained how educational settings can reflect dominant power structures by mirroring the unjust social relations of broader culture. “Speech that supports and is supported by dominant ideology becomes, at the moment of its utterance, the reproduction of power” (p. 157). Specifically, she explained an incident wherein one of her students felt safe in arguing that homosexuals were sinners. But, another student who had confided that he was gay to her remained silent during this discussion. Although Applebaum did not mention whether or not she graded participation, in this instance one could easily imagine that the student who expressed a viewpoint that silenced another student in class would be acting in accordance with such a policy requiring participation whereas the silenced student would be unjustly penalized for his silence. In sum, then, it appears that discussions of silence must be cognizant of and on the lookout for linkages to power.

A further dynamic of power in the classroom involves the influence that instructor authority and the class norms shaped by peers has on student communication. Interestingly, according to Hirschy and Wilson (2002), instructors’ power and authority affect classroom interactions when instructors reinforce or deter behaviors. Concurrently, they explained that classmates’ interactions also shape norms by hindering or encouraging their peers. Thus, “because students are part of the classroom community, they share responsibility for class interactions” (p. 93). Hirschy and Wilson explained, “role relationships can be discerned by observing interaction patterns between the instructor and students and among student peers. In each classroom, rules and norms
influence interactions among class participants” (p. 87). In turn, norms and rules affect patterns of participation, who does and does not participate, and whether students feel comfortable to voice disagreements or ask questions (Hirschy & Wilson, 2002). The implication, then, is that power, as manifested through instructor authority and class norms, can influence student communication.

Factors Influencing Student Participation

Although literature exploring students’ communication in the classroom has largely regarded silence as an obstacle to overcome, while simultaneously affording speech a position of greater importance in education, this body of literature does indicate a variety of factors that influence student participation. Several lines of variable-analytic research have examined the communication apprehension of students, their willingness to communicate, their motivations for communicating in the classroom, as well as various instructor behaviors, and instructional strategies.

Communication Apprehension

McCroskey (1977) defined communication apprehension (CA) as “an anxiety syndrome associated with either real or anticipated communication with another person or persons” (p. 28). Although there are many types of CA, oral communication apprehension is most common and has been shown to affect at least 15 to 20% of students (McCroskey, 1977). Aitken and Neer (1993) reported that CA is a major reason why students refrain from posing questions. Despite statistics indicating that only 20% of college students have high levels of CA, a much larger majority of students do not ask questions in the classroom (Aitken & Neer, 1993). Unfortunately, as McCroskey (1977) found, CA has a negative impact on learning and may cause students to avoid classes that
require oral participation. He further explained that even though no correlation has been shown between CA and intelligence, lower expectations by instructors can become a self-fulfilling prophecy for high CA students. Not surprisingly, McCroskey found that high CA students tend to consistently engage in withdrawal behaviors. Thus, interactive instructional methods such as required participation pose a problem for apprehensive students. As he concluded, “the classroom teacher can avoid hurting the communication apprehensive student. The teacher can eliminate grading on ‘participation’” or the teacher can “avoid calling on communication apprehensive students and forcing involuntary participation” (p. 33).

Importantly, measurement of CA has indicated that it is a global construct. Levine and McCroskey (1990) found that the second-order factor model of the Personal Report of Communication Apprehension (PRCA-24) provided the best fit for the data. The second-order factor model considers the context-specific subscales of the PRCA-24 as related but distinct subconstructs, which combine to form a global construct. Thus, they recommended against using the subscale scores unless necessitated by substantive issues pertaining to a study because the subscale scores lowered the reliability of the instrument. They further recommended that researchers reduce the PRCA-24 to 20 items to reduce error in the measurement model.

Subsequent studies have linked CA to a variety of other instructional communication constructs. For example, Chesebro and McCroskey (1998) posited that receiver apprehension, which is the amount of anxiety or situational fear associated with encountering and decoding new information, can prevent effective learning. They also claimed, “apprehensive receivers listen in different ways than non-apprehensive
receivers. This position would appear to provide a counter-argument to the position that speaking promotes learning insofar as apprehensive receivers may be more focused on encountering and decoding new information to an extent that it interferes with their ability to contribute class discussions.

In another study, Frymier and Houser (1997) found that low argumentative students reported learning less than high argumentative students, who are predisposed to defend their positions on controversial topics and refute counter-positions, leading them to conclude that classroom communication is an important element in learning. However, contrary to previous findings, they discovered that CA was unrelated to any measure of learning. If classroom communication were an essential element in learning, students with higher levels of CA who tend to participate less in class should have reported lower levels of learning. Thus, their results suggest that for apprehensive students the link between classroom communication and learning may be questionable. The authors posited that both argumentativeness and CA would be related to classroom participation. Low argumentative students experience discomfort with involvement in classroom discussions and refrain from expressing opinions in order to avoid conflict (Frymier & Houser, 1997). Although highly apprehensive students avoid classroom communication, they do think about content outside of class and compare class content with existing knowledge creating connections between the content and their career interests (Frymier & Houser, 1997). Thus, it would appear that low argumentative and highly apprehensive students avoid classroom participation and would, consequently, be disadvantaged in classes that require oral participation.
Rubin, Perse, and Barbato (1988) found that individuals have six motives for interpersonal communication: pleasure, affection, inclusion, escape, relaxation, and control. Interestingly, high CAs were motivated by the inclusion motive, but less motivated to communicate for pleasure, control, and affection. Thus, high CAs still feel a need for inclusion and will communicate with others to fulfill inclusion needs in spite of their apprehension. Younger people were motivated by pleasure, inclusion, and escape. Finally, the authors reported, “communication predispositions also influence reasons for talking to others” (p. 622).

Cole and McCroskey (2003) reported that perceived CA was negatively correlated with credibility and liking by receivers, but perceived behavioral shyness was not meaningfully correlated with either credibility or liking. Thus, the constructs of CA and shyness are distinct (Cole & McCroskey, 2003). Furthermore, the effects of self-perceived and other-perceived shyness are not the same (Cole & McCroskey, 2003). Shyness refers to the behavior and actual frequency of not talking (McCroskey & Richmond, 1982; McCroskey & McCroskey, 2002), and may be a result of various state and trait qualities (Cole & McCroskey, 2003). Shyness may be a result of CA or a plethora of other factors, but shyness is a broader construct than CA (Heisel, McCroskey, & Richmond, 1999).

**Willingness to Participate**

McCroskey (1992) concluded that the Willingness to Communicate (WTC) scale, which is a measure of an individual’s predisposition toward approaching or avoiding the initiation of communication, is both reliable (with estimates ranging from .86 to .95) and valid at the construct, content, and predictive levels. Importantly, he argued that because
WTC taps into one’s preference to avoid or approach communication, it is distinct from measures of anxiety or apprehension, such as the PRCA-24, and measures of actual talking frequency, such as the Shyness Scale which was previously called the Verbal Activity Scale. The correlation between the WTC scale and the Shyness Scale has been reported as .41, whereas the correlation between WTC and the PRCA-24 has been reported as -.52 (McCroskey, 1992). There is not a single predominant measure of actual talking frequency, but some instruments measure behaviors that are observable to others while other instruments, like the Shyness Scale, measure self-reported behavior (McCroskey, 1992). The WTC scale contains three subscores regarding types of receivers (strangers, acquaintances, and friends) and four subscores regarding communication contexts (public, meeting, group, and dyad). Importantly, the WTC scale assumes that respondents are aware of their avoidance and approach behaviors, and that individuals are in situations where they are capable of making a free choice to communicate or not (McCroskey, 1992). Thus, a classroom setting, especially one in which participation grades are used, may not involve a situation wherein students feel they have free choice.

In another study, Chan and McCroskey (1987) reported that students who scored high on the WTC scale participated in class more frequently than those students who scored low on the WTC scale. Specifically, over half of the high WTC students participated in each of three observed class meetings, whereas less than one-fourth of the low WTC students participated in class (Chan & McCroskey, 1987). Interestingly, so few students scored low on the WTC scales, as compared to high WTC students, that corrections had to be made for unequal sample sizes.
Menzel and Carrell (1999) found that the biological sex of students and instructors has not significantly related to students’ willingness to participate. However, they did find that the instructor’s verbal immediacy was positively related to students’ willingness to participate and, thus, recommended that instructors use verbal immediacy to stimulate oral participation by students. Willingness to participate was positively correlated with perceived learning (Menzel & Carrell, 1999). They concluded that the willingness to participate measure was a useful assessment for examining instructional variables.

Christensen, Curley, Marquez, and Menzel (1995) reported that, in a three-study design, they found that students’ willingness to participate is related to instructor immediacy. Specifically, they found that both verbal and nonverbal immediacy by instructors was related to students’ willingness to participate, although that relationship was moderated by the biological sex of the instructor and the biological sex of the student (Christensen et al., 1995). For instance, although instructor immediacy positively impacted both male and female students, male instructor’s use of immediacy solicited greater participation from female than male students. With female instructors, the use of immediacy had a much smaller impact on female students’ willingness to participate. Immediacy by male instructors also had a stronger impact on male students’ willingness to participate than it did with female students. The researchers concluded that a male instructor’s lack of immediacy could effectively silence female students. In addition, the authors reported that students were more willing to participate when they found the topic of discussion or the class to be interesting, if they were prepared for class, if the class size was small, and if participation grades were used (Christensen et al., 1995). Conversely,
students were less likely to participate if their views contradicted those of the instructor, if the instructor was of the opposite biological sex, or if their classmates were not talking. Thus, silence becomes somewhat cyclical in that students are less likely to speak if their peers are also silent (Christensen et al., 1995). Although students were cautious about speaking if their viewpoints contradicted those of their instructor, immediacy appeared to overcome such caution. Interestingly, by simply inviting participation in the first place, instructors appeared to be able to solicit student participation (Christensen et al., 1995). Consequently, the authors concluded that the instructor determines the level of verbal participation by students (Christensen et al., 1995). Importantly, Christensen et al. were unable to establish a statistically significant relationship between student participation and achievement. The authors also noted that their measure of classroom participation needed further refinement.

Student Motivations for Communicating

Several studies have examined the motives that students have for communicating in the classroom. Martin, Myers, and Mottet (1999) found that students communicate with their instructors for five reasons: relational, functional, excuse, participation, and sycophancy. Relational reasons refer to a desire to develop personal relationships with instructors, functional reasons refer to a desire to learn material or understand assignments, excuse reasons refer to an explanation of late or missing work and grade challenges, participation reasons refer to a desire to demonstrate interest in the class or understanding of material, and sycophancy reasons refer to a need to make a favorable impression or earn brownie points which implies an explicit goal (Martin et al., 1999). Specifically, students who are motivated by interpersonal reasons to communicate with
their instructors do so most often for relational and participatory reasons. The authors concluded, “student communication behaviors affect the classroom climate” (p. 155). The researchers posited that student-instructor interactions are determined by student motivation to communicate, but those reasons may be classroom specific (Martin et al., 1999). Motivations to communicate can be traced to a desire to satisfy the needs of the communicator (Martin et al., 1999). Martin et al. explained that student communication for relational reasons at the college level might differ from motivations for communication at primary and secondary levels. Relational reasons could also be in response to instructor self-disclosure (Martin et al., 1999). Thus, the authors found that “students communicate because they need information; they need to gain a better understanding of the material, and they need information about the requirements and their instructors’ expectations” (p. 161). Those students who communicate for functional and participation reasons would likely be more active participants in class (Martin et al., 1999). Interestingly, the authors speculated, “students may believe that success in the classroom requires their active participation to some extent” (p. 161). Of course, student motivation to communicate with instructors could be influenced by the degree of liking they have for particular instructors (Martin et al., 1999).

In a different report, Martin, Mottet, and Myers (2000) found that relational, functional, and participatory reasons for students to communicate with their instructors was significantly and positively correlated with measures of affective and cognitive learning, while excuse-making and sycophancy were not. They speculated that these results suggest that students who are proactive in their communication with instructors tend to feel more comfortable about their orientation to the class and report more
learning. However, the student motives for communicating with their instructors accounted for “very small” and “limited” amounts of common variance in the measures of affective and cognitive learning (Martin et al., 2000). Importantly, the measure of cognitive learning was a single item that asked students how much they had learned in the class prior to the one in which students completed the survey. This measure would seem to fail in an assessment of cognitive learning and is based on student self-report data. Affective learning refers to students’ attitudes, values, and beliefs about the learning and skills they have acquired (Richmond & McCroskey, 1992). Cognitive learning refers to knowledge recall, comprehension, organization of ideas, analysis and synthesis, application, problem solving, and evaluation (Bloom, 1956). Interestingly, “students’ attendance or paying attention in class may not be indicative of either their desire or need to communicate with their instructors” (Martin et al., 2000, p. 833). Students communicating for reasons of sycophancy or excuse-making may perceive these communicative behaviors detract from learning (Martin et al., 2000). Importantly, “classroom contextual and structural variables may also affect students’ motivations to communicate with their instructors” (Martin et al., 2000, p. 833). And, “instructors’ communicative behaviors or their style may be related to students’ motivation to communicate” (Martin et al., 2000, p. 833).

Weiss and Houser (2007) found that students’ motivation to communicate with their instructors was highly to moderately correlated with various levels of interpersonal attraction. Specifically, they discovered a positive relationship between interpersonal attraction and student motivations to communicate with instructors for relational and participatory reasons. The authors explained, “just as people have motives to
communicate with others in an interpersonal context, there are unique reasons why
students communicate in an instructional environment” (p. 216). Interestingly and
unexpectedly, the results indicated an inverse relationship between students’ task
attraction and their motivation to communicate with instructors for participatory reasons.
The authors speculated, “staying on task, getting work accomplished, and being
productive may simply not require participation in the students’ eyes” (p. 221). Thus,
students who are task oriented may be less likely to participate. Also, because instructors
have more power than students in the classroom, students may feel that interaction with
instructors is futile given students’ submissive role (Weiss & Houser, 2007).

Instructor Behaviors

The behaviors of instructors can affect the participation of their students. For
instance, Myers, Edwards, and Wahl (2007) found that instructors whose students
perceived them to be verbally aggressive, in other words prone to attacking one’s self-
concept, generated less student motivation to communicate in class or interact through
participation. The authors also posited that students confuse instructors’
argumentativeness with verbal aggression. They suggested that instructors who use
verbally aggressive communication strategies may stifle student participation and
involvement. Rocca (2001) found that students reported being more likely to participate
in class if their instructor was nonverbally immediate. However, students also reported
being less likely to participate if their instructor was verbally aggressive. Interestingly, no
significant differences in participation were observed between male and female students.
Montello (1988) concluded that by making eye contact with students, instructors could
solicit participation. In addition, the arrangement of the classroom can play a significant
role in either dampening or facilitating student participation (Wong, Sommer, & Cook, 1992).

Goodboy and Myers (2008), in a live lecture experiment, found that teacher confirmation, which involves recognizing and acknowledging the value of students as individuals, resulted in more student participation. However, moderate levels of confirmation evoked more participatory motives than higher levels of confirmation (Goodboy & Myers, 2008). Importantly, the failure of instructors to express confirming behaviors was suspected of stifling student participation and other communication behaviors (Goodboy & Myers, 2008). Instructors employing confirming behaviors, similar to caring, were suspected of being more likely to stimulate student interaction in the classroom, since confirmation leads to reinforcement of student talk (Goodboy & Myers, 2008). Of the five student motives for communicating with instructors on the Student Communication Motives Scale, the participatory motive may be rooted in participation grades or requirements (Goodboy & Myers, 2008). Various student traits may predict the willingness of students to participate in class (Goodboy & Myers, 2008). Data on whether the biological sex of students is a factor influencing participation remains mixed (Goodboy & Myers, 2008).

Some studies have examined students’ communication with instructors outside of the classroom. For example, Myers, Martin, and Knapp (2005) found that students were likely to communicate with their instructors outside of class if they perceived their instructors as demonstrating approachable and supportive interpersonal communication skills during class sessions. Thus, student participation in out of class communication is
motivated by instructor use of positive relational and interpersonal communication in class (Myers et al., 2005).

Many means exist by which instructors might encourage student participation without grading it. For instance, instructor self-disclosure (Goldstein & Benassi, 1994), using praise and calling on students by names (Nunn, 1996), and emphasizing the importance of students’ questions (Auster & MacRone, 1994) are related to increased student participation. Specifically, Goldstein and Benassi (1994) found a positive relationship between instructor self-disclosure and student participation and willingness to participate, leading the researchers to conclude that self-disclosure triggers a reciprocity effect that is not moderated by course level, class size, or the instructors’ biological sex. Importantly, “teachers often express frustration that it is difficult to promote student participation in their classes” (Goldstein & Benassi, 1994, p. 215). Contrary to Fassinger’s (1995) finding that student traits and class traits are better predictors of participation than instructor behaviors, Nunn (1996) found that instructor behaviors such as the use of praise, calling on students by name, and creating a supportive atmosphere were the most important indicators of student participation.

**Questioning**

Because questions posed by instructors can spark student participation, the frequency and types of questions asked by instructors are an important variable influencing students’ participation. Questions that students pose to instructors can also spark classroom dialogue. But, students might be hesitant to ask many questions. Interestingly, Pearson and West (1991) discovered that students ask very few questions in class. However, they concluded that the paucity of student questions was likely due to
poor listening and a lack of question literacy (Pearson & West, 1991). Although the authors noted that both instructors and students share responsibility in classroom interactions, and further recommended that instructors aid students in the acquisition of question literacy skills, their recommendation seems to place the onus squarely on the shoulders on students. Interestingly, the authors found that “questions in the classroom vary as a function of the teachers’ biological sex and, within male professors’ classrooms, as a result of the students’ biological sex” (p. 30). Specifically, students asked fewer questions of male instructors, and most of these questions originate from male students. Finally, the authors noted, “students who ask questions tend to be those who view themselves as independent and self-confident” (p. 30).

Unfortunately, Barnes (1983) found that 80% of the questions asked by college instructors are simple factual recall questions that occur at the lowest cognitive level. Moreover, Dillon (1994) reported that instructors’ questioning techniques not only fail to encourage participation but also tend to discourage student thinking and comments. The use of statements by instructors promotes student responses of a higher cognitive level and greater elaboration (Dillon, 1994).

In one intriguing study, Nunn (1996) picked 20 college instructors identified by administrators as “very good teachers” and their students to be involved in her study. Obviously, the selection of instructors who had received highly positive student evaluations and were respected by administrators created a sample that cannot be generalized to all instructors and classrooms. Importantly, Nunn operationalized participation as both the actual time spent in participation and as the percentage of students involved in participation. But, she discovered that few students actually
participated and little class time was devoted to interaction with students. Disturbingly, she found that only 2.28% of class time was devoted to students’ oral participation and only 25.46% of students were involved in oral participation. Although she found a vast range from one instructor to another, the overall averages are alarming given that these instructors were supposedly the best the institution had to offer. Interestingly, she did not find a strong relationship between the size of the class and participation for those classes with enrollments lower than 35 students (Nunn, 1996). But, differences were found in participation level depending on the subject area of the class (Nunn, 1996). Both students and instructors reported that positive teacher behaviors like the use of humor, praise, student names, student ideas, and creation of a supportive climate were strong incentives for student participation (Nunn, 1996). Not surprisingly, “teaching techniques are strongly related to classroom participation” (p. 258). For instance, praise and a supportive atmosphere encourage participation, while criticism discourages student participation (Nunn, 1996). She concluded that “classroom interaction is indeed a complex process that is affected by many additional variables besides specific teaching techniques” (p. 262).

Interestingly, Nunn discovered,

Every faculty member and 97% of the students believed that classes should involve some student participation. Specifically, 48% of the students and 60% of the faculty preferred to have ‘1 to 20%’ of class time devoted to student participation, while 46% of the students and 40% of the faculty preferred 21 to 61% of the time devoted to participation. (p. 256-257)

She concluded that students and instructors unanimously agree that classes should include some student participation, but students reported that their instructors were not
effective at leading discussion and the instructors admitted that their abilities to lead discussions were inferior to their general teaching ability.

Given that Nunn’s (1996) sample consisted of “very good teachers” it is reasonable to wonder if the most college instructors are capable of leading discussions in a way that generates student participation. She concluded that even the best college instructors may need to improve their discussion-leading skills and that training on the topic is needed. But, her suggestion was based on the position that interaction with students maximizes student learning. She did note, however, that nonverbal behaviors should be considered a part of total student interaction. So, why require participation of all students through grades if not enough time is devoted to participation in the first place? In Nunn’s study, not only was very little time devoted to participation, but even the desired amounts of time suggested by students and faculty would still seem to fall short of a reasonable amount of time devoted to student participation if participation grades were used. Of course, Nunn’s study did not inquire about or report the use of participation grades, but her results cast serious doubts on a position advocating the use of participation grades.

Cold calling by instructors is one method of posing questions to students. Dallimore et al. (2004) found that graduate business students, from two courses that graded participation, strongly supported the use of cold calling. Open-ended survey responses from 54 participants were content analyzed endorsed the use of participation grades to increase both quality participation and discussion effectiveness. The researchers concluded that cold calling can be utilized to create democratic classroom environments that include multiple student voices, but admit that cold calling eliminates the student’
choice, thereby reinforcing power structures between instructors and students in an inherently undemocratic fashion.

In the end, no single technique may prove to work in all situations. For instance, O’Keefe and Faupel (1987) suggested that instructors seeking involvement from a broad cross-section of a class call on silent students with questions. To address any issues of sexual inequality in the classroom, they recommended getting female students involved during the first weeks of a class. But, Prentice (2005) observed, “although certain techniques can be employed to encourage classroom participation, these techniques are not foolproof. Classes differ from one another, and what stimulates conversation in one class sometimes falls flat in another” (p. 3). Thus, soliciting student participation and questions is challenging as evidenced by discussions that fall silent.

_Dialectical Tension of Speech and Silence_

The decision to speak or not is a tough one for some, if not for most, students. Thus, by applying the theory of dialectical tensions to the classroom, we might gain greater understanding of the forces and factors that may cause students to want to talk, but also to not want to talk. These contradictory tensions are often resolved by simply remaining silent most of the time. But, the variables that might explain how students resolve the dialectical tension of speech and silence are intriguing. More generally, Clair (1997) concluded, “silence and voice exist in a complex tension with each other” (p. 332). Thus, silence and voice form a dialectical tension. Consequently, “voice is not independent of silence” (p. 333).

In the classroom context, specifically, Prentice (2005) examined student participation or lack thereof through the theoretical lens of dialectical tensions and found
that contradictory factors, most of which cannot be easily manipulated by instructors, influence student decisions to participate or not. Interestingly, she discovered that class size was the best predictor related to variations in participation, but the biological sex of students was not (Prentice, 2005). Aside from class size, the next best predictor of participation was whether students felt their classmates welcomed their comments and whether students felt they could help others learn by participating (Prentice, 2005).

Overall, although instructor behaviors did influence participation, factors associated with classmates and internal forces emerged as the most important considerations influencing the frequency of students’ participation (Prentice, 2005). Internal forces included not wanting to seem stupid or be wrong and a general desire to remain quiet (Prentice, 2005).

The implication of these findings, Prentice suggested is that:

A teacher can create an environment in which students want to help each other learn—a prime factor in this study of why students participate in class. On the other hand, instructors should recognize that some students do not want to participate and that some remain too uncertain to participate, and perhaps nothing the instructor does will motivate them to change their internal motivations. (p. 12-13)

Thus, the dialectical tension experienced by students deciding whether or not to participate is mostly internal. Because instructor behaviors and responses did not significantly influence student levels of participation, Prentice concluded, “what the instructor specifically does to directly encourage participation may have little impact” (p. 12). However, her sample of students reported abnormally high levels of participation, suggesting that silent students were underrepresented in the study.
Cultural Differences

Cultural differences among students may also explain patterns of participation. In one especially noteworthy investigation, Nakane (2005) conducted case studies of Japanese college students’ silence in Western classrooms and found their participation to be influenced by both cultural and contextual factors. Although both the instructors and classmates found the Japanese students to be silent and reticent, the perceptions and performances of classmates were discovered to have the strongest influence on participation. In silent gaps following invitations to participate were filled when peers and instructors took over the floor. In turn, this take-over served to further silence Japanese students who needed more time to organize their thoughts due to language proficiency issues and culture-specific communication styles. Because Japanese students are typically not familiar with voluntary participation in class, it is challenging for them to re-enter the discussion once the direction of talk has shifted unless explicit invitations to participate are issued (Nakane, 2005). One implication of this study is that “we need to recognise the importance of turn-by-turn negotiation processes in participation as well as roles of classroom participants’ perceptions when we look at silence in native and non-native or cross-cultural communication” (p. 96). Thus, Nakane recommended the use of longer wait time and modes of written participation to better accommodate non-native students.

In addition to cultural differences, classroom participation behaviors might also be influenced by students’ degree level; furthermore, these variables might interact. Differences likely exist between undergraduate and graduate students’ patterns of participation. But, differences are also reasonable to expect within each of these groups.
For instance, domestic and international graduate students might demonstrate differences in classroom participation. In this vein, Tatar (2005) argued that silence is a form of communication for non-native English-speaking graduate students. Although differences exist from disciplinary area to another, participation is strongly encouraged and often evaluated in graduate course (Tatar, 2005). Graduate instructors typically regard participation as an important part of the learning process since discussion is a large part of graduate courses (Tatar, 2005). Thus, more research is needed that accounts for the reasons why non-native speakers of English remain silent in graduate courses (Tatar, 2005). “Although both silence and speech are components of human communication, research on the role of silence in communication is recent” (Tatar, 2005).

However, most research has taken the Western perspective on the uses and value of silence as the norm (Tatar, 2005). Classroom silence is dependent on contextual factors (Tatar, 2005). Tatar (2005) found that “silent students find listening, thinking and reflecting as more effective ways of learning than talking” (p. 285). Importantly,

In U.S. graduate classrooms where students with different cultural backgrounds and personalities communicate, it is important to understand the functions, meanings and importance of silence in different cultures and contexts to be better able to meet the needs of non-native-English speaking-students. (p. 286)

Tatar found that international graduate students use silence as a protection strategy to save face or cover language deficiencies, as a means of participation, as a reaction to classmates’ contributions, as a sign of respect for instructors’ authority, and as a negative reaction to classmates who spoke too much. International graduate students who described themselves as silent students reported remaining mentally active in class, using
active listening, employing attentive nonverbal behaviors, taking notes, asking questions, or responding to questions as forms of participation (Tatar, 2005). For these students, the concept of participation had a broader meaning that was not restricted to speaking, but instead included any alternative participation activity that demonstrated engagement (Tatar, 2005).

Tatar (2005) found that the majority of international students considered listening to be associated with learning. International graduate students were often uncomfortable with free-flowing discussion and chose to remain silent as a form of protest in response to the perceived low quality of classmates’ contributions or in resentment of those who tended to dominate discussions (Tatar, 2005). Tatar found that international graduate students remained silent and did not speak with being specifically invited to do so out of respect for the instructor. For international graduate students, the careful filtering of ideas contributed to their silence in class (Tatar, 2005). Tatar found that international graduate students felt they had to compete with their native-English-speaking classmates. Thus, “silence is not necessarily an indication of lack of knowledge or interest but may be a conscious choice for non-native students” (p. 292). Clearly, in this case, the “emphasis on active oral participation, a mode that clearly disadvantaged non-native speakers, caused the students to develop negative attitudes towards learning through discussion” (p. 292). But, “silence might be an alternative mode of participation in which a student internalises knowledge in a low-anxiety environment” (p. 292). Tatar recommended, “teachers should consider active listening and silent reflection as effective methods of learning” (p. 292). Tatar concluded that international graduate students engaged in the classroom through their silence; however, their silence was misinterpreted by instructors.
Participation Grades

Grades are a common incentive used by instructors to motivate student participation (Balas, 2000; Bean & Peterson, 1998; Fritschner, 2000; Jacobs & Chase, 1992). However, such approaches tend to operate from dualistic assumptions about students’ speech and silence in the classroom. As Picard (1948/1952, 1963) and other theorists (Bruneau, 1973; Clair, 1998; Dauenhauer, 1980; Jaworski, 1993; Kalamaras, 1994) have indicated, the relationship between speech and silence is much more complicated. Moreover, the rationale for participation grades, in large part, stems from the supposed connection between speech and learning. However, silence is also a means of learning (Canafa, 2004, 2006). Additionally, although participation grades are intended to increase the frequency of students’ talk and get more students involved, the results are often negligible at best as only a handful of students end up doing most of the talking (Fritschner, 2000; Howard, Short, & Clark, 1996). The reasons students participate in class discussion should be voluntary; not because their participation is graded (Lowman, 1995; Tiberius, 1990). Thus, it is time to take another look at the desirability and effectiveness of participation grades.

Instructor Perceptions of Participation Grades

Literature supporting the use of participation grades either rests its case on non-empirical assumptions about pedagogy or upon unverified anecdotal data. In either case, though, those scholars who make the case for participation grades are in some ways, perhaps, reflecting their own biases about the nature of speech and silence in the classroom. For instance, studies investigating instructors’ perceptions about participation grades are, not surprisingly, likely to find that instructors like participation grades and
think they are effective means for generating student classroom involvement. If instructors are the ones assigning the grades, it is not shocking that they would believe the grades to be effective. A better test of the efficacy of participation grades would be to measure the perceptions of students. However, few studies to date have done so by directly asking the students what they think of participation grades (Tatar, 2005).

In one study examining the effectiveness of daily participation grades, Rattenborg, Simonds, and Hunt (2004) examined the use of daily reading objectives, which required students to respond to questions about the assigned readings and make extended comments applying the reading material to their own lives prior to coming to class, and participation sheets, which specified a criteria for both students and instructors to evaluation participation on a daily basis. They noted that, “currently, there is not a grounded theory regarding student engagement” (p. 18). Thus, they sought to use their results to establish the building blocks for the development of a classroom engagement theory. Although their results indicated that the instructors felt the use of reading objectives and participation sheets generated more and better student participation, they admitted that the instructors involved in the study could have been sensitized to the objectives of the study during training sessions and may have been providing socially desirable answers. The responses by instructors may be due to a self-fulfilling prophecy; since the instructors reported favorable impressions regarding the use of these assignments, they may have, in turn, felt that class participation was better. Moreover, the authors admitted that they were unable to produce quantitative evidence that demonstrated an increase in student learning as a result of employing the reading objectives and participation sheets. The null findings could be evidence that even if the
assignments affected student participation, those changes do not result in measurable learning outcomes.

If instructors are going to grade participation, the systematic assignments employed by Rattenborg et al. (2004) seem an appropriate approach to doing so. Although students often perceive participation grades as too subjective, the system employed by the researchers addresses this concern by having students assess their own participation. Other notable concerns with most instructors’ participation grades are the lack of a clear criteria and the failure to train students how to participate (Wood, 1996). Given the common measurement issues associated with participation grades, the assignments examined by Rattenborg et al. appear to be the best thought-out system of grading participation that has been studied to date. However, even in this best-case scenario, the researchers failed to establish empirical support for student learning outcomes. That the instructors thought the grades sparked better participation and learning is little surprise and could have been due to flaws in the design of the study.

Participation Grades and Learning

The few studies that have directly compared participation grades and measures of student learning leave a little to be desired. In one study of note, Reinsch and Wambsganss (1994) conducted an experiment where business law classes of both a general nature and a more technical content were assigned to conditions in which participation was graded and not graded. Student scores on examinations indicated that the results of active participation may depend on the technical nature of the class and the students’ preparation prior to class rather than participation grades. Although observations indicated that participation grades may have motivated some students to
participate more frequently in class, most students did not participate often or chose not to participate at all (Reinsch & Wambsganss, 1994). Interestingly, the amount of participation did not result in significant differences in examination scores. The authors concluded, “professors have consistently encouraged students to actively participate in class, believing that such participation provides benefits to the individuals involved in the participation and to other students in the class. This study, however, raises doubt about this generalization” (p. 36). Specifically, in the more technical class, no significant differences were found in student examination scores between sections that graded participation and sections that did not grade participation. Thus, the evidence supporting the effect of participation grades on measures of students’ learning is insufficient.

Predictors of Student Participation

Literature concluding that participation grades are effective is quite common. What is more common, however, is to discover upon closer inspection that these studies never manipulate or control for participation grades in their research design. Although this relatively small body of literature is helpful in illuminating potential variables that might influence student participation, the actual results or design of the studies falls short of making the case for participation grades. For example, triangulating survey, interview, and observational data, Howard et al. (1996) found that age, biological sex, class size, time during the semester, and time of day were all significant predictors of students’ oral participation. The authors concluded that making students aware that the instructor desires participation is not enough to produce equivalent levels of participation among all demographic groups of students. Disturbingly, the authors suggested that participation grades might offer a solution for getting more students to orally participate in class.
However, the study never reported whether participation was graded in the classes they observed; nor did they request such information from students on surveys or during interviews. Thus, their recommendation that participation grades be used is shockingly without basis.

Interestingly, though, Howard et al. (1996) found that only a small percentage of students did most of the oral participation. They labeled this phenomenon a “consolidation of responsibility” because the less talkative students relied upon overly talkative students to make most of the in-class comments. Although reactions to over-talkers were evenly divided between positive and negative responses, students generally reported that they expected the over-talkers to do the participating. Students were concerned, though, that over-talkers hampered learning by getting discussions off-topic. After controlling for biological sex and class size, age was found to be an important predictor of verbal participation. Interestingly, only 44% of the students in attendance participated in the discussion, but 28% of those present accounted for 89% of all the comments. Even after controlling for various demographic factors, only a small number of students from any particular demographic group accounted for 83% of the total comments. Thus, it appears that the “consolidation of responsibility” holds true for any demographic group. Howard et al. explained that “most students feel that very little is expected of them: participation is the job of those few ‘talkers’ who accept the responsibility of discussion” (p. 20). Age proved to be a stronger predictor of oral participation than biological sex. Not surprisingly, more non-traditional students contributed oral comments than did traditional aged students. Although slightly more males contributed to class discussion than females, the gap between non-traditional and
traditional students was much more pronounced despite the fact that instructors call on
traditional students more often. The beta weights indicated that age was three times more
influential on oral participation than was biological sex. While biological sex was a
significant predictor of participation, it was only one of many variables and had less of an
effect than age or class size. As class size increases, the amount of oral participation
decreases because students, and females in particular, are less willing to participate and
instructors offer fewer invitations for students to do so. The amount of oral participation
also increased as the semester went along, leading the authors to conclude that as students
become more familiar with their instructors they contribute more to the discussion.
Females and traditional students respond more often if the instructor invites discussion.
Interestingly, classmates tended to attribute the behavior of quiet students to shyness.
Instructors, on the other hand, only attributed shyness to the behavior of quiet students if
those students performed well. If their performance suffered, the instructors were more
likely to conclude that quiet students lacked interest in the course. Thus, instructors’
likely regard silent students—the majority of students in typical classes—with suspicion.

In a more recent study, Weaver and Qi (2005) examined 10 causal variables that
they believed influenced the oral participation of students in class in a path model
analysis and reported that faculty-student interaction both inside and outside the
classroom was the strongest direct and indirect influence for the 1,550 undergraduate and
graduate students surveyed. Thus, the authors concluded, “faculty can influence student
participation” (p. 597). However, their study failed to control for and did not report the
influence of participation grades. Without knowing whether participation was graded in
the classes that students responded to on their surveys, it is difficult to determine just how
accurate their path model is from an ecological standpoint. Although their conclusion that instructors play a very significant role in the participation of students seems logical, we do not know if those instructors graded participation or not. Weaver and Qi also begin with the assumption that participation enhances learning, yet cite extant studies to support this position that are not based on empirical evidence.

Of note, however, Weaver and Qi (2005) found that students’ perceptions are essential in shaping their classroom participation. Structural variables such as class size, opportunities for participation, instructor authority and power, instructor-student interaction both in and out of class, and students’ fears of instructor criticism or classmates’ disapproval influence reported levels of participation. Student demographics and attributes such as age, year in school, degree level, biological sex, amount of preparation, and reported confidence level also influence reported levels of participation. Contrary to previous studies, Weaver and Qi found that class size failed to effect student participation. Importantly, “the more students perceive the professor as an authority of knowledge, the less likely it is that they will participate in class” (p. 586). Contrary to expectations, fear of instructor criticism did not emerge as an important influence on self-reported participation. Non-traditional students, those over 25 years of age, report greater levels of participation as compared to traditional students. The biological sex of students was found to have little or no effect on self-reported levels of participation, thus casting doubt on the “chilly climate” hypothesis that female students are discouraged from participation. The university classroom is a social organization (Weaver & Qi, 2005). Learning communities and the creation of classroom “communities” are suspected of affecting participation (Weaver & Qi, 2005). Confidence levels significantly affect
participation and simultaneously mediate the effects of most other variables predicting participation (Weaver & Qi, 2005). Even though preparation affects confidence, fear of classmates’ disapproval has the greatest impact on confidence (Weaver & Qi, 2005). The degree level of students, undergraduate versus graduate, and the year in school, lower-level versus upper-level undergraduate or master’s versus doctoral student, may affect differences in participation levels (Weaver & Qi, 2005).

Subjectivity of Participation Grades

Dancer and Kamvounias (2005) conducted a study to determine if using self, peer, and tutors’ assessments of student participation could minimize the subjectivity of participation grades. They argued that participation grades are often assigned subjectively, which creates a problem given the common usage of participation grades in many university classes. Participation may be required even though it is not included in course assessment (Dancer & Kamvounias, 2005). Although they determined that peer assessment of participation was not necessary, they found that self and tutor assessment following clearly specified and carefully developed criteria could produce less subjectivity. However, their results did indicate a potential gender bias since male students consistently scored higher on participation grades even though overall course grades failed to show such bias. They speculated that the gender bias could be a result of female students not feeling empowered to speak in class. They noted, “a more difficult problem concerns students not participating fully for different reasons. This is difficult to overcome if the class participation is measuring oral communication” (p. 453). Unfortunately, however, “the assessment of class participation is, to some extent, the assessment of the generic skills of oral communication and group work” (p. 452).
Instructors generally penalize students who do not participate when course grades are assigned because they consider silent students to be unprepared, passive, lazy, or uninvolved (Dancer & Kamvounias, 2005).

Student Learning

Student learning is certainly an important, if not the most important, outcome of concern to educators. Thus, the relationship of speech and silence to student learning outcomes is vital to examine in greater detail. Given the priority of student learning outcomes in education, the ways in which student speech or silence might affect these outcomes are germane to any discussion of classroom participation. Importantly, since the literature advocating oral student participation rests, in large part, on the notion that such participation produces positive learning outcomes, the case for oral participation and oral participation grades, in particular hinges on the available evidence documenting learning outcomes.

The claim that speaking translates into student learning is the basis of initiatives by instructors to encourage oral student participation in the classroom. Prentice (2005) observed that most college instructors desire student participation because they believe that participation encourages students to engage course material more deeply, develops critical thinking skills, helps classmates learn, and establishes a better classroom climate. Research exploring students’ classroom communication also base such efforts on the assumption that learning is linked to discourse. Thus, the belief that participation leads to learning is an important assumption of instructors as well as researchers. Since so much weight is placed on the connection between speech and learning, with resulting implications for instruction and pedagogy, a closer examination of the evidence
supporting this link is warranted. Instructors and researchers alike would be remiss if they did not attempt to confirm or disconfirm what has become the lynchpin of arguments in favor of oral student participation.

_Speech and Learning_

The vast majority of studies and articles on student participation that sing the praises of participation, endorse methods of encouraging student participation, or recommend the use of participation grades cite previous literature that is claimed to have established a link between student participation and various learning outcomes. Disturbingly, these studies and articles take the link between participation and learning as a given without collecting new data to confirm this link. More shocking, however, is the misinterpretation and exaggeration of the original studies that supposedly establish the link between participation and learning.

For example, Hirschy and Wilson (2002) and others cite a study by Terenzini, Theophilides, and Lorang (1984) as evidence that student participation leads to academic skill development. Closer examination of Terenzini et al.’s original study, though, produces little evidence for such a claim. Terenzini et al. collected longitudinal data on an incoming freshman class over a four-year period to demonstrate the overall benefits of a college education on students’ intellectual development. The authors admit that their study measures student learning based on self-report data without including any objective measures of actual learning or performance. Moreover, the only variable included in their study that comes close to indicating student participation in the classroom is a subscale labeled classroom involvement. However, the items on the classroom involvement measure ask students to respond to statements such as “enjoyed my classes” and “learned
something new in my classes” (p. 626). Clearly, these items have more to do with a student’s presence and cognitive involvement in his or her classes than her or his participation, let alone oral participation, in the classes. In fact, the authors never draw the conclusion that classroom participation leads to student learning. Instead, the study’s conclusion is that the total collegiate experience, both inside and outside the classroom, is what causes students to report increasing levels of intellectual development throughout their college years. For instance, one of their strongest findings was that contact with faculty members outside of the classroom was an important predictor of students’ perceptions of intellectual growth. In fact, the students’ social development and contacts with peers outside the classroom emerged as important variables in the study. Finally, the results indicated that each year students’ means scores reflected consistent improvement, thus suggesting that all students, both talkative and silent students, feel they develop intellectually with each passing year as a result of their overall collegiate experience. Although the authors admit that each student develops at his or her own rate and that variance does exist within groups even through that variance is often hidden by mean scores, the effect of learning is cumulative rather than a reflection of any particular classroom experience. In sum, then, it is difficult to see how Hirschy and Wilson (2002) can read Terenzini et al.’s study as proof that classroom participation leads to learning. At the very least, the claim that oral participation is necessary for learning would be a vast misinterpretation of the original data. In their review of previous studies, Terenzini et al. argued that “there is virtually no attempt in any of the studies to identify precisely when such growth occurs or what features of the collegiate experience promote or inhibit that development” (p. 622). They further noted that the effect sizes in previous studies were
extremely small, thus casting serious doubt on the ability to pinpoint the reasons why students develop intellectually during their college years.

Although now dated, research by cognitive psychologists demonstrates that active processing is required for long-term learning (Nunn, 1996), it is arguable whether active processing requires oral student participation. Active learning, which is what extant literature indicates is imperative, includes both collaborative learning, meaning alternatives to the lecture format, and cooperative learning, meaning group work in non-competitive situations (Hirschy & Wilson, 2002). Thus, the claim that active learning necessitates oral participation during discussion overstates the available empirical and theoretical evidence. The claim that learning necessitates oral participation grades is an even further stretch of the available evidence on the importance of active learning since there is nothing inherently oral about active learning that should require students to orally participate in class discussions.

*Interaction Involvement*

Some prior instructional communication research suggests that one’s ability to communicate competently might lead to improved cognitive functioning. Cegala (1981) posited that interaction involvement is one facet of communication competence. He defined interaction involvement as necessitating some form of active participation with one’s social environment. Importantly, though, he explained that one’s interaction involvement will naturally cycle through periods during which the individual with express inner thoughts and feelings at times, and at other times participate less in his or her social environment as inner thoughts and feelings are kept in the domain of private
experience. Thus, low periods of interaction involvement are not only quite natural, but do not indicate the absence of inner cognitive processes.

More recently, Myers and Bryant (2002) found that students who feel understood by their instructors and, to a lesser extent, report being involved in classroom interaction also report higher levels of affect toward the instructor, state motivation, and satisfaction as well as moderate levels of affect toward the course content. Although the authors claimed that they were measuring perceived affective learning, their measures are arguably tapping into affect of liking of the instructor and course content rather than perceived learning. Plus, the findings merely demonstrate that student involvement, “whether it be through feelings of perceived understanding or involvement in classroom interaction,” produce what the authors claimed was perceived affective learning (p. 151). Thus, it is possible that feelings of perceived understanding may be sufficient to result in perceived affective learning, without necessarily also being involved in classroom interaction. Importantly, the authors concluded that students’ perceptions and feelings were the root of their perceived affective learning, which implies that students’ perceptions of being involved in the classroom interaction, rather than their actual involvement or levels of involvement, determined their perceived affective learning. Interestingly, their results indicated that the instructor and the instructor’s communication behavior mediate these relationships and are more influential than the course content. Any one of many factors in the classroom could affect students’ involvement in classroom interactions (Myers & Bryant, 2002). Independently, though, Martin, Myers, and Mottet (2002) reported that it is quite possible for students to perform well academically while rarely participating in classroom discussion.
Speech-Thought Paradigm

One prevalent viewpoint within instructional communication research holds that speech clarifies thought (Dance, 1990; Dance & Zak-Dance, 1994). Not only does speech clarify the thoughts of the speaker, the argument goes, but one’s speech permits listeners to benefit as well (Dance, 1990; Dance & Zak-Dance, 1994). Scott (1972) speculated that speech mediates the relationship between thought and action. Of course, in addition to the lack of empirical evidence supporting this theory, the notion that speech is actually capable of clarifying thought is somewhat suspect given the ineffability of language. This position, however, has guided some researchers examining student participation to conclude that instructors ought to promote student talk in order to clarify thinking and stimulate knowledge (e.g., Christensen et al., 1995). In the process, researchers typically define participation as verbal (e.g., Christensen et al., 1995). But, the question remains, who needs to speak to produce positive learning outcomes? Much each student speak during class, or is the participation of a few students sufficient to produce the desired results? Perhaps, the unstated corollary is that silence also serves to clarify speech. As Bruneau (1973) exclaimed, “silence is to speech as the white of this paper is to this print” (p. 18). Silence thus clarifies speech by disrupting the continuity of speech (Bruneau, 1973).

Some evidence indicates that the participation of only a few students appears to be enough to affect learning outcomes. For example, Smith (1980) examined 12 faculty members who used a variety of teaching styles and their students to determine if a link between participation and learning existed. Although he was able to establish that participation and involvement were correlated with measures of critical thinking and
other learning outcome measures, his classroom observations indicated that these results occurred in conditions in which less than 20% of class time was devoted to student involvement and participation. Specifically, during only 2.6% of class time did instructors pose questions to students, and in some cases answered their own questions. Moreover, during only 14.2% of the class time did student participation actually occur. So, although, Smith was able to link these small amounts of student participation to measures of learning, these results are far from conclusive about the amount of participation necessary to stimulate learning. In fact, his conclusion that student participation should be encouraged since it promotes learning appears to have a very low threshold in that not all students need to participate for learning to occur, nor does much class time need to be devoted to participation. If less than 15% of class time needs to be spent on student involvement and participation to achieve the positive correlations with learning outcomes that Smith found, then it would be difficult to conclude that all students need to be involved in participating to stimulate learning. The results of his study do not necessarily mean than more participation creates more learning. “The active intellectual interchange, which one often imagines when envisioning a college classroom, does not take place on the average” (p. 11). It seems that the mere inclusion of any small amount of student participation during the class period is sufficient to generate positive learning outcomes.

In another study, Natvig, Albrektsen, and Qvarnstrom (2003) found that the amount of students’ verbal activity had a strong positive relationship to increased perceptions of social support and decreased perceptions of stress, leading the authors to conclude that participation benefits students’ health. They further discovered that class
discussion, group activities, and participatory learning activities were associated with higher verbal activity. Importantly, however, their study investigated Norwegian adolescents, none of whom were older than 15 and many of which were as young as seven years of age. Thus, it would be difficult to generalize these results to a college-aged population in America. Plus, it is arguable that class discussion, group and other activities, the number of questions posed to students, and the nature of verbal activity differ in meaningful ways at the university level as compared to primary and secondary classrooms (Nunn, 1996). Finally, the authors admit that giving the opportunity to participate “even if the students do not get personally involved in the discussions” seems to be the important condition leading to increased social support and decreased stress (Natvig et al., 2003, p. 270). In other words, the method of instruction is more important than actually achieving participation from all students.

Classroom Climate

Of course, the connection between student oral participation and learning outcomes could be indirect. One possible explanation of the indirect link between student speech and learning is based on the instructional climate of the classroom. For example, Hirschy and Wilson (2002) argued that because the classroom is community setting, the climate of the classroom can have a huge impact on student learning. They defined classroom climate as the learning environment of a given classroom, which can be influenced by instructors, students, and classmates. Over time, they contended that the relationships developed among faculty and students can either impede or facilitate learning. Importantly, they noted that the social status of instructors and students impact role relationships, classroom climate, and learning. Social status refers to factors such as
gender, race, age, and social class; but, can also include first generation college students (Hirschy & Wilson, 2002). Student learning is associated with perceptions that instructors are concerned and devoted teachers, since as Hirschy and Wilson explained, “an instructor’s intervention may encourage a classroom climate that supports respectful discourse among classmates and advances other effective learning conditions for diverse populations” (p. 94). In a review of extant literature, they concluded that evidence on the chilly climate hypothesis is mixed. Instructor interactions with students are a more important influence on learning than students’ participation. For example, according to the authors, the type of classroom climate that instructors establish, their interactions with students, and their pedagogical approaches has a strong impact on student learning. As Hirschy and Wilson wondered:

What might be reasons for students to choose to not participate in class? Students may be frustrated with domineering peers, fear appearing stupid, have low confidence levels, be shy, arrive unprepared, experience uncomfortable feelings about the topic, be sleep deprived, not understand the material in the manner it was presented, perceive that the professor does not really want discussion, or feel anxiety about being singled out as a model member of a group. (p. 93-94)

Of course, they speculated that the potential exists for any combination of the preceding factors to influence a student’s participation on a given day. Hirschy and Wilson concluded that “faculty and students both influence the classroom environment, peers have a strong effect on student learning, students bring diverse experiences to the classroom, and instructors can help or hinder student learning in myriad ways” (p. 96). Thus, “students bear responsibility for their education, yet they are not isolated actors” (p.
97). In this regard, then, the requirement of participation grades seems to treat students as isolated actors who are in complete control of the classroom environment.

Learning Styles

Contradicting what are fairly general claims about the relationship between student speech and learning are theories that argue each student has different learning preferences. Although the basic premise of these theories, that not all students share similar learning preferences, seems intuitive and reasonable, the practical application of these theories is more problematic. Specifically, learning styles and cognitive styles theories suffer from a number of methodological and conceptual problems that preclude conclusive documentation of their theoretical claims. Learning styles are defined as the “ways students begin to concentrate on, process, internalize, and remember new and difficult academic information” (Dunn, 2000, p. 8). The plethora of different learning styles categories has created enough fragmentation in the field that no particular conceptualization of learning styles has proven to have more explanatory power than any other. But, the gist of these theories is noteworthy.

Independently, because learning styles theories include many more categories than speech and silence, they inevitably end up addressing cognitive processing, instructional styles, and matches between instructional methods and student preferences that go beyond the scope of student engagement as it is conceptualized in the present study. The rub is that the general premise of learning styles—that not all student prefer to learn in the same manner—is applicable to discussions of student participation. However, because student talk and silence in the classroom is only a small part of the host of learning styles theories out there, the link between learning styles and student
participation is a bit of a stretch. Moreover, the failure of any particular learning styles theory to accurately measure and explain student learning is problematic.

Learning Style Differences

Hirschy and Wilson (2002) argued that cultural differences and various learning styles influence student learning. More specifically, learning styles differ among various racial, ethnic, and cultural groups (Anderson, 1988; Dunn & Griggs, 1995). In the classroom, the problem is that “many students experience a gap between their natural learning style and how material is presented, contributing to a feeling of not fitting in, or alienation” (Hirschy & Wilson, 2002, p. 91). Dunn and Griggs (1995) presented one particular learning styles approach that posits five stimulus areas, which influence how students learn most effectively. The five stimuli include environmental, emotional, sociological, physiological, and psychological areas (Dunn & Griggs, 1995). The directions, exercises, and demonstrations that instructors provide may appeal or not appeal to students depending on their preferences for auditory, visual, or kinesthetic learning (Dunn & Griggs, 1995; Hirschy & Wilson, 2002).

Learning Styles and Communication

Bourhis and Stubbs (1991) found that low, moderate, and high CA students differed in four of the six learning styles on the Grasha-Riechmann Student Learning Styles Scale (GRSLSS), which they argued was a more reliable and valid instrument than Kolb’s Learning Style Inventory (LSI) according to a series of previous studies. The GRSLSS contains six subscales: independent, avoidant, collaborative, dependent, competitive, and participant (Bourhis & Stubbs, 1991). While at least a couple of these subscales would appear to apply to students’ oral classroom communication behaviors,
they do not. The independent, dependent, collaborative, and competitive styles refer to student preferences for working alone or with others, studying for tests, and the desire for competition with classmates. The avoidance style contains items referring to feelings of boredom in school, while the participant style contains items referring to attendance and affect for course content. Thus, students’ oral classroom participation preferences are not reflected in the GRSLSS. Since learning styles are related to differences in intellectual abilities, personality characteristics, and cognitive styles, the end result of explorations of students’ learning styles is often to recommend changes in teaching methods (Bourhis & Stubbs, 1991). As a result, the line of literature concerning learning styles has little to do with students’ oral communication behavior in the classroom and does not apply to the ways in which students participate. Rather, learning styles literature applies to students’ preferences regarding work, study, and teaching styles. In sum, then, various learning styles conceptualizations have little relevance for patterns of student participation and oral communication in the classroom. At best, students’ preferences to speak or remain silent in the classroom are but a small subcomponent within a much broader paradigm of learning styles. The moderate correlations, found by Bourhis and Stubbs, fail to establish a strong relationship between communication apprehension and learning styles.

**Critiques of Learning Styles**

The preponderance of literature written by scholars who do not have a vested interest in learning style conceptualizations has questioned the scientific contributions of various learning styles measures and the data supporting these measures. Curry (1990) provided a damning critique of learning styles research. Operationally, she argued that learning style theory suffers from confusion over a “bewildering array of definitions,”
weak validity and reliability of instruments, and problems in identifying relevant learning characteristics (p. 50). Cronbach and Snow (1977) confirmed the lack of reliability for various learning style instruments. In a premature rush to print and market various learning styles inventories, Curry argued that researchers tend to base factor loadings on a single dataset which weakens any valid interpretation of results. Furthermore, she explained that there tends to be little to no indication of the degree of conceptual overlap between learning style categories. Typically, standard errors of measurement are not reported for learning style instruments, and reliability ranges are vast (Curry, 1990). Moreover, Curry observed that learning styles studies contain design flaws, such as failing to construct investigations that aim to disconfirm hypotheses, risking expectation and participation effects, and failing to employ wide enough samples. The failure to report null results also means that the actual proportion of negative results in learning styles research is likely underestimated (Curry, 1990). Because most research on learning styles instruments has been conducted by master’s students whose advisors have a vested interest in the results, using comparison groups with extreme scores that create recurrent design problems and biases in the interpretation of results, and risking a Hawthorne effect, “external threats to validity are ignored” (p. 54). Thus, she concluded that some studies have even sensitized student participants to the experimental conditions.

In addition, “most learning style theorists have not distinguished their constructs sufficiently from methods of intelligence” (Curry, 1990, p. 54). After reviewing the leading studies of learning styles, Cohen, Hyman, Ashcroft, and Loveless (1989) concluded that there were no effects due to learning style alone. Curry concluded that various learning style conceptualizations have not been systematically or comparatively
evaluated. Snider (1990) reported that learning styles research has not been supported in educational psychology or special education. Specifically, she argued that measures of learning styles lack sufficient reliability and validity, and that instructors who employ recommended learning styles approaches risk doing more harm than good to students. Later, Curry (1991) criticized the failure of learning styles theorists to identify and agree on characteristics of various style categories, the confusion surrounding definitions and terminology, and the weak reliability and validity of various instruments.

More recently, Lovelace (2005) conducted a meta-analysis of research on matching instruction to learning styles from the Dunn and Dunn Learning-Style Model. She concluded that no single instructional approach is effective for all students and that matching learning-style responsive instruction to students’ learning styles is effective. Although popular, the Dunn and Dunn Learning-Style Model was designed for use with students in grades 3 through 12 (Lovelace, 2005). At best, the lesson to be gleaned from Lovelace’s meta-analysis is that different students have different learning styles (i.e., visual, kinesthetic, auditory, and tactual) that instructors should consider as they adapt teaching methods to appeal to students’ various learning styles. In other words, no all students prefer to learn in the same manner.

Cassidy (2004) noted that, despite nearly four decades of learning styles research originating in the field of psychology and later taken up by a diverse range of disciplines including education, the subject of learning styles has become “fragmented and disparate” (p. 419). In general, there is acceptance of the notion that individuals are inclined to approach situations with difference learning preferences. However, as Cassidy explained, the variety of definitions, theoretical positions, interpretations, measures, and
models creates ambiguity. In fact, after reviewing the most commonly used learning styles theories, he was unable to recommend an ideal model and measure of learning style. The term “learning styles” is used imprecisely in empirical research and theoretical accounts (Cassidy, 2004). Generally, though, learning styles refer to the various ways in which individuals approach learning tasks, whereas cognitive styles refer to the various ways in which individuals approach cognitive tasks, such as problem solving, and is likely an important component of learning styles (Cassidy, 2004). According to Cassidy, some models posit a difference between state and trait learning styles.

In his review of the major learning styles models, Cassidy (2004) noted the concerns regarding the reliability and validity of available instruments, the conceptual overlap of categories, the over-extension of learning styles theory reflected in various models, the relatively small samples, the low test-retest reliability statistics, concerns regarding the psychometric properties of various instruments, the modest levels of internal consistency, and concluded that the use of some instruments in higher education was premature. Cassidy also observed that operationalizing learning styles is highly problematic. Thus, he concluded that more empirical work is necessary to provide evidence of validity for learning styles models.

Loo (1997) criticized the analysis techniques of learning styles models and urged caution in drawing conclusions based on the various models. Specifically, Loo found that the statistics traditionally used to examine the stability of Kolb’s LSI model are not appropriate because they mask individual changes in learning styles. He further argued that this critique is applicable to several other widely used models of learning styles. Riding and Cheema (1991) argued that learning styles theories lack sufficient empirical
data because most models have received little attention since being proposed. Rayner and Riding (1997) questioned the reliability and validity of the available models of learning styles. De Bello (1990) observed that there are almost as many learning styles models as there are theorists doing work in the area. In the end, no clear consensus has been reached with regard to learning styles research that might usefully serve to aid in the present investigation.

Synthesis, Hypotheses, and Research Questions

The preceding review of literature reveals several separate strands of philosophical and pedagogical thought as well as empirical studies concerning students’ participation in the classroom. Unfortunately, many previous lines of inquiry have operated separately from one another, thus serving to raise more questions than they have, perhaps, answered. As a result, the current investigation aims to synthesize these disparate lines of literature into a purposeful set of correlationally based hypotheses that might guide the development of a new survey instrument for advancing the study of classroom engagement. As an iterative process, the present research project must develop various scales that are capable of tapping into the concepts of interest with regard to student engagement.

Fortunately, previous literature points to several variables that might be useful in predicting students’ global engagement style orientations or specific engagement behaviors within various classes. More specifically, various demographic characteristics of students may contribute to their global engagement styles as well as their engagement styles within particular classes. Existing literature points to the potential importance of biological sex (Aulls, 2004; Howard & Henney, 1998; Howard et al., 1996; Jones, 1997),
culture (Armstrong, 2007a, 2007b; Balas, 2000; Nakane, 2005; Nance & Foeman, 1993; Peterson, 2001; Tatar, 2005), disabilities (Davis, 1993), and degree level (Aulls, 2004; Meyer, 2007, 2008, 2009) in predicting classroom participation patterns. And, other demographic variables such as age (Howard et al., 1996) and academic performance might play a role in participation. But, additional variables that have yet to be explored, such as whether or not the student is the first in her or his family to attend college, could influence participation tendencies (Hirschy & Wilson, 2002).

Furthermore, certain characteristics within particular classrooms might also contribute to students’ engagement styles in those classes. Certainly, previous studies have established the influence that instructors and classmates might have on students’ participation patterns. The characteristics and behaviors of instructors and peers as well as the size of the class (Aulls, 2004; Constantinople et al., 1988; Howard et al., 1996) might be particularly important. Plus, the instructional format of certain classes (i.e., the emphasis on either lecture or classroom discussion) (Fassinger, 1995; Fritschner, 2000) as well as grading policies—especially in regard to participation—might be extremely influential. In the end, though, previous literature has been far from conclusive about the overall strength of the relationship between demographic characteristics, and, to a lesser extent, classroom characteristics, and students’ participation behaviors. Nevertheless, two research questions pertinent to the present investigation emerge from previous literature.

RQ1: What demographic characteristics might be related to students’ engagement styles?

RQ2: What classroom characteristics might be related to students’ engagement styles within particular classes?
Importantly, these research questions will be addressed during the second phase of this investigation. Because a pilot study is first needed to develop and test new survey scales to measure the variables that might predict students’ engagement styles, the demographic and classroom characteristics that might be related to engagement styles cannot be assessed until a subsequent study. Thus, the research design for the present investigation will first conduct a pilot study to develop and test a new survey instrument. Then, the second phase of the present project will involve a primary study examining how demographic and classroom characteristics might relate to the scales developed during the pilot study.

Although these demographic and class characteristics must be accounted for in any investigation of classroom engagement, these characteristics alone provide an ultimately unfulfilling and empty answer to the broader questions guiding this project. Therefore, a deeper understanding of the relevant beliefs that students hold with relation to engagement is required. Based on previous literature, it seems likely that students’ global engagement styles (i.e., their general orientations toward classroom participation behaviors) might be influenced by their beliefs about the relationship between classroom participation and their own learning (Caranfa, 2004; Davis, 1993; Fassinger, 1995; Li Li, 2005; Paul, 1995) as well as their outlook concerning their responsibility to participate in the classroom (Petress, 2001). In addition, given the common use of participation grades by college instructors (Balas, 2000; Bean & Peterson, 1998; Fritschner, 2000; Jacobs & Chase, 1992; Tatar, 2005), students’ reactions to these grading policies might influence their engagement styles (Balas, 2000; Bean & Peterson, 1998; Meyer, 2007, 2008, 2009; Meyer & Hunt, 2004). Although a synthesis of previous literature and theory suggests a
relationship among these variables, there is not yet sufficient evidence to warrant a
directional specification of that relationship. Thus, the following hypotheses are posited
for the pilot study.

H₁: Students’ beliefs about the ethical responsibility of participating in the
classroom will be related to their engagement styles.
H₂: Students’ beliefs about the relationship between classroom participation and
their own learning will be related to their engagement styles.
H₃: Students’ reactions to participation grades will be related to their engagement
styles.

Within specific classes, other factors might emerge that could alter students’
global engagement styles to more particular or contextual engagement styles. For
instance, previous literature has suggested that the classroom climate created by
instructors (Fritschner, 2000; Hirschy & Wilson, 2002; Rocca, 2001), but also influenced
by classmates (Weaver & Qi, 2005), may have an influence on students’ participation
behaviors (Fassinger, 1995, 1996). Furthermore, the exact form in which students
participate in certain classes (i.e., speaking, listening, taking notes, or thinking about
material) could alter their global engagement styles to more specific or contextual
engagement styles. To address these potential variables, the following hypotheses were
posited for the pilot study.

H₄: Students’ forms of engagement within particular classes will be related to
their specific engagement styles.
H₅: The classroom climate within particular classes will be related to students’
specific engagement styles.
Of course, underlying all of these hypotheses is the premise that students have global engagement styles that pertain to their general tendencies and preferences within most classes, but that those engagement styles may differ in certain classes depending on a variety of contextual factors. Moreover, both global and specific engagement styles might be manifested through several indicators. For instance the frequency of students’ oral participation compared to more silent behaviors could be an obvious indicator of engagement styles. However, students might also hold preferences for more oral or more silent participation that could influence both their global and specific engagement styles. Additionally, students could harbor various levels of confidence or fear regarding oral participation that might predict both their global and specific engagement styles. In fact, much of the literature concerning CA (Aitken & Neer, 1993; Chesebro & McCroskey, 1998; Cole & McCroskey, 2003; McCroskey, 1977), WTC (Chan & McCroskey, 1987; Christensen et al., 1995; McCroskey, 1992; Menzel & Carrell, 1999), and shyness (Heisel et al., 1999) suggest that confidence and fear are important factors in classroom participation; although these lines of research differ in important ways from the conceptualization of engagement styles offered in the present study. Accordingly, the following set of hypotheses is posited for the pilot study.

H₆: Students’ engagement styles are comprised of a combination of frequency of oral participation behaviors, preferences toward oral participation, and fear of oral participation.

H₇: Students’ engagement styles at a global level differ from their engagement styles within specific classes.
To address these research questions and hypotheses, the development of a new survey instrument and a pilot study to test the instrument are necessary. Following the development and refinement of a new engagement styles survey instrument, it should be possible to pose additional hypotheses about the exact relationships among the variables of interest.
CHAPTER 3: PILOT STUDY

Method

The research design for the overall study required two stages: the development and testing of a survey instrument through a pilot study, and a subsequent primary study utilizing the refined survey instrument. Because no existing scales (i.e., PRCA-24, WTC, Shyness Scale) measure the exact concepts and variables under investigation in the specific situations and settings desired, multiple survey instruments were created for the present study based upon exploratory studies by Meyer (2007, 2008, 2009). The pilot study was conducted to test the survey instrument, establish validity and reliability, and to reduce the data through factor analysis of the survey items.

Participants

The pilot study participants consisted of a randomly selected sample of undergraduate students ($N = 1,500$) at a large Midwestern university. Given that the purpose of the pilot test was to evaluate the survey instrument, and not to compare groups, only undergraduate students were used as participants in the pilot study. Thus, the target population for the study was undergraduate students, whereas the accessible population for the study consisted of all undergraduate students enrolled at the university during the quarter in which the pilot study was conducted. The sampling strategy used in the pilot study was only balanced by biological sex and grade level, but not other demographic information because of the homogenous demographic characteristics of the students enrolled at the university involved in the pilot study.

A total of 219 undergraduate students completed the survey, for a response rate of 14.06%. Specifically, there were 149 female (68.00%) and 70 male respondents.
(32.00%). The mean age of the respondents was 20.86 years of age ($SD = 2.77$), with a range from 18 to 39 years old. The participants reported a mean cumulative grade point average (GPA) of 3.29 ($SD = .54$), with a range from 1.60 to 4.00 on a 4.00 scale. The largest group of respondents identified themselves as seniors (37.90%), followed by sophomores (22.40%), juniors (21.50%), and first-year students (18.30%). Overall, the participants predominately identified themselves as Caucasian/white (89.00%), followed by bi-racial/mixed (5.50%), African American/black (1.80%), Hispanic (1.40%), Asian (.90%), other (.90%), and Native American (.50%). In terms of unique population characteristics, 59 students identified themselves as first generation college students, eight were students with a learning disability, two were students with a physical disability, and two were international students.

*Procedures*

All procedures were approved through the university’s Institutional Review Board. The students in the sample ($N = 1,500$) were contacted through their campus e-mail accounts and invited to complete an online survey administered through Survey Gold, a software package used to create and administer online surveys. Participants were instructed in the e-mail invitation to click on a hyperlink taking them to a web page that explained the nature of the study and informed them of their rights as research participants. The participants indicated their consent to take part in the study by clicking another hyperlink at the bottom of the webpage that took them to the online survey. Invitations to participate in the online survey were e-mailed to participants three times in order to maximize the response rate.
Measures

Survey Instrument Format

The pilot study employed a version of the survey instrument that included only quantitative items. Thus, the survey exclusively contained closed-ended questions. The quantitative items were developed specifically for this study, based on the findings of Meyer (2007, 2008, 2009). The 85 items were grouped into nine scales, as well as demographic information and identification of a target class participants took in the previous term, for a new student engagement survey (see Appendix A). The scales specifically examined variables concerning the engagement styles of students, the ethics of participation and the right to silence, students beliefs about the link between participation and learning, and student reactions to participation grades. The nine scales were entitled Global Engagement Style Frequency (5 items), Global Engagement Style Preference (11 items), Ethics and Rights (7 items), Learning and Oral Participation (7 items), Reaction to Oral Participation Grades (12 items), Forms of Engagement (13 items), Target Class Climate (15 items), Target Class Engagement Style Frequency (5 items), and Target Class Engagement Style Preference (10 items).

The survey items were responded to on a 5-point Likert scale, asking students to indicate their level of agreement with the items, from 1 (strongly disagree) to 5 (strongly agree), or their frequency of behavior, from 1 (never) to 5 (very often). Likert items are appropriate for measuring opinions, beliefs, and attitudes (DeVellis, 2003). Since the variables under investigation in the present study sought the perceptions of student participants, Likert items were an appropriate way to measure their opinions, beliefs, and attitudes. DeVellis (2003) explained that “although, strictly speaking, items using Likert
or semantic differential response formats may be ordinal, a wealth of accumulated experience supports applying interval-based analytic methods to the scales they yield” (p. 159). Thus, following factor analysis of the survey instrument, various scales of Likert items can be summed to create the continuous data necessary for the statistical procedures used in analyzing the scales. Specifically, by summing Likert items, continuous data is created for use in statistical procedures.

*Generation of Survey Item Pool*

Following an exploratory study of student responses to oral participation grades (Meyer, 2007, 2008, 2009), an initial pool of survey items for the present study was generated. Specifically, the responses of undergraduate \( n = 134 \) and graduate \( n = 75 \) students to both closed and open-ended survey items in the exploratory study were used to identify and conceptualize variables of interest that related to participation grades and student silence in the classroom. The results of the exploratory study suggested that students engaged in a variety of observable and non-observable ways in the classroom, that students’ participation varied along a continuum from silent to oral behaviors, and that students’ engagement contained both a behavioral component as well as a general preference or disposition toward engagement (Meyer, 2007, 2008, 2009). Furthermore, the results of the exploratory study suggested that students’ participation in the classroom may be affected by grading policies, instructor behaviors, classroom climate, and their classmates (Meyer, 2007, 2008, 2009). Importantly, the findings also indicated that students’ beliefs about the connection between participation and learning as well as their beliefs about an ethical responsibility to participate as contrasted with a right to remain
silent held the potential to be meaningful variables for future investigation (Meyer, 2007, 2008, 2009).

Although no complete scales developed by previous researchers were used due to a lack of conceptual fit, a few survey items were based on questions used in previous studies and adapted or reworded accordingly. For example, item 81 was rephrased from a similar question used by Crombie et al. (2003). Items 1, 8, and 10 were adapted and rephrased from similar questions used by Fassinger (1995, 1996). In addition, items 12, 15, 47, 50, and 78 were adapted from Fassinger (1996). Finally, items 74 and 76 were rephrased from Fassinger (2000). Thus, 11 items on the pilot survey were inspired by questions used in previous survey instruments.

An initial pool of 113 survey items was written for the present study. The process of refining the item pool was iterative. Multiple items were written for each of the nine scales in order to cover all of the potential aspects of the variables represented by each scale. These items were then compared to the conceptual definitions of the variables. These scales were deemed to have face validity (DeVellis, 2003; deVaus, 2001; Frey, Botan, & Kreps, 2000), because they reflected the concepts being investigated. Furthermore, a panel approach (Frey et al., 2000) was employed to establish content validity. Specifically, four scholars in the fields of communication studies and education were consulted to inspect the initial pool of items. Based upon the feedback of these experts, survey items were retained, eliminated, or rephrased so as to clarify the operationalization of the variables involved in the present study in accordance with their conceptual definitions. In sum, each iteration of the survey item pool was inspected by the scholars to scrutinize the clarity of wording and fit to the variables of interest. Three
such drafts of the survey items were reviewed and revised prior to the final creation of the pilot survey. In the end, 85 scaled items were included on the pilot survey instrument along with 15 items requesting information about a target class and various demographic questions.

Pilot Survey Scales

The Pilot Study Survey was expected to factor into several scales and, potentially, subscales. Tables 1, 2, and 3 show how pilot survey items align with control variables, predictor variables, and dependent variables. The dependent variables are behavioral outcomes of students at both a global and a specific engagement level. The global engagement styles reflect student self-reports of their general engagement behaviors in most classes, whereas the specific engagement styles reflect student self-reports of their engagement behaviors in their identified target class. Engagement styles were suspected to split into engagement frequency and engagement preference at both the global and specific levels.

Control variables. Target class characteristics and demographic survey items function as control variables and might be used to examine differences among groups (see Table 1). For example, student reports concerning the use of participation grades in their target classes were used to compare target classes which graded participation to those which graded oral participation, and those which did not employ participation grades. Information about the target class selected by survey participants when responding to several scales on the survey functioned to identify the subject area, class size, instructor biological sex, mixture of lecture or discussion, participation grading policy, and student course grades in the target classes.
Table 1

*Alignment of Control Variables to Survey Items and Research Questions*

<table>
<thead>
<tr>
<th>Control Variable</th>
<th>Survey Item</th>
<th>Research Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td>Degree Level</td>
<td>95 RQ1</td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>97 RQ1</td>
</tr>
<tr>
<td></td>
<td>Student Biological Sex</td>
<td>96 RQ1</td>
</tr>
<tr>
<td></td>
<td>Grade Point Average</td>
<td>98 RQ1</td>
</tr>
<tr>
<td></td>
<td>Ethnicity</td>
<td>99 RQ1</td>
</tr>
<tr>
<td></td>
<td>Students with Disabilities</td>
<td>100 RQ1</td>
</tr>
<tr>
<td></td>
<td>First Generation Student</td>
<td>100 RQ1</td>
</tr>
<tr>
<td></td>
<td>International Student</td>
<td>100 RQ1</td>
</tr>
<tr>
<td>Target Class</td>
<td>Subject Matter</td>
<td>43 RQ2</td>
</tr>
<tr>
<td></td>
<td>Class Size</td>
<td>44 RQ2</td>
</tr>
<tr>
<td></td>
<td>Instructor Biological Sex</td>
<td>45 RQ2</td>
</tr>
<tr>
<td></td>
<td>Discussion vs. Lecture</td>
<td>46 RQ2</td>
</tr>
<tr>
<td></td>
<td>Grades (Yes/No)</td>
<td>47 RQ2</td>
</tr>
<tr>
<td></td>
<td>Grades (Oral/Not)</td>
<td>48 RQ2</td>
</tr>
<tr>
<td></td>
<td>Grades (Percent)</td>
<td>49 RQ2</td>
</tr>
<tr>
<td></td>
<td>Grades (Help/Not)</td>
<td>50 RQ2</td>
</tr>
<tr>
<td></td>
<td>Grades (Letter Received)</td>
<td>51 RQ2</td>
</tr>
</tbody>
</table>

*Note.* See Appendix A for specific survey item wording.
The survey items requesting demographic information from participants examined the degree level of the student, the age of the student, the student’s cumulative grade point average (GPA), the ethnicity of the student, and unique characteristics of the student. The degree level of undergraduate students (first year, sophomore, junior, senior) and graduate students (master’s, doctoral) served as a grouping variable to determine if differences in the dependent variables exist among groups. The ethnicity of the student served to determine if differences among student ethnic groups exist along the dependent variables. The unique characteristics of the student item on the survey served to determine if students with learning of physical disabilities, international students, or first generation students differ with respect to the dependent variables involved in the study.

**Predictor variables.** The five predictor variables included in the survey are either based on reported behaviors or are belief and impression based (see Table 2). Importantly, the first three predictor variables are measured at the global level, whereas the fourth and fifth predictor variables are measured in respect to the student’s selected target class. Student beliefs about the ethics or responsibility of oral participation and the right to silence serve as the first predictor variable. Student beliefs about the relationship between their oral participation or silence and their learning served as the second predictor variable. Student reactions to the fairness of participation grades, preferences concerning participation grades, and reports of changes in the quantity and quality of oral comments in the classroom served as the third predictor variable. The fourth predictor variable concerned student reports about the form of their engagement in the target class. The forms of engagement generally consisted of observable and non-observable behaviors. Observable forms of engagement included nonverbal behaviors as well as
verbal behaviors and speaking. Non-observable forms of engagement included thinking, listening, and means of paying attention. The fifth predictor variable included student impressions of target classroom climate. Target class climate items included general impressions of climate, factors related to the target class instructor, and factors related to their target class peers.

**Dependent variables.** Four dependent variables were included in the pilot survey instrument (see Table 3). Importantly, two of the dependent variables deal with students’ global engagement style, whereas the other two dependent variables concern students’ specific engagement styles in their selected target classes. Reports of general behavior in most classes were considered to be reflective of students’ global engagement style. Specifically, global engagement style was measured by both frequency and preference. Likewise, students’ specific engagement style in their target classes was measured by both frequency and preference. At the global level, engagement style frequency and engagement style preference were considered to be outcome or dependent variables. Likewise, in the target classes that participants were asked to report on, specific engagement style frequency and specific engagement style preference as well as reported forms of engagement were considered to be dependent variables. In all cases, these dependent variables represented behavioral dimensions or outcomes.
### Table 2

**Alignment of Predictor Variables to Survey Items and Hypotheses**

<table>
<thead>
<tr>
<th>Scales</th>
<th>Factors</th>
<th>Survey Items</th>
<th>Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethics &amp; Rights</td>
<td>Ethic/Responsibility</td>
<td>17, 19, 20, 21, 22</td>
<td>H1</td>
</tr>
<tr>
<td></td>
<td>Right to Silence</td>
<td>18, 22</td>
<td>H1</td>
</tr>
<tr>
<td>Learning Beliefs</td>
<td>Silent to Oral</td>
<td>24, 25, 26, 27, 28, 29, 30</td>
<td>H2</td>
</tr>
<tr>
<td>Grade Reaction</td>
<td>Grades Preference</td>
<td>40, 41, 42</td>
<td>H3</td>
</tr>
<tr>
<td></td>
<td>Fairness</td>
<td>31, 34, 37</td>
<td>H3</td>
</tr>
<tr>
<td></td>
<td>Quantity</td>
<td>33, 36, 38, 39</td>
<td>H3</td>
</tr>
<tr>
<td></td>
<td>Quality</td>
<td>32, 35</td>
<td>H3</td>
</tr>
<tr>
<td>Target Climate</td>
<td>General</td>
<td>68, 74, 79</td>
<td>H5</td>
</tr>
<tr>
<td></td>
<td>Teacher</td>
<td>65, 67, 69, 71, 72, 73, 76, 77</td>
<td>H5</td>
</tr>
<tr>
<td></td>
<td>Peers</td>
<td>66, 70, 75, 78</td>
<td>H5</td>
</tr>
<tr>
<td>Engagement Forms</td>
<td>Observable</td>
<td>57</td>
<td>H4</td>
</tr>
<tr>
<td></td>
<td>Nonverbal</td>
<td>52, 55, 58</td>
<td>H4</td>
</tr>
<tr>
<td></td>
<td>Verbal/Speak</td>
<td>53, 61, 63</td>
<td>H4</td>
</tr>
<tr>
<td></td>
<td>Not Observable</td>
<td>62</td>
<td>H4</td>
</tr>
<tr>
<td></td>
<td>Think/Listen</td>
<td>54, 59, 60</td>
<td>H4</td>
</tr>
<tr>
<td></td>
<td>Attention</td>
<td>56, 64</td>
<td>H4</td>
</tr>
</tbody>
</table>

*Note.* See Appendix A for specific survey item wording.
Table 3

Alignment of Dependent Variables to Survey Items and Hypotheses

<table>
<thead>
<tr>
<th>Scales</th>
<th>Factors</th>
<th>Survey Items</th>
<th>Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Frequency</td>
<td>Silent/Oral</td>
<td>1, 2, 3, 4, 5</td>
<td>H6, H7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6, 7, 8, 9, 10, 11</td>
<td>H6, H7</td>
</tr>
<tr>
<td></td>
<td>Confidence/Fear</td>
<td>12, 13, 14, 15, 16</td>
<td>H6, H7</td>
</tr>
<tr>
<td>Global Preference</td>
<td>Silent/Oral</td>
<td>6, 7, 8, 9, 10, 11</td>
<td>H6, H7</td>
</tr>
<tr>
<td></td>
<td>Confidence/Fear</td>
<td>12, 13, 14, 15, 16</td>
<td>H6, H7</td>
</tr>
<tr>
<td>Target Frequency</td>
<td>Silent/Oral</td>
<td>80, 81, 82, 83, 84</td>
<td>H6, H7</td>
</tr>
<tr>
<td></td>
<td>Confidence/Fear</td>
<td>90, 91, 92, 93, 94</td>
<td>H6, H7</td>
</tr>
</tbody>
</table>

Note. See Appendix A for specific survey item wording.

Estimates of Reliability

The pilot test sought to determine the reliability of the new student engagement survey items. Following the collection of data in the pilot test, Chronbach’s coefficient alpha reliability estimates were calculated using the Statistical Package for the Social Sciences (SPSS). While an alpha of .65 to .70 is considered minimally acceptable, a respectable coefficient alpha for a scale is .70 to .80, a very good alpha is .80 to .90, and an excellent alpha is .90 or above for a short scale (DeVellis, 2003). Redundancy of content among items is one means of improving the internal consistency reliability of a scale (DeVellis, 2003). Higher alpha levels are desirable for statistical power. The more reliable a scale is, meaning the higher the alpha level, the greater the statistical power achieved from smaller sample sizes (DeVellis, 2003).
Scale Validity

The pilot test also sought to determine the validity of the new student engagement survey. There are several common ways to establish the validity of a new scale. Initially, content validity refers to how well the items on a scale reflect the content domain of the construct under investigation (DeVellis, 2003), and may be preliminarily established through face validity or a panel approach (Frey et al., 2000). Face validity refers to how well a set of items on a scale appear, or look on their face, to measure the construct they are intended to measure (DeVellis, 2003). Admittedly, face validity is the weakest means of establishing the validity of a scale (Frey et al., 2000), but it is a very necessary initial step in establishing the validity of a survey instrument. However, given the previous exploratory research (Meyer, 2007, 2008, 2009), the new survey instrument appeared to have face validity. During the development of the new survey instrument, data collected during exploratory studies by Meyer (2007, 2008, 2009) were used to create survey items that would tap into various domains of the constructs under investigation. The pilot test further confirmed the face validity of the instrument. Second, construct validity refers to how well the variable being measured by a scale relates theoretically to other variables, whereas the more specific convergent validity indicates similarity between various measures of theoretically related constructs (DeVellis, 2003). By running statistical procedures comparing scales that emerge following factor analysis of the instrument, relationships between scales can be compared to their theoretical constructs. Third, criterion-related validity refers to the predictive or concurrent validity (DeVellis, 2003). Following factor analysis, statistical procedures will be calculated to determine the efficacy of the scales in predicting relationships among the variables.
Reverse Coding of Items

Due to the reverse polarity of item wording, several items were reverse coded prior to conducting factor analysis and reliability estimates. Specifically, items 4, 7, 9, 12, 13, 14, 15, 16, 18, 19, 25, 27, 29, 30, 31, 33, 35, 37, 39, 41, 66, 67, 69, 70, 71, 72, 74, 75, 78, 83, 86, 88, 90, 91, 92, 93, and 94 from the original pilot survey were reverse coded (see Appendix A). Reverse coding was conducted in accordance with making the higher numeric response to an item indicate a positive valence or attribute. With regard to items which tapped into students’ silent or oral tendencies, the oral behaviors were given the higher numeric response, even though this is by no means an indication that orality should be privileged above silence.

Factor Analysis

During scale development, it is important that survey items be subjected to factor analysis to either identify clusters of items or confirm the suspected groupings of items and underlying constructs. Scale development is aided by the use of factor analysis (DeVellis, 2003). Factor analysis is a technique that groups items, or variables, that measure a common construct (Mertler & Vannatta, 2005). However, factor analysis does not require independent and dependent variables to be distinguished (Meyers, Gamst, & Guarino, 2006). Sample size and sampling procedures are important considerations during scale development. For instance, the recommended sample size is a ratio of 10 participants for every variable, with an N of at least 200 (Meyers et al., 2006). Importantly, though, a larger number of variables permit the relaxation of this ratio (Meyers et al., 2006).
Following the collection of data in the pilot test, a series of exploratory factor analysis (EFA) procedures employed principal axis factoring with varimax rotation. Varimax rotation was employed because rotating factor solutions allows for more interpretable results (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 meet 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 et al., 2006). Factor structure was determined by analyzing several criteria for selecting items that cluster together into factors. Factors are formed by items that cluster together (Mertler & Vannatta, 2005). 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 .40 or higher. Components that account for 70% or more of the total variability should be retained (Mertler & Vannatta, 2005). 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).

Due to the suspected relationship of survey items to scaled variables, EFAs were employed. In other words, certain survey items were grouped based upon their association with particular variables. Thus, the use of EFA maintained the separation of variables while still permitting examination of potential subscales or factors within each variable.
Exploratory Factor Analysis Results

Criteria for Data Reduction

An iterative data reduction process was employed during the EFA of the nine scales contained in the pilot survey using SPSS. Specifically, principle axis factoring using varimax rotation was used to identify factors within the nine 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 KMO measure was examined to ensure that a criteria of .600 or greater was met and Bartlett’s test of sphericity was examined to verify that the chi-square was significant. With each EFA procedure, 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 .600 or greater on the primary factor and a .400 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.

Data Reduction and Scale Reliabilities

Global Engagement Style Frequency

The EFA procedure revealed that all five items in this scale loaded on the same factor. Both the KMO measure (.883) and Bartlett’s test $[\chi^2 = 847.403 (10), p < .001]$ were acceptable, suggesting that the data met assumptions necessary for factor analysis and that the factor solution fit the data. The single factor was revealed to have an
eigenvalue greater than 1.00, which was confirmed by a visual inspection of the scree plot. Furthermore, the single-factor solution explained 75.467% of the variance with a 3.773 eigenvalue. Consequently, all five items were retained for this scale. Finally, the five items in this scale produced an alpha reliability coefficient of .916, thus indicating excellent reliability for the scale. See Table 4 for the factor loadings.

Table 4

Factor Loadings for Global Engagement Style Frequency Scale

<table>
<thead>
<tr>
<th>Pilot Survey Item</th>
<th>Global Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. How often do you talk or volunteer comments in most classes?</td>
<td>.938</td>
</tr>
<tr>
<td>1. During most classes, how often do you participate orally?</td>
<td>.899</td>
</tr>
<tr>
<td>2. When instructors direct questions to the whole class, how often do you volunteer an answer?</td>
<td>.892</td>
</tr>
<tr>
<td>4. In most classes, how often do you remain silent for the whole class period? [Recoded]</td>
<td>.784</td>
</tr>
<tr>
<td>5. How often do you ask questions in most classes?</td>
<td>.641</td>
</tr>
</tbody>
</table>

Eigenvalue | 3.773  
% of Variance | 75.467  
Chronbach’s Alpha | .916  

*Note.* Underlined factor coefficients show acceptable factor loadings.

**Global Engagement Style Preference**

Prior to running EFA procedures, survey items 10 and 11 were removed a priori since these items were not mirrored in the target engagement style preference scale. This
decision was made to ensure that items on the global and target scales mirrored each other; thus, even though these two items fit the conceptual definition of the variable, they were eliminated prior to factor analysis. In the initial EFA of the nine remaining items, survey item 15 was eliminated because it had a .374 primary factor loading. In the second EFA, survey item nine was eliminated because it had a .482 primary factor loading. In the third EFA, survey item 13 was eliminated because it had a .690 primary factor loading and a .486 secondary factor loading. Ultimately, through iterative EFA procedures, original survey items 15, 9, and 13 were eliminated in that sequence. The wording of all the pilot survey items that were eliminated during the EFA procedures for all nine scales can be found in Appendix A.

The final EFA produced an acceptable two-factor solution. Both the KMO measure (.762) and Bartlett’s test \( \chi^2 = 802.911 \) (10), \( p < .001 \) were acceptable. Two factors had eigenvalues greater than 1.00, which was confirmed by the scree plot. The two-factor solution, comprised of three items each, collectively explained 79.555\% of the variance. Importantly, five of the six items in the final solution met the 60/40 factor loading criteria. However, survey item 12, which had a primary factor loading of .538 and a secondary factor loading of .372, was retained because this item mirrored a similar item on the target engagement style preference scale (which produced a good factor loading) and created a three-item subscale. Eliminating this item would have shortened the subscale to only two items, whereas DeVellis (2003) advises against using scales containing too few items. In addition, because the secondary factor loading was below the .400 threshold, the item was retained. See Table 5 for the factor loadings.
Table 5

*Factor Loadings for Global Engagement Style Preference Scale*

<table>
<thead>
<tr>
<th>Pilot Survey Item</th>
<th>Global Approach</th>
<th>Global Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. I enjoy orally participating during most classes.</td>
<td>.892</td>
<td>.158</td>
</tr>
<tr>
<td>7. I prefer to remain silent in most classes.</td>
<td>.868</td>
<td>.222</td>
</tr>
<tr>
<td>[Recoded]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I contribute oral comments without hesitation during most classes.</td>
<td>.703</td>
<td>.331</td>
</tr>
<tr>
<td>16. During most classes, I do not speak because I fear appearing unintelligent to</td>
<td>.180</td>
<td>.900</td>
</tr>
<tr>
<td>my classmates. [Recoded]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. In most classes, I do not speak because I fear appearing unintelligent to my</td>
<td>.202</td>
<td>.877</td>
</tr>
<tr>
<td>instructor. [Recoded]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I cannot organize my thoughts quickly enough to offer oral comments. [Recoded]</td>
<td>.372</td>
<td>.538</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Chronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.536</td>
<td>58.933</td>
<td>.887</td>
</tr>
<tr>
<td></td>
<td>1.249</td>
<td>20.822</td>
<td>.844</td>
</tr>
</tbody>
</table>

*Note.* Underlined factor coefficients show acceptable factor loadings for the corresponding items and factors. Items that are not underlined did not load on the corresponding factor.

The first factor explained 58.933% of the variance with a 3.536 eigenvalue, while the second factor explained 20.822% of the variance with a 1.249 eigenvalue. The first factor, which was labeled the *Global Approach* subscale, consisted of three items related to the silent or oral participation of the student. The second factor, which was labeled the
Global Avoidance subscale, consisted of three items related to the confidence in or fear of the student in speaking in class. The final two-factor solution produced an overall alpha coefficient reliability of .860 for the scale. The three items that comprised the Global Approach factor ($\alpha = .887$) and the three items that comprised the Global Avoidance factor ($\alpha = .844$) each produced very good reliabilities.

Ethics and Rights

Ultimately, through iterative EFA procedures, original survey items 19, 20, 23, and 18 were eliminated in that sequence. The initial EFA failed to produce a rotated factor matrix. Consequently, reliability estimates were calculated for the seven-item scale. The results indicated acceptable reliability ($\alpha = .755$), but suggested that if item 19, which had a negative corrected item-total correlation, was eliminated the reliability could be substantially improved ($\alpha = .830$). Thus, a second EFA procedure was calculated with item 19 removed. This time, the EFA rotated factor matrix ran properly. In the second EFA, item 20 was eliminated because it had a .575 primary factor loading. Item 23 was eliminated in the third EFA because it had a .596 primary factor loading, while item 18 was eliminated in the subsequent EFA because it had a .544 primary factor loading.

The final EFA produced an acceptable single-factor solution. Both the KMO measure (.696) and Bartlett’s test [$\chi^2 = 241.273 (3), p < .001$] were acceptable. The single factor was revealed to have an eigenvalue greater than 1.00, which was confirmed by a visual inspection of the scree plot. The single-factor solution, comprised of three items, explained 73.499% of the variance with a 2.205 eigenvalue. The three items in this scale produced an alpha reliability coefficient of .819, thus indicating very good reliability. See Table 6 for the factor loadings.
Table 6

*Factor Loadings for Ethics Scale*

<table>
<thead>
<tr>
<th>Pilot Survey Item</th>
<th>Ethics Beliefs</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. It is my responsibility as a student to participate orally in class.</td>
<td>.855</td>
</tr>
<tr>
<td>21. Instructors should expect me to talk in class.</td>
<td>.816</td>
</tr>
<tr>
<td>17. I have an ethical obligation to participate orally in class.</td>
<td>.661</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eigenvalue</th>
<th>2.205</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Variance</td>
<td>73.499</td>
</tr>
<tr>
<td>Chronbach’s Alpha</td>
<td>.819</td>
</tr>
</tbody>
</table>

*Note.* Underlined factor coefficients show acceptable factor loadings.

*Learning and Oral Participation*

Ultimately, through iterative EFA procedures, original survey items 30 and 27 were eliminated in that sequence. In the initial EFA procedure, item 30 was eliminated because it had a .373 primary factor loading. Item 27 was eliminated in the second EFA because it had a .559 primary factor loading. The final EFA procedure produced an acceptable single-factor solution. Both the KMO measure (.859) and Bartlett’s test \( \chi^2 = 834.876 (10), p < .001 \) were acceptable. The single factor was revealed to have an eigenvalue greater than 1.00, which was confirmed by the scree plot. The single-factor solution, comprised of five items, explained 76.428% of the variance with a 3.821 eigenvalue. The five items in this scale produced an alpha reliability coefficient of .922, thus indicating excellent reliability. See Table 7 for the factor loadings.
Table 7

*Factor Loadings for Learning and Oral Participation Scale*

<table>
<thead>
<tr>
<th>Pilot Survey Item</th>
<th>Learning Beliefs</th>
</tr>
</thead>
<tbody>
<tr>
<td>28. Orally participating in class helps me to learn.</td>
<td>.876</td>
</tr>
<tr>
<td>24. I retain information best when I orally participate in class.</td>
<td>.847</td>
</tr>
<tr>
<td>26. Oral participation is an important part of my learning.</td>
<td>.847</td>
</tr>
<tr>
<td>29. I learn best by remaining silent in class. [Recoded]</td>
<td>.833</td>
</tr>
<tr>
<td>25. I get more out of class when I remain silent. [Recoded]</td>
<td>.796</td>
</tr>
</tbody>
</table>

Eigenvalue: 3.821

% of Variance: 76.428

Chronbach’s Alpha: .922

*Note.* Underlined factor coefficients show acceptable factor loadings.

*Reaction to Oral Participation Grades*

Ultimately, through iterative EFA procedures, original survey items 33, 32, 35, 34, and 37 were eliminated in that sequence. In the initial EFA, item 33 was eliminated because it had a .397 primary factor loading. In the next five EFA procedures, items 32, 35, 34, and 37 were eliminated because they had less than optimal primary factor loadings of .543, .248, .574, and .572, respectively.

The final EFA procedure produced an acceptable two-factor solution. Both the KMO measure (.826) and Bartlett’s test \(\chi^2 = 917.645\) (21), \(p < .001\) were acceptable. Two factors had eigenvalues greater than 1.00, which was confirmed by the scree plot.
The two-factor solution collectively explained 75.745% of the variance. See Table 8 for the factor loadings.

Table 8

*Factor Loadings for Reaction to Oral Participation Grades Scale*

<table>
<thead>
<tr>
<th>Pilot Survey Item</th>
<th>Preference</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>40. I feel that instructors should grade oral participation.</td>
<td>.943</td>
<td>.183</td>
</tr>
<tr>
<td>41. Instructors should not use oral participation grades. [Recoded]</td>
<td>.885</td>
<td>.193</td>
</tr>
<tr>
<td>31. In general, oral participation grades are unfair evaluation tools. [Recoded]</td>
<td>.808</td>
<td>.196</td>
</tr>
<tr>
<td>42. I like oral participation grades.</td>
<td>.684</td>
<td>.290</td>
</tr>
<tr>
<td>36. If oral participation is graded, I will participate orally in class.</td>
<td>.228</td>
<td>.800</td>
</tr>
<tr>
<td>39. If oral participation is graded, I will remain silent in class. [Recoded]</td>
<td>.243</td>
<td>.717</td>
</tr>
<tr>
<td>38. In general, oral participation grades cause me to talk more in class than I would otherwise.</td>
<td>.101</td>
<td>.623</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Chronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>First factor</td>
<td>3.864</td>
<td>55.199</td>
<td>.914</td>
</tr>
<tr>
<td>Second factor</td>
<td>1.438</td>
<td>20.545</td>
<td>.774</td>
</tr>
</tbody>
</table>

*Note.* Underlined factor coefficients show acceptable factor loadings for the corresponding items and factors. Items that are not underlined did not load on the corresponding factor.

The first factor explained 55.199% of the variance with a 3.864 eigenvalue, while the second factor explained 20.545% of the variance with a 1.438 eigenvalue. The first
factor, which was labeled the *Reaction Preference* subscale, consisted of four items related to students’ preferences regarding the use of oral participation grades. The second factor, which was labeled the *Reaction Behavior* subscale, consisted of three items related to the students’ behavioral reaction to oral participation grades. The final two-factor solution produced an overall alpha coefficient reliability of .858 for the scale. The four items that comprised the Reaction Preference factor (\( \alpha = .914 \)) and the three items that comprised the Reaction Behavior factor (\( \alpha = .774 \)) produced excellent and respectable reliabilities, respectively.

*Forms of Engagement*

Ultimately, through iterative EFA procedures, original items 62, 59, 57, 55, 64, 52, and 58 were eliminated in that sequence. In the initial EFA, item 62 was eliminated because it had a .321 primary factor loading. In the next six EFA procedures, items 59, 57, 55, 64, 52, and 58 were eliminated because they had low primary factor loadings of .426, .447, .566, .589, .560, and .463, respectively.

The final EFA procedure produced an acceptable two-factor solution. Both the KMO measure (.678) and Bartlett’s test \( \chi^2 = 606.286 \) (15), \( p < .001 \) were acceptable. Two factors had eigenvalues greater than 1.00, which was confirmed by the scree plot. The two-factor solution, consisting of three items apiece, collectively explained 76.762% of the variance. See Table 9 for the factor loadings.

The first factor explained 43.339% of the variance with a 2.600 eigenvalue, while the second factor explained 33.423% of the variance with a 2.005 eigenvalue. The first factor, which was labeled the *Oral Forms* subscale, consisted of three items related to oral or observable forms of engagement. The second factor, which was labeled the
Cognitive Forms subscale, consisted of three items related to cognitive or observable forms of engagement. The final two-factor solution produced an overall alpha coefficient reliability of .736 for the scale. The three items that comprised the Oral Forms factor (α = .872) and the three items that comprised the Cognitive Forms factor (α = .808) each produced very good reliabilities.

Table 9

Factor Loadings for Forms of Engagement Scale

<table>
<thead>
<tr>
<th>Pilot Survey Item</th>
<th>Oral Forms</th>
<th>Cognitive Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>53. I participated by speaking in my target class.</td>
<td>.939</td>
<td>-.023</td>
</tr>
<tr>
<td>63. I participated by responding to questions in my target class.</td>
<td>.790</td>
<td>.122</td>
</tr>
<tr>
<td>61. I participated by asking questions in my target class.</td>
<td>.778</td>
<td>.092</td>
</tr>
<tr>
<td>56. I stayed engaged in my target class by focusing my attention on what was discussed.</td>
<td>-.043</td>
<td>.902</td>
</tr>
<tr>
<td>60. I stayed engaged in my target class by actively listening to what was discussed.</td>
<td>.111</td>
<td>.713</td>
</tr>
<tr>
<td>54. I remained engaged in my target class by thinking about the material.</td>
<td>.099</td>
<td>.700</td>
</tr>
</tbody>
</table>

Eigenvalue    2.600    2.005
% of Variance 43.339    33.423
Chronbach’s Alpha  .872    .808

*Note.* Underlined factor coefficients show acceptable factor loadings for the corresponding items and factors. Items that are not underlined did not load on the corresponding factor.
**Target Class Climate**

Ultimately, through iterative EFA procedures, original items 67, 74, 66, 78, 76, 77, 75, 70, and 73 were eliminated in that sequence. In the initial EFA, item 67 was eliminated because it had a .224 primary factor loading. In the next eight EFA procedures, items 74, 66, 78, 76, 77, 75, 70, and 73 were eliminated because they had poor primary factor loadings of .341, .350, .484, .501, .461, .393, .525, and .566, respectively.

The final EFA procedure produced an acceptable two-factor solution. Both the KMO measure (.762) and Bartlett’s test $[\chi^2 = 637.023 (15), p < .001]$ were acceptable. Two factors had eigenvalues greater than 1.00, which was confirmed by the scree plot. The two-factor solution, consisting of three items apiece, collectively explained 77.582% of the variance. See Table 10 for the factor loadings.

The first factor explained 52.908% of the variance with a 3.174 eigenvalue, while the second factor explained 24.674% of the variance with a 1.480 eigenvalue. The first factor, which was labeled the *Climate Evaluation* subscale, consisted of three items related to students’ perceptions of classroom justice. The second factor, which was labeled the *Climate Comfort* subscale, consisted of three items related to students’ perceptions of a comfortable classroom climate. The final two-factor solution produced an overall alpha coefficient reliability of .818 for the scale. The three items that comprised the Climate Evaluation factor ($\alpha = .846$) and the three items that comprised the Climate Comfort factor ($\alpha = .853$) each produced very good reliabilities.
Table 10

*Factor Loadings for Target Class Climate Scale*

<table>
<thead>
<tr>
<th>Pilot Survey Item</th>
<th>Evaluation</th>
<th>Comfort</th>
</tr>
</thead>
<tbody>
<tr>
<td>71. My instructor was judgmental during my target class discussions. [Recoded]</td>
<td>.909</td>
<td>.132</td>
</tr>
<tr>
<td>72. My instructor did not treat each student equally in my target class. [Recoded]</td>
<td>.784</td>
<td>.170</td>
</tr>
<tr>
<td>69. The atmosphere my instructor usually created in my target class was tense.</td>
<td>.678</td>
<td>.209</td>
</tr>
<tr>
<td>65. I felt comfortable talking with my target class instructor during class.</td>
<td>.199</td>
<td>.855</td>
</tr>
<tr>
<td>79. I was comfortable participating orally in my target class.</td>
<td>.071</td>
<td>.826</td>
</tr>
<tr>
<td>68. I felt encouraged before giving my opinion in my target class.</td>
<td>.299</td>
<td>.706</td>
</tr>
</tbody>
</table>

Eigenvalue: 3.174  1.480  
% of Variance: 52.908  24.674  
Chronbach’s Alpha: .846  .853

*Note.* Underlined factor coefficients show acceptable factor loadings for the corresponding items and factors. Items that are not underlined did not load on the corresponding factor.

*Target Class Engagement Style Frequency*

The EFA procedure revealed that all five items in this scale loaded on the same factor. Both the KMO measure (.886) and Bartlett’s test \( \chi^2 = 946.958 \) 10, \( p < .001 \) were acceptable, suggesting that the data met assumptions necessary for factor analysis and that the factor solution fit the data. The single factor was revealed to have an eigenvalue greater than 1.00, which was confirmed by a visual inspection of the scree
plot. The single-factor solution explained 79.007% of the variance with a 3.950
eigenvalue. The five items in this scale produced an alpha reliability coefficient of .932,
thus indicating excellent reliability for the scale. See Table 11 for the factor loadings.

Table 11

Factor Loadings for Target Class Engagement Style Frequency Scale

<table>
<thead>
<tr>
<th>Pilot Survey Item</th>
<th>Target Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>80. In your target class, how often did you participate orally?</td>
<td>.946</td>
</tr>
<tr>
<td>82. How often did you talk or volunteer comments in your target class?</td>
<td>.921</td>
</tr>
<tr>
<td>81. When your instructor directed a question to your whole class, how often did you volunteer an answer?</td>
<td>.865</td>
</tr>
<tr>
<td>83. In your target class, how often did you remain silent for the whole class period? [Recoded]</td>
<td>.813</td>
</tr>
<tr>
<td>84. How often did you ask questions in your target class?</td>
<td>.746</td>
</tr>
</tbody>
</table>

Eigenvalue          3.950
% of Variance       79.007
Chronbach’s Alpha   .932

Note. Underlined factor coefficients show acceptable factor loadings.

Target Class Engagement Style Preference

Prior to running EFA procedures, survey item 89 was removed a priori since this item was not mirrored in the general engagement style preference scale. The decision was made to have items on the global and target scales mirror each other; thus, even though this item fit the conceptual definition of the variable, it was eliminated.
Ultimately, through iterative EFA procedures, original items 90, 93, and 88 were eliminated in that sequence. In the initial EFA of the nine remaining items, survey item 90 was eliminated because it had a .439 primary factor loading. In the second EFA, item 93 was eliminated because even though it had a .673 primary factor loading, it had a .457 secondary factor loading. In the third EFA, item 88 was eliminated because even though it had a .613 primary factor loading, it had a .326 secondary factor loading and the item that mirrored this one on the general scale had been eliminated through factor analysis. Furthermore, removing item 88 improved the variance accounted for as well as the factor structure.

The final EFA produced an acceptable two-factor solution. Both the KMO measure (.786) and Bartlett’s test \( \chi^2 = 929.017 \) (15), \( p < .001 \) were acceptable. Two factors had eigenvalues greater than 1.00, which was confirmed by the scree plot. The two-factor solution, comprised of three items each, collectively explained 82.645% of the variance. See Table 12 for the factor loadings.

The first factor explained 62.443% of the variance with a 3.747 eigenvalue, while the second factor explained 20.202% of the variance with a 1.212 eigenvalue. The first factor, which was labeled the Target Approach subscale, consisted of three items related to the silent or oral participation of the student. The second factor, which was labeled the Target Avoidance subscale, consisted of three items related to the confidence in or fear of the student in speaking in class. The final two-factor solution produced an overall alpha coefficient reliability of .879 for the scale. The three items that comprised the Target Approach factor (\( \alpha = .927 \)) and the three items that comprised the Target Avoidance factor (\( \alpha = .854 \)) produced excellent and very good reliabilities, respectively.
Table 12

*Factor Loadings for Target Class Engagement Style Preference Scale*

<table>
<thead>
<tr>
<th>Pilot Survey Item</th>
<th>Target Approach</th>
<th>Target Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>85. I enjoyed participating orally in my target class.</td>
<td>.938</td>
<td>.209</td>
</tr>
<tr>
<td>86. I preferred to remain silent in my target class. [Recoded]</td>
<td>.849</td>
<td>.282</td>
</tr>
<tr>
<td>87. I contributed oral comments in my target class without hesitation.</td>
<td>.796</td>
<td>.307</td>
</tr>
<tr>
<td>91. I remained silent because I feared appearing unintelligent to my classmates. [Recoded]</td>
<td>.192</td>
<td>.914</td>
</tr>
<tr>
<td>94. I remained silent because I feared appearing unintelligent to my target class instructor. [Recoded]</td>
<td>.237</td>
<td>.797</td>
</tr>
<tr>
<td>92. I could not organize my thoughts to offer oral comments as quickly as my classmates. [Recoded]</td>
<td>.318</td>
<td>.629</td>
</tr>
</tbody>
</table>

| Eigenvalue | 3.747 | 1.212 |
| % of Variance | 62.443 | 20.202 |
| Chronbach’s Alpha | .927 | .854 |

*Note.* Underlined factor coefficients show acceptable factor loadings for the corresponding items and factors. Items that are not underlined did not load on the corresponding factor.

**Correlations Between Scales**

Following the EFA procedures, all 14 composite variables were examined for correlations. Specifically, two-tailed bivariate correlations were conducted among the 14 summed and averaged factors in order to examine the relationships among these
variables. The results revealed several significant correlations among the 14 composite variables, ranging from coefficients of .177 to .867 (see Table 13). In sum, most correlation coefficients among subscales were significant at the .01 level, with a few exceptions. Of note, the subscale for Cognitive Forms yielded a significant correlation coefficient for only one other subscale, Climate Evaluation at the .01 level. In turn, the Climate Evaluation subscale only yielded significant correlations at the .01 level for Cognitive Forms, Climate Comfort, Target Approach, and Target Avoidance. In addition, the Climate Evaluation subscale yielded significant correlations at the .05 level for Target Frequency.

Results of the correlation analysis answer the first five hypotheses posited for the pilot study in the affirmative. Significant correlation coefficients among the predictor variables and between the predictor and dependent variables indicate that relationships exist among these variables. Specifically, correlations revealed significant relationships between global engagement styles (frequency, approach, and avoidance) and global predictor variables (ethics beliefs, learning beliefs, reaction preference, and reaction behavior). Likewise, significant relationships were observed between specific engagement styles (frequency, approach, and avoidance) and target class predictor variables (oral forms, cognitive forms, climate evaluation, and climate comfort). In addition, the combination of EFA and correlation analysis affirms the sixth and seventh hypotheses posited for the pilot study. Not only are engagement styles comprised of several subscales (frequency, approach, and avoidance), but engagement styles can be measured at both the global and specific levels.
Table 13

Correlation between Subscales on the Pilot Study Survey

<table>
<thead>
<tr>
<th></th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Global Frequency</td>
<td>.858**</td>
<td>.428**</td>
<td>.538**</td>
<td>.748**</td>
<td>.536**</td>
<td>.343**</td>
<td>.667**</td>
<td>.004</td>
<td>.057</td>
<td>.503**</td>
<td>.727**</td>
<td>.700**</td>
<td>.341**</td>
</tr>
<tr>
<td>2. Global Approach</td>
<td>--</td>
<td>.492**</td>
<td>.559**</td>
<td>.810**</td>
<td>.612**</td>
<td>.402**</td>
<td>.708**</td>
<td>-.074</td>
<td>.040</td>
<td>.586**</td>
<td>.731**</td>
<td>.776**</td>
<td>.383**</td>
</tr>
<tr>
<td>3. Global Avoidance</td>
<td>--</td>
<td>.216**</td>
<td>.411**</td>
<td>.300**</td>
<td>.311**</td>
<td>.366**</td>
<td>-.080</td>
<td>.061</td>
<td>.368**</td>
<td>.430**</td>
<td>.436**</td>
<td>.716**</td>
<td></td>
</tr>
<tr>
<td>4. Ethics Beliefs</td>
<td>--</td>
<td>.666**</td>
<td>.626**</td>
<td>.344**</td>
<td>.513**</td>
<td>-.087</td>
<td>-.027</td>
<td>.387**</td>
<td>.483**</td>
<td>.538**</td>
<td>.187**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Learning Beliefs</td>
<td>--</td>
<td>.624**</td>
<td>.420**</td>
<td>.659**</td>
<td>-.049</td>
<td>.087</td>
<td>.560**</td>
<td>.647**</td>
<td>.719**</td>
<td>.340**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Reaction Preference</td>
<td>--</td>
<td>.413**</td>
<td>.556**</td>
<td>-.083</td>
<td>.137*</td>
<td>.502**</td>
<td>.574**</td>
<td>.624**</td>
<td>.319**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Reaction Behavior</td>
<td>--</td>
<td>.435**</td>
<td>-.005</td>
<td>.096</td>
<td>.338**</td>
<td>.322**</td>
<td>.398**</td>
<td>.217**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Oral Forms</td>
<td>--</td>
<td>.128</td>
<td>.125</td>
<td>.703**</td>
<td>.833**</td>
<td>.807**</td>
<td>.390**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Cognitive Forms</td>
<td>--</td>
<td>.177**</td>
<td>.059</td>
<td>-.013</td>
<td>-.009</td>
<td>.017</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Climate Evaluation</td>
<td>--</td>
<td>.364**</td>
<td>.165*</td>
<td>.212**</td>
<td>.345**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Climate Comfort</td>
<td>--</td>
<td>.730**</td>
<td>.827**</td>
<td>.565**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Target Frequency</td>
<td>--</td>
<td>.867**</td>
<td>.509**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Target Approach</td>
<td>--</td>
<td>.513**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Target Avoidance</td>
<td>--</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Note. Correlations with an * are significant at the level of $p < .05$, while those with an ** are significant at the level of $p < .01$ (2-tailed). $N = 219$. 


Synthesis and Discussion

Data from the pilot study support use of the nine engagement scales, thus indicating that the variables measured by the scales are able to tap into the concepts of interest. Specifically, the results of the pilot study indicated that scales and items were able to be factor analyzed with acceptable to excellent reliabilities after eliminating several survey items. Not only did the use of EFAs serve to reduce the overall data involved in the pilot study, but the results also support the content validity of the survey instrument. In particular, because the 14 scales are conceptually consistent with the domain of the variables examined and their items reflect the content domain of the scales, the survey instrument demonstrated good content validity (DeVellis, 2003; deVaus, 2001; Frey et al., 2000). For example, the content domain of global and specific engagement styles was suspected to consist of the frequency of students’ behavior as well as their preference toward such behaviors and their related confidence or fear. The EFAs confirmed that the domain of engagement styles did, indeed, consist of behavior frequency, preference, and confidence or fear. The correlations among the scales (see Table 13) also establish construct validity for the instrument since the scales are positively correlated with one another and match relationships predicted by previous literature and theory (DeVellis, 2003; deVaus, 2001; Frey et al., 2000). The factor analysis and reliabilities indicate that the nine scales are viable for further investigation. Thus, the survey instrument was revised in preparation for the primary study.

In sum, the pilot survey of 100 items was reduced by 36 items. After seven open-ended questions were added to the primary survey (see Appendix B), which shall be
analyzed in a future project, the final survey instrument for the primary study consisted of 71 items. Based on the results of the pilot study, then, hypotheses for the primary study can be posited.

The EFA results as well as the correlation coefficients among the scales and subscales in the pilot study affirm the seven hypotheses posited for the pilot study. Thus, the findings indicate that the survey instruments employed in the pilot study were able to measure 14 distinct scales and subscales related to students’ engagement styles. Moreover, these scales and subscales appear to demonstrate relationship with one another, such that hypotheses among these variables can be posited for a primary study employing the revised survey instrument. As an iterative process, the present research project should now focus attention on the exact relationship among these variables.

Hypotheses for Primary Study

Based on previous literature about student engagement and the results of the pilot study, several hypotheses are posited for the primary study. A student’s engagement style may range along a continuum from mostly oral to mostly silent, as indicated by the student’s reported frequency of, preference for, and confidence in classroom participation. Students’ engagement styles exist at both a global level as well as a more specific level as performed in particular classes. For instance, a student might regard himself or herself as a generally talkative student in most classes, but could actually be a rather silent student in certain classes. Thus, one set of hypotheses for the primary study concern predictor and control variables that might influence students’ global engagement styles, while the other set of hypotheses address predictor and control variables that determine students’ engagement styles within specific classes. Importantly, while
students’ global engagement styles serve as dependent variables with respect to the first set of hypotheses, these same variables are expected to function as predictor variables of students’ specific engagement styles in the second set of hypotheses.

**Hypothesized Global Engagement Styles Model**

The first set of hypotheses concern students’ global engagement styles by accounting for several predictor and control variables. Specifically, four predictor variables and six control variables are examined in relationship to the three dependent variables related to students’ global engagement styles. The four predictor variables include students’ beliefs about the ethics of participating, their beliefs about the relationship between learning and participation, their reaction to participation grades as indicated by their preferences concerning such grades, and their behavioral reactions to participation grades. Thus, in the language of the factor analysis results of the pilot study, students’ **Global Frequency**, **Global Approach**, and **Global Avoidance** can be predicted by their **Ethics Beliefs**, **Learning Beliefs**, **Reaction Preference**, and **Reaction Behavior** after controlling for demographic variables. See Figure 2 for a visual depiction of the hypothesized model of students’ global engagement styles.

Some students may see it as their obligation or ethical responsibility to participate orally during class sessions (Petress, 2001), while other students may believe they have a right to remain silent if they prefer. Thus, it is likely that a relationship exists between student beliefs about ethical responsibility in the classroom and engagement style.

**H₈**: Students’ beliefs about the ethics of participation will predict their global engagement styles.
Even if a link between speaking and learning does not truly exist, students’ communicative behavior might be influenced by their beliefs about such a link. Importantly, students’ perceptions of how their learning relates to oral participation should not be misconstrued as establishing evidence of a link between oral participation and learning. How students perceive their learning to be related to oral participation is likely to predict their engagement style. For instance, some previous literature has suggested that students’ classroom behaviors might be influenced by their beliefs about the interplay between classroom participation and their own learning (Caranfa, 2004; Davis, 1993; Fassinger, 1995; Li Li, 2005; Paul, 1995).

H9: Students’ beliefs about the relationship between oral participation and learning will predict their global engagement styles.

Although most students enroll in a plethora of classes that use participation grades (Balas, 2000; Bean & Peterson, 1998; Fritschner, 2000; Jacobs & Chase, 1992; Tatar, 2005), not all students may agree with participation grades. In fact, students’ reactions to participation grades might influence their engagement styles (Balas, 2000; Bean & Peterson, 1998; Meyer, 2007, 2008, 2009; Meyer & Hunt, 2004). Thus, students who prefer a silent engagement style may react negatively to participation grades. On the other hand, students who prefer an oral engagement style may react positively to participation grades.

H10: Student reactions to oral participation grades will predict their global engagement styles.

It is also likely that the combination of predictor variables could better predict engagement style than either predictor variable in isolation. Together, the predictor
variables might better explain the variance in the dependent variables of Global
Frequency, Global Approach, and Global Avoidance.

H_{11}: After controlling for demographic variables, a linear composite of the four
predictor variables (Ethics Beliefs, Learning Beliefs, Reaction Preference, and
Reaction Behavior) will predict students’ global engagement styles.
Figure 2. Hypothesized Model of Variables Predicting Global Engagement Styles.
The second set of hypotheses concern students’ specific engagement styles by accounting for several predictor and control variables. Specifically, 11 predictor variables and 15 control variables are posited for the hypothesized specific engagement styles model. This time all four predictor variables from the global engagement styles model plus the three dependent variables concerning global engagement styles are suspected to influence students’ specific engagement styles. In addition, four predictor variables unique to students’ target classes are expected to explain specific engagement styles. The predictor variables that pertain explicitly to students’ target classes include the oral and cognitive forms of engagement reported by students as well as their comfort levels and evaluations of the target classroom climate. Again, this model controls for the six demographic variables, but also controls for nine variables concerning the characteristics of the target classes identified by survey respondents. Thus, in the language of the factor analysis results of the pilot study, students’ Target Frequency, Target Approach, and Target Avoidance can be predicted by their Ethics Beliefs, Learning Beliefs, Reaction Preference, Reaction Behavior, Oral Forms, Cognitive Forms, Climate Evaluation, and Climate Comfort, after controlling for demographic variables and target class characteristics. See Figure 3 for a visual depiction of the hypothesized model of students’ specific engagement styles.

How students decide to engage in various classes can range from a variety of oral forms of engagement to cognitive forms of engagement. The exact form in which students participate in certain classes (i.e., speaking, listening, taking notes, or thinking about material) could affect their specific engagement styles.
H12: The forms of engagement (oral or cognitive) that students utilize will predict their specific engagement styles.

The classroom climate established by instructors and influenced by classmates in particular classes is likely to influence students’ engagement styles within those classes. Specifically, previous literature has indicated that classroom climate is created by instructors (Fritschner, 2000; Hirschy & Wilson, 2002; Rocca, 2001) and influenced by classmates (Weaver & Qi, 2005). Moreover, classroom climate could influence students’ participation behaviors (Fassinger, 1995, 1996).

H13: Student reports of target class climate will predict their specific engagement styles.

Finally, after accounting for demographic variables and target class characteristics, it follows that a linear combination of predictor variables at both the global level and within students’ identified target classes will determine students’ specific engagement styles. Together, the global and target class predictor variables might better explain the variance in the dependent variables of Target Frequency, Target Approach, and Target Avoidance.

H14: After controlling for demographic variables and target class characteristics, a linear composite of the predictor variables (Ethics Beliefs, Learning Beliefs, Reaction Preference, Reaction Behavior, Oral Forms, Cognitive Forms, Climate Evaluation, and Climate Comfort) will predict students’ specific engagement styles.
Figure 3. Hypothesized Model of Variables Predicting Specific Engagement Styles.
CHAPTER 4: PRIMARY STUDY METHOD

Following refinement of the engagement survey instrument subsequent to the results of the pilot survey, a primary study was conducted to address the posited hypotheses. Because the purpose of the primary study was to predict student engagement, the primary study was designed to provide a more complete picture of students’ classroom engagement styles.

Participants

Two groups of participants at a large Midwestern university were randomly sampled for the primary study. Specifically, the randomly selected sample (N = 2,300) consisted of undergraduate (n = 1,500) and graduate students (n = 800); the two groups representing the target population for the study. The accessible population for the study consisted of all undergraduate and graduate students enrolled at the university during the quarter in which the study was conducted. The sampling strategy used in the primary study was only balanced by biological sex and grade level, but not other demographic information because of the homogenous demographic characteristics of the students enrolled at the university involved in the primary study. In sum, a random sample of 1,500 undergraduate students and 800 graduate students, evenly balanced by biological sex and grade level, was provided by the campus computer services office in charge of providing e-mail addresses for students invited to participate in the research project.

A total of 330 students responded to the survey, for a response rate of 14.35%. Overall, 139 undergraduate and 191 graduate students responded to the primary study survey. More specifically, the largest group of respondents was master’s students (36.70%), followed by doctoral students (21.20%), seniors (11.20%), first-year
undergraduates (10.90%), sophomores (10.60%), and juniors (9.40%). In sum, 213 female (64.50%) and 117 male students (35.50%) completed the survey. The mean age of participants was 26.01 (SD = 8.38), with a range from 17 to 64 years of age. The mean reported cumulative GPA of participants was 3.56 (SD = .43), with a range from 1.50 to 4.00 on a 4.00 scale. The majority of participants reported their ethnicity as Caucasian/white (80.60%), followed by Asian (7.60%), African American/black (5.50%), other (3.00%), bi-racial or mixed (1.80%), Hispanic (.90%), Native American (.30%), and Pacific Islander (.30%). In terms of unique population characteristics, 85 students identified themselves as first generation college students, 35 were international students, 10 reported having a learning disability, and 4 reported having a physical disability.

Procedures

Survey and informed consent web pages were created for the primary study that was separate from the pilot study. All procedures were approved through the university’s IRB. All groups of participants were contacted through their campus e-mail accounts and invited to complete an online survey administered through Survey Gold, a software package for administering web-based surveys. Participants were instructed in an e-mail invitation to click on a hyperlink directing them to a web page explaining the nature of the study and informing them of their rights as research participants. Student participants indicated their consent to take part in the study by clicking another hyperlink at the bottom of the webpage taking them to the online survey. To maximize the response rate, invitations to participate in the online survey were e-mailed to participants three times.
Measures

The primary study survey contained both closed and open-ended questions (see Appendix B). Importantly, though, the final student engagement survey instrument was refined based upon the results of the pilot study EFAs. Thus, the final survey instrument used in the primary study used 14 composite variables based upon conclusions reached in the pilot study. The qualitative questions were included in the primary study survey, but will be analyzed in a future research project. The construction of these questions was informed by the results of exploratory studies by Meyer (2007, 2008, 2009).

The quantitative scales included items developed specifically for this study. The findings of Meyer (2007, 2008, 2009) and the conclusions reached from the results of the pilot study were used to construct closed-ended questions, grouped into 14 composite variables as informed by the EFAs, for a new student engagement survey (see Appendix B). The closed-ended survey items were arranged on a 5-point Likert scale, asking students to indicate their level of agreement with the items or their frequency of behavior.

Reverse Coding of Items

Due to the reverse polarity of item wording, several items were reverse coded prior to conducting factor analysis and reliability estimates. Specifically, items 4, 7, 9, 10, 11, 16, 19, 20, 23, 25, 51, 52, 53, 58, 61, 63, 64, and 65 from the primary survey were reverse coded (see Appendix B). Reverse coding was conducted in accordance with making the higher numeric response to an item indicate a positive valence or attribute. With regard to items tapping into students’ silent or oral tendencies, the oral behaviors were given the higher numeric response, even though this is by no means an indication that orality should be privileged above silence.
Effect and Dummy Coding

Categorical variables containing nominal data were recoded prior to statistical analysis. Specifically, categorical items concerning demographic information and target class characteristics were either dummy coded or effect coded. If the survey item could be split into two categories, then the item was dummy coded into 0’s and 1’s; however, if the item split into three or more categories with no clear reference group, then the item was effect coded into -1’s, 0’s, and 1’s. Importantly, dummy and effect coding permit categorical data to be examined through regression procedures and to determine the differences between categories (Miles & Shevlin, 2001). See Appendix B for the exact wording of the primary survey items.

Six of the survey items were dummy coded. Survey items regarding the biological sex of the student and the instructor were dummy coded, with males receiving the 0’s and females receiving the 1’s. Given that the comparison of interest in the present study involved potential differences between undergraduate and graduate students, the survey item requesting the degree level of the student was recoded such that all four grade levels of undergraduate students were assigned 0’s and both levels of graduate students were assigned 1’s. Items that asked participants if participation or oral participation were graded in their target class, and whether participating in their target class helped their grade, were dummy coded with affirmative responses receiving the 0’s and responses in either the negative or “don’t know” categories receiving the 1’s. The decision to treat “don’t know” responses as negative was made to remain conservative regarding target classes that involved participation grades and to avoid inflating those numbers. If students could not recall participation or oral participation being graded, or did not know
if participating in class helped their grade, it is reasonable to suspect that survey respondents would not answer subsequent questions concerning their target class with such a grading strategy in their memory. In sum, survey items 36, 38, 39, 41, 66, and 67 were dummy coded.

Five survey items were effect coded. The reported size of respondents’ target classes was effect coded, such that the smallest class size category was assigned -1 and served as a comparison to each of the larger class sizes. The survey item that requested information about unique group characteristics of the participants was effect coded such that respondents who answered “none of the above” were assigned -1 and served as the comparison to unique groups that respondents reported belonging. For the ethnicity item, given the homogenous characteristics of the university as well as the respondents, those who reported being Caucasian/White were assigned -1, to serve as a comparison to other races and ethnicities. The survey item concerning the format of the target class was effect coded so that target classes which respondents reported being delivered in mostly a lecture format were assigned -1 in order to make comparisons with mostly lecture or balanced lecture and discussion classes. Overall, the survey respondents identified a wide variety of target classes in the full range of colleges across the university. For data reduction and comparison purposes, these identified target classes were grouped into 11 categories representing similar subject areas or common threads in course material. Intentionally, these categories were not divided along college lines, since some colleges at the university involved in the present study house departments and course that differ drastically from one another. Since those course identified by respondents as pertaining to foreign language instruction typically involve oral participation of all students as a
necessity, this category of classes was assigned -1 and, thus, served as the comparison
group to the other 10 categories of target classes. In sum, survey items 34, 35, 37, 70, and 71 were effect coded.

Importantly, survey items that comprised continuous data were left in that form. Thus, the reported age and cumulative GPA of participants as well as the percentage of the target class grade that was assigned to participation were left as scale data. The letter grade that participants reported receiving in their target class was converted to the equivalent GPA figure on a 4.00 scale (i.e., a B+ was recoded as a 3.33 and a B- was recoded as a 2.67), so as to maintain scale data for comparison purposes. In sum, survey items 40, 42, 68, and 69 functioned as items with continuous data.

Scale Reliabilities

Using the data from the primary study (n = 330), the Chronbach’s coefficient alpha reliability estimates were calculated for the 14 composite variables used in the primary survey instrument through SPSS. Generally speaking, the results were similar to the reliability estimates found during the pilot study. The five-item Global Frequency scale produced an alpha reliability coefficient of .916, thus indicating excellent reliability for the scale. The six-item Global Engagement Style Preference scale produced very good reliability for the overall scale (\(\alpha = .854\)), as well as for the three-item Global Approach (\(\alpha = .892\)) and three-item Global Avoidance subscales (\(\alpha = .812\)). The three-item Ethics Beliefs scale produced very good reliability (\(\alpha = .829\)). The five-item Learning Beliefs scale produced excellent reliability (\(\alpha = .921\)). The seven-item Reaction to Oral Participation Grades scale produced very good reliability for the overall scale (\(\alpha = .803\)), while the four-item Reaction Preference subscale had excellent reliability (\(\alpha = .
The three-item Reaction Behavior subscale had minimally acceptable reliability ($\alpha = .677$). The six-item Forms of Engagement scale produced very good reliability for the overall scale ($\alpha = .856$), as well as for the three-item Oral Forms ($\alpha = .878$) and three-item Cognitive Forms subscales ($\alpha = .891$). The six-item Target Class Climate scale produced very good reliability for the overall scale ($\alpha = .879$), while the three-item Climate Evaluation subscale had very good reliability ($\alpha = .854$) and the three-item Climate Comfort subscale had excellent reliability ($\alpha = .903$). The five-item Target Frequency scale produced excellent reliability ($\alpha = .905$). The six-item Target Class Engagement Style Preference scale produced very good reliability for the overall scale ($\alpha = .864$), as well as for the three-item Target Approach ($\alpha = .865$) and three-item Target Avoidance subscales ($\alpha = .849$). Thus, with the exception of the Reaction Behavior subscale, all other scales and subscales were found to have very good to excellent alpha reliability estimates. The 14 composite variables in the primary survey instrument are shown in Table 14. The alpha reliability coefficients and dimensionality for each scale are indicated in the table.
Table 14

*Composite Variables Measured in the Primary Survey Instrument*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Composite Variable</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Frequency</td>
<td>Global Frequency</td>
<td>.916</td>
</tr>
<tr>
<td>Global Preference</td>
<td></td>
<td>.854</td>
</tr>
<tr>
<td></td>
<td>Global Approach</td>
<td>.892</td>
</tr>
<tr>
<td></td>
<td>Global Avoidance</td>
<td>.812</td>
</tr>
<tr>
<td>Ethics Beliefs</td>
<td>Ethics Beliefs</td>
<td>.829</td>
</tr>
<tr>
<td>Learning Beliefs</td>
<td>Learning Beliefs</td>
<td>.921</td>
</tr>
<tr>
<td>Reaction to Grades</td>
<td>Reaction Preference</td>
<td>.908</td>
</tr>
<tr>
<td></td>
<td>Reaction Behavior</td>
<td>.677</td>
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<tr>
<td>Forms of Engagement</td>
<td>Oral Forms</td>
<td>.856</td>
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<tr>
<td></td>
<td>Cognitive Forms</td>
<td>.878</td>
</tr>
<tr>
<td>Target Class Climate</td>
<td>Climate Evaluation</td>
<td>.891</td>
</tr>
<tr>
<td></td>
<td>Climate Comfort</td>
<td>.854</td>
</tr>
<tr>
<td>Target Frequency</td>
<td>Target Frequency</td>
<td>.905</td>
</tr>
<tr>
<td>Target Preference</td>
<td>Target Approach</td>
<td>.864</td>
</tr>
<tr>
<td></td>
<td>Target Avoidance</td>
<td>.849</td>
</tr>
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</table>

*Note.* The 14 composite variables were measured by nine scales. Five of the scales consisted of two factors, while the other four scales consisted of single factors. Alpha levels are reported for overall scales as well as for each factor in multidimensional scales.

*Confirmatory Factor Analyses*

To confirm the factor structure of the survey instrument that was found during the EFAs in the pilot study, the data from the primary study were examined using a series of
confirmatory factor analyses (CFAs). The CFAs were conducted using LISREL 8.80 software. LISREL allows for testing whether the data fit a pre-assigned model, thus permitting CFA. Only the data collected during the primary study \((n = 330)\) was subjected to CFAs since the pilot study data had already been run through EFAs. Model fit was assessed by examining four commonly reported indices, recommended by Kline (2005): (a) model chi square, (b) root mean square error of approximation (RMSEA), (c) non-normed fit index (NNFI), and (d) comparative fit index (CFI). Importantly, a non-significant model \(\chi^2\) would indicate acceptable model fit; although, given the overreliance of \(\chi^2\) on sample size (Kelloway, 1995; Kline, 2005), it is not uncommon for the value to be significant. On the other hand, acceptable model fit is indicated by a value of .08 or lower for the RMSEA statistic, with close fit being .05 or lower (MacCallum, Browne, & Sugawara, 1996). For the remaining fit indices, NNFI and CFI, values exceeding .90 or .95 indicate acceptable and close model fit, respectively (Kline, 2005).

Overall, the CFAs demonstrated that eight of the nine scales included in the primary study survey had acceptable model fit. Specifically, the confirmatory model for the Global Frequency scale indicated close model fit, \([\chi^2 (5, N = 330) = 3.820, p = .576, RMSEA = .000 (90\% CI: .000-.067), NNFI = 1.001, CFI = 1.000]\). All of the \(z\) scores for the correlation values of the five items exceeded the 1.96 critical value. Additionally, a visual inspection of the Q plot of standardized residuals confirmed that the data fit the model.

The confirmatory model for the two-factor Global Engagement Style Preference scale also indicated close model fit, \([\chi^2 (8, N = 330) = 7.173, p = .518, RMSEA = .000 (90\% CI: .000-.059), NNFI = 1.001, CFI = 1.000]\). All of the \(z\) scores for the correlation values...
of the six items exceeded the 1.96 critical value. A visual inspection of the Q plot also confirmed that the data fit the model.

The third CFA, for the confirmatory model for the Ethics Beliefs scale, indicated perfect fit due to model saturation, \( \chi^2 (0, N = 330) = .000, p = 1.000, \text{RMSEA} = .000 \) (90% CI: .000-.1.000), NNFI = 1.000, CFI = 1.000]. The \textit{z} scores for the correlation values of the three items exceeded the 1.96 critical value.

In the fourth CFA, for the confirmatory model for the Learning Beliefs scale, close model fit was indicated, \( \chi^2 (5, N = 330) = 3.820, p = .576, \text{RMSEA} = .000 \) (90% CI: .000-.067), NNFI = 1.001, CFI = 1.000]. All of the \textit{z} scores for the correlation values of the five items exceeded the 1.96 critical value. A visual inspection of the Q plot of standardized residuals confirmed that the data fit the model.

However, the confirmatory model for the two-factor Reaction to Oral Participation Grades scale indicated poor model fit for two of the indices, \( \chi^2 (13, N = 330) = 123.476, p < .001, \text{RMSEA} = .162 \) (90% CI: .137-.188), NNFI = .946, CFI = .967]. Thus, a second CFA was calculated for this scale, with all seven items loaded onto a single factor or latent construct. Again, the CFA produced poor model fit on two of the four indices, \( \chi^2 (14, N = 330) = 126.018, p < .001, \text{RMSEA} = .155 \) (90% CI: .130-.180), NNFI = .949, CFI = .966]. For each of these CFA procedures, all of the \textit{z} scores for the correlation values of the seven items exceeded the 1.96 critical value. But, a visual inspection of the Q plot of standardized residuals revealed that the data did not fit the model well. Consequently, since the EFA procedures for the pilot study suggested a two-factor solution and since those factors seemed to have distinct conceptual characteristics, two additional CFA procedures were calculated; this time each factor was subjected to
its’ own CFA. For the *Reaction Preference* subscale, the CFA indicated close model fit, $[\chi^2 (2, N = 330) = 2.776, p = .250, \text{RMSEA} = .036 \text{ (90% CI: .000-.121)}, \text{NNFI} = .998, \text{CFI} = .999]$. Again, all four $z$ scores exceeded the critical value. This time, however, a visual inspection of the Q plot revealed that the data fit the model acceptably well. For the *Reaction Behavior* subscale, the CFA indicated perfect fit due to model saturation, $[\chi^2 (0, N = 330) = .000, p = 1.000, \text{RMSEA} = .000 \text{ (90% CI: .000-1.000)}, \text{NNFI} = 1.000, \text{CFI} = 1.000]$. Again, all three $z$ scores exceeded the critical value. In sum, it appeared that each subscale hung together well, even though both subscales did not fit the latent construct when placed in the same CFA procedure.

In the confirmatory model for the two-factor *Forms of Engagement* scale, close model fit was suggested by the CFA, $[\chi^2 (8, N = 330) = 8.508, p = .385, \text{RMSEA} = .008 \text{ (90% CI: .000-.065)}, \text{NNFI} = 1.000, \text{CFI} = 1.000]$. All of the $z$ scores for the correlation values of the six items exceeded the 1.96 critical value. Furthermore, a visual inspection of the Q plot confirmed that the data fit the model.

The confirmatory model for the two-factor *Target Class Climate* scale, indicated close model fit, $[\chi^2 (8, N = 330) = 8.186, p = .416, \text{RMSEA} = .000 \text{ (90% CI: .000-.063)}, \text{NNFI} = 1.000, \text{CFI} = 1.000]$. The correlation value $z$ scores for all of the six items exceeded the 1.96 critical value. Furthermore, a visual inspection of the Q plot confirmed that the data fit the model.

A confirmatory model for the *Target Frequency* scale indicated close model fit, $[\chi^2 (5, N = 330) = 3.820, p = .576, \text{RMSEA} = .000 \text{ (90% CI: .000-.067)}, \text{NNFI} = 1.001, \text{CFI} = 1.000]$. The correlation value $z$ scores for all five items exceeded the 1.96 critical value.
Additionally, a visual inspection of the Q plot of standardized residuals confirmed that the data fit the model.

The confirmatory model for the two-factor Target Class Engagement Style Preference scale indicated close model fit, $\chi^2 (8, N = 330) = 7.173, p = .518, \text{RMSEA} = .000 (90\% \text{CI: .000-.059}), \text{NNFI} = 1.001, \text{CFI} = 1.000$. All of the $z$ scores for the correlation values of the six items exceeded the 1.96 critical value. And, a visual inspection of the Q plot also confirmed that the data fit the model.

Finally, a CFA was conducted to test all the scales in combined confirmatory models. Specifically, the CFA evaluated a confirmatory model of all 14 subscales. The overall confirmatory model involving all 14 subscales indicated close model fit, $\chi^2 (1036, N = 330) = 2552.602, p < .001, \text{RMSEA} = .069 (90\% \text{CI: .065-.072}), \text{NNFI} = .971, \text{CFI} = .974$. The $z$ scores for the correlation values of all 49 items exceeded the 1.96 critical value. Finally, a visual inspection of the Q plot suggested that the data fit the model well. Thus, the overall CFA confirmed that the factor structure of the primary survey instrument was viable since it established construct validity by showing that the data theoretically fit expectations for the measurement instrument (DeVellis, 2003; deVaus, 2001; Frey et al., 2000).

**Data Analysis**

*Combination of Pilot and Primary Participants*

Quantitative data from both the pilot and primary studies were combined prior to further statistical analysis. The decision to combine the pilot and primary data was made because both groups of participants were randomly sampled from the same population without an overlap in the samples. The university office that produced both
sample lists had been instructed to draw the random samples at the same point in time, prior to the pilot study, without any overlap in subjects. The intention was to combine the samples if the EFAs and CFAs indicated that both the pilot and primary survey instruments were viable. Thus, the pilot study data was trimmed so as to eliminate those survey items that were discarded during the EFAs. However, as a final test of whether the two groups of participants could be reasonably combined, independent samples \( t \)-tests were conducted comparing the undergraduate respondents’ \((n = 219)\) data from the pilot study to the undergraduate respondents’ \((n = 139)\) data from the primary study. The primary study data from graduate student respondents was omitted during this comparison due to potential differences in their engagement styles and target classes. Previous studies have suggested that undergraduate and graduate students may differ in their classroom participation (Aulls, 2004; Meyer, 2007, 2008, 2009).

Null findings for the independent samples \( t \)-tests would indicate that no statistically significant differences existed between the undergraduate students involved in the pilot study and those in the primary study. Consistent with the null hypothesis for these tests, the results suggested that the two groups of participants did not differ with respect to scores on any of the 14 composite variables. Thus, these non-significant findings allow for data from both the pilot study and primary study participants to be combined for use in further analysis.

Following the merging of the pilot study and primary study participants \((n = 549)\), new descriptive statistics and frequency counts were calculated to describe the combined group of participants. In sum, the combined participants consisted of 358 undergraduate \((65.20\%)\) and 191 graduate students \((34.80\%)\). Overall, 362 females \((65.90\%)\) and 187
males (34.10%) participated in the study. The mean age of participants was 23.95 years 
($SD = 7.16$). Their mean cumulative GPA was 3.45 ($SD = .46$) on a 4.00 scale.

Descriptive statistics for the demographic variables and target class characteristics,
separated by pilot, primary, and combined groups, can be found in Tables 15, 16, and 17.
Table 15

*Descriptive Statistics for Demographic Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Degree Level</th>
<th>Pilot</th>
<th>Primary</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Undergraduate</td>
<td>70</td>
<td>44</td>
<td>114</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
<td>0</td>
<td>73</td>
<td>73</td>
</tr>
<tr>
<td>Female</td>
<td>Undergraduate</td>
<td>149</td>
<td>95</td>
<td>244</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
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<td>118</td>
<td>118</td>
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<td>20.69</td>
<td>20.80</td>
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<td>29.87</td>
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<td>3.74</td>
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<tr>
<td></td>
<td>Graduate</td>
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<td>9</td>
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<td>8</td>
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<td>19</td>
</tr>
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<td>13</td>
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<td>5</td>
</tr>
<tr>
<td>Caucasian/White</td>
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<td>149</td>
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<td>4</td>
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<td>2</td>
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<td>1</td>
<td>2</td>
</tr>
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<td></td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other (Race/Ethnicity)</td>
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<td>4</td>
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<td>Physical Disability</td>
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<td>1</td>
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</tr>
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<td>29</td>
<td>29</td>
</tr>
<tr>
<td>Other (Unique Groups)</td>
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<td>6</td>
</tr>
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</tr>
<tr>
<td>None (Unique Groups)</td>
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<td>90</td>
<td>236</td>
</tr>
<tr>
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<td>Graduate</td>
<td>0</td>
<td>96</td>
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</table>

*Note.* There were 549 combined participants; 219 in the pilot study and 330 in the primary study.
Table 16

*Descriptive Statistics for Target Class Characteristics*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Degree Level</th>
<th>Pilot</th>
<th>Primary</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Undergraduate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Instructor</td>
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<td>100</td>
<td>70</td>
<td>170</td>
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<tr>
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<td>Graduate</td>
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<td>124</td>
<td>124</td>
</tr>
<tr>
<td>Female Instructor</td>
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<td>69</td>
<td>188</td>
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<td></td>
<td>Graduate</td>
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<td>67</td>
</tr>
<tr>
<td>Class Size 1-15</td>
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<td>17</td>
<td>41</td>
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<td></td>
<td>Graduate</td>
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<td>73</td>
<td>73</td>
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<td>Class Size 16-30</td>
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<td>Class Size 31-49</td>
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<td>Mostly Discussion</td>
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<td>60</td>
</tr>
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<td>98</td>
</tr>
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<td>Graduate</td>
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<td>57</td>
</tr>
<tr>
<td>Balance of Lecture and Discussion</td>
<td>Undergraduate</td>
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<td>70</td>
<td>178</td>
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<td>Graduate</td>
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<tr>
<td>Participation Grade Percentage</td>
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<td>13.56</td>
</tr>
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<td>47</td>
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<td></td>
<td>Graduate</td>
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<td>81</td>
<td>81</td>
</tr>
<tr>
<td>Oral Participation Not Graded</td>
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<td>92</td>
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<td>Participation Helped Grade</td>
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<td>Graduate</td>
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<td>91</td>
</tr>
<tr>
<td>Participation Did Not Help Grade</td>
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<tr>
<td>Grade Received (GPA)</td>
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<td>3.41</td>
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<tr>
<td></td>
<td>Graduate</td>
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<td>3.74</td>
<td>3.74</td>
</tr>
</tbody>
</table>

*Note.* There were 549 combined participants; 219 in the pilot study and 330 in the primary study.
Table 17

Descriptive Statistics for Target Class Subject Areas

<table>
<thead>
<tr>
<th>Variable</th>
<th>Degree Level</th>
<th>Pilot</th>
<th>Primary</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Undergraduate</td>
<td>21</td>
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<td>33</td>
</tr>
<tr>
<td>Foreign Languages</td>
<td>Graduate</td>
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<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Communication Studies/HSLS</td>
<td>Undergraduate</td>
<td>37</td>
<td>12</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
<td>0</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>English/Humanities</td>
<td>Undergraduate</td>
<td>39</td>
<td>23</td>
<td>62</td>
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<tr>
<td></td>
<td>Graduate</td>
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<td>6</td>
<td>6</td>
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<tr>
<td>Education</td>
<td>Undergraduate</td>
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<td>10</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
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<td>49</td>
<td>49</td>
</tr>
<tr>
<td>History/Political Science/Social Work</td>
<td>Undergraduate</td>
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<td>10</td>
<td>37</td>
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<tr>
<td></td>
<td>Graduate</td>
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<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Sociology/Psychology/Anthropology</td>
<td>Undergraduate</td>
<td>17</td>
<td>12</td>
<td>29</td>
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<tr>
<td></td>
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<tr>
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<td>11</td>
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<tr>
<td>Other (Subject Area)</td>
<td>Undergraduate</td>
<td>14</td>
<td>17</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
<td>0</td>
<td>27</td>
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</tr>
</tbody>
</table>

Note. There were 549 combined participants; 219 in the pilot study and 330 in the primary study.

Hierarchical Multiple Linear Regression

The closed-ended survey questions examined in the present study were subjected to computer analysis, using SPSS. A series of hierarchical multiple linear regressions were conducted to test each set of hypotheses posited for the primary study. Multiple linear regression analysis reveals relationships among the variables explored in a study. In the primary study, multiple regression procedures tested both the hypothesized global and specific engagement styles models. Multiple linear regression analysis controls for
the other predictor variables measured in the study in order to isolate the ability of any single predictor variable to predict a significant amount of variance in the dependent variable. The level of significance or alpha was set to .05 for all statistical tests in accordance with common practices. No adjustments were made to alpha for the statistical procedures employed in the study. Given that the results of the study do not endanger students or instructors in any direct manner, there was no conceivable reason to adjust alpha to a more conservative level.

Multiple linear regression analysis uses multiple predictor, or independent, variables to predict the scores on a single quantitatively measured criterion variable, which is commonly called the dependent variable (Hinkle, Wiersma, & Jurs, 2003; Meyers et al., 2006). The dependent variable in a regression model should be based on continuous data on either an interval or ratio scale (Miles & Shevlin, 2001). Summed scales of Likert items have been shown to produce continuous data on an interval level (DeVellis, 2003). The multiple R value produced by the multiple linear regression procedure accounts for the linear combination of the multiple predictor variables (Hinkle et al., 2003). The goal in multiple linear regression is to find a set of predictor variables that are each highly correlated with the dependent variable, but not with each other, so as to maximize the variance accounted for by the regression model (Hinkle et al., 2003; Meyers et al., 2006). In other words, an ideal set of predictor variables will “account for different proportions of variance in the criterion variable” while having “low correlations among themselves” (Hinkle et al., 2003, p. 472). Although having a large number of predictor variables would seemingly account for more variance in the dependent variable, Hinkle et al. recommend using no more than five or six predictor variables since a greater
number will rarely result in substantial increases in the variance accounted for, but may produce spurious results.

Aiken and West (1991) explained that multiple regression can be employed to analyze any combination of categorical and continuous variables, provided that categorical data is dummy coded. Furthermore, they argued that interactions and curvilinear relationships among the variables can be explored through multiple regression. They also noted that multiple regression was originally viewed as a means of analyzing nonexperimental data from observations and surveys.

The justification for using multiple linear regression, compared to using a series of simple regression procedures, lies in the interrelationship among variables as found in the real world. Meyers et al. (2006) argued that the use of multiple predictor variables is generally accepted because the procedure is more reflective of “how the world works” than simple regression, and can be used for both explanatory and predictive purposes (p. 147). Miles and Shevlin (2001) agreed that multiple regression better reflects the multiple causes of events, as compared to simple regression or other procedures that isolate single causes of events. Research that seeks to predict one variable based upon a combination of several other variables would justify a regression design (Meyers et al., 2006). The variables included in the regression model should, ideally, be based on as much empirical evidence and theoretical rationale as possible (Meyers et al., 2006; Miles & Shevlin, 2001).

The type of data collected for each variable is crucial in determining how the data should be coded prior to calculating the multiple linear regression procedure. For instance, dichotomous variables should be handled differently than continuous level data.
Specifically, dichotomously coded categorical variables that serve as predictor variables should be dummy coded (Meyers et al., 2006). In this process, the value 1 indicates the presence of some quality, while 0 indicates the absence of the quality (Meyers et al., 2006; Miles & Shevlin, 2001). However, nominal variables that consist of “more than two categories often make interesting and useful predictors,” but must be effect coded (Meyers et al., 2006, p. 187). If predictor variables are measured with categorical data, they can be used in regression after they have been recoded (Miles & Shevlin, 2001).

Like any statistical analysis procedure, multiple linear regression is based upon a variety of assumptions. Specifically, the dependent variable must be normally distributed for each combination of levels of the predictor variables, the variance of the dependent variable must be the same for all combinations of levels of the predictor variables, the cases must represent a random sample from the population, and the scores must be independent from one participant to the next (Green & Salkind, 2005). The test assumes linearity, normality, and homoscedasticity (Mertler & Vannatta, 2005; Miles & Shevlin, 2001). Since outliers that are three or more SD units from their means can negatively impact or distort results and may indicate measurement problems, their removal might be justified (Mertler & Vannatta, 2005; Meyers et al., 2006).

Importantly, collinearity among variables is a concern in multiple linear regression procedures. During data analysis, correlation statistics were used to identify relationships among the variables and to check for multicollinearity. When two predictor variables exhibit strong correlation, collinearity problems may exist (Meyers et al., 2006; Miles & Shevlin, 2001). When more than two predictor variables correlate strongly, multicollinearity issues may exist (Mertler & Vannatta, 2005; Meyers et al., 2006; Miles
& Shevlin, 2001). However, if the objective is to maximize $R^2$, then multicollinearity may not be a pressing concern (Meyers et al., 2006). Importantly, though, multicollinearity could indicate that various subscales are assessing the same construct (Meyers et al., 2006). Tolerance (TOL) indicators and the variance inflation factor (VIF) provide two ways in which to identify multicollinearity (Mertler & Vannatta, 2005; Meyers et al., 2006; Miles & Shevlin, 2001). The rules of thumb are that a VIF over 10 or a TOL approaching .10 suggests the presence of collinearity; although a VIF over 4 and a TOL below .25 warrants caution (Mertler & Vannatta, 2005; Meyers et al., 2006; Miles & Shevlin, 2001). If a predictor variable has a near-zero correlation with the dependent variable, then it could be a suppressor variable (Meyers et al., 2006).

There are several methods that exist for entering variables into a regression model. Initially, all the predictor variables can be entered into the full model regression and, then, individual predictor variables are removed from the model using a backward solution, if they fail to make significant contributions to the model (Hinkle et al., 2003; Mertler & Vannatta, 2005; Meyers et al., 2006). On the other hand, a forward solution would enter predictor variables that account for the most variance in the dependent variable into the regression model one at a time until increases in $R^2$ are no longer statistically significant (Hinkle et al., 2003; Mertler & Vannatta, 2005). A stepwise solution, which is a variation of the forward solution, predictor variables are entered one at a time into the model, but are eliminated if they fail to make significant contributions (Hinkle et al., 2003; Mertler & Vannatta, 2005). Importantly, though, the full model solution has the advantage of retaining all variables in the regression model that were initially deemed to be empirically or theoretically important enough to be included in the
study, even if they are not adding much to the $R^2$ (Meyers et al., 2006). The objective is to find a parsimonious regression model that explains the most variance in the dependent variable while containing the fewest number of predictor variables. (Miles & Shevlin, 2001). However, the masking of potentially meaningful predictor variables by purely statistical solutions, such as the stepwise procedure, that remove them from the regression model run the risk of researchers drawing improper or incomplete conclusions (Meyers et al., 2006). Thus, researcher-controlled methods of model-building, such as hierarchical regression or block-entry analysis, might be preferable if solid empirical evidence or a specific theoretical lens can be used to guide the study (Meyers et al., 2006). In the primary study, all the variables were entered into the regression model simultaneously. In other words, consistent with the lack of empirical literature predicting an ordered relationship among the predictor variables, no predictions were hypothesized about the order in which the predictor variables should be entered into the regression model.

When interpreting the statistical output of a multiple regression procedure, it is essential to evaluate certain statistical output. Rejecting the null hypothesis would indicate that multiple $R$ is different from zero in the population, thus meaning that a statistically significant relationship exists between the dependent variable and a linear combination of the predictor variables (Hinkle et al., 2003). Meyers at al. noted that “the adjusted $R^2$ is a statistical estimate of the shrinkage we would observe if we were to apply the model to another sample” (p. 165), whereas beta weights might not be generalizable to other samples.
Screening and Elimination of Multivariate Outliers

Multivariate outlier cases were screened by calculating Mahalanobis distances through SPSS linear regression. Specifically, the respondent case numbers were entered as the dependent variable and the fourteen factor scores were entered as independent variables. Given the 14 degrees of freedom in this analysis, a critical value for $\chi^2$ at $p = .001$ of 36.123 (Meyers, Gamst, & Guarino, 2006) was employed to screen for outliers. A total of 14 outliers that exceeded this critical value were iteratively removed from the data set prior to running subsequent regression analyses.

Correlations between Scales

Following the CFA procedures, all 14 composite variables were examined for correlations. Specifically, two-tailed bivariate correlations were conducted among the 14 summed and averaged factors in order to examine the relationships among these variables. The results revealed several significant correlations among the 14 composite variables, ranging from coefficients of .177 to .867 (see Table 18). In sum, most correlation coefficients among subscales were significant at the .01 level, with a few exceptions. Of note, the subscale for Cognitive Forms yielded a significant correlation coefficient for only one other subscale, Climate Evaluation at the .01 level. In turn, the Climate Evaluation subscale only yielded significant correlations at the .01 level for Cognitive Forms, Climate Comfort, Target Approach, and Target Avoidance. In addition, the Climate Evaluation subscale yielded significant correlations at the .05 level for Target Frequency.

Similar to the results of the correlation analyses reported in the pilot study, the combined data from the pilot and primary studies answer the first five hypotheses in the
affirmative. Significant correlation coefficients indicated that relationships exist among the predictor variables and between the predictor and dependent variables. In particular, correlations revealed significant relationships between global engagement styles (frequency, approach, and avoidance) and global predictor variables (ethics beliefs, learning beliefs, reaction preference, and reaction behavior). Furthermore, correlations revealed significant relationships between specific engagement styles (frequency, approach, and avoidance) and target class predictor variables (oral forms, cognitive forms, climate evaluation, and climate comfort). Additionally, the combination of CFA and correlation analysis affirms the sixth and seventh hypotheses. Not only are engagement styles comprised of several subscales (frequency, approach, and avoidance), but engagement styles can be measured at both the global and specific levels.
Table 18

**Correlation between Subscales on the Primary Study Survey**

<table>
<thead>
<tr>
<th></th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>11</th>
<th>12</th>
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<th>14</th>
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<tbody>
<tr>
<td>1. Global Frequency</td>
<td>.861**</td>
<td>.410**</td>
<td>.550**</td>
<td>.744**</td>
<td>.586**</td>
<td>.198**</td>
<td>.676**</td>
<td>.111*</td>
<td>.087*</td>
<td>.523**</td>
<td>.731**</td>
<td>.698**</td>
<td>.356**</td>
</tr>
<tr>
<td>2. Global Approach</td>
<td>--</td>
<td>.494**</td>
<td>.575**</td>
<td>.779**</td>
<td>.621**</td>
<td>.214**</td>
<td>.695**</td>
<td>.075</td>
<td>.059</td>
<td>.551**</td>
<td>.729**</td>
<td>.747**</td>
<td>.399**</td>
</tr>
<tr>
<td>3. Global Avoidance</td>
<td>--</td>
<td>.165**</td>
<td>.346**</td>
<td>.296**</td>
<td>.068</td>
<td>.359**</td>
<td>-.027</td>
<td>.087*</td>
<td>.362**</td>
<td>.416**</td>
<td>.425**</td>
<td>.691**</td>
<td></td>
</tr>
<tr>
<td>4. Ethics Beliefs</td>
<td>--</td>
<td>.646**</td>
<td>.627**</td>
<td>.211**</td>
<td>.494**</td>
<td>.042</td>
<td>.026</td>
<td>.378**</td>
<td>.454**</td>
<td>.503**</td>
<td>.156**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Learning Beliefs</td>
<td>--</td>
<td>.624**</td>
<td>.254**</td>
<td>.634**</td>
<td>.086*</td>
<td>.071</td>
<td>.479**</td>
<td>.636**</td>
<td>.679**</td>
<td>.304**</td>
<td></td>
<td></td>
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<tr>
<td>6. Reaction Preference</td>
<td>--</td>
<td>.299**</td>
<td>.514**</td>
<td>.019</td>
<td>.109*</td>
<td>.424**</td>
<td>.531**</td>
<td>.547**</td>
<td>.275**</td>
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<td>7. Reaction Behavior</td>
<td>--</td>
<td>.283**</td>
<td>.028</td>
<td>.044</td>
<td>.236**</td>
<td>.219**</td>
<td>.239**</td>
<td>.073</td>
<td></td>
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<tr>
<td>8. Oral Forms</td>
<td>--</td>
<td>.269**</td>
<td>.166**</td>
<td>.703**</td>
<td>.852**</td>
<td>.808**</td>
<td>.439**</td>
<td></td>
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<td>9. Cognitive Forms</td>
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<td>.278**</td>
<td>.245**</td>
<td>.139**</td>
<td>.158**</td>
<td>.121**</td>
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<tr>
<td>10. Climate Evaluation</td>
<td>--</td>
<td>.499**</td>
<td>.190**</td>
<td>.288**</td>
<td>.321**</td>
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<td></td>
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<tr>
<td>11. Climate Comfort</td>
<td>--</td>
<td>.705**</td>
<td>.798**</td>
<td>.544**</td>
<td></td>
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<tr>
<td>12. Target Frequency</td>
<td>--</td>
<td>.854**</td>
<td>.499**</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Target Approach</td>
<td>--</td>
<td>.523**</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>14. Target Avoidance</td>
<td>--</td>
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</tbody>
</table>

*Note.* Correlations with an * are significant at the level of $p < .05$, while those with an ** are significant at the level of $p < .01$ (2-tailed). $N = 535$. 
Screening and Selection of Control Variables

Prior to running the regression models, all demographic variables and target class characteristics were screened to determine their relationship with the predictor and dependent variables. Screening the control variables allowed only those control variables that were found to have significant relationships with the predictor or dependent variables to be included in the regression models. Control variables that were not found to have significant relationships with the predictor and control variables were excluded from those regression procedures to reduce the number of control variables entered into any one regression model and to allow the predictor variables to explain variance in the dependent variable of interest more accurately. Importantly, the screening and selection of control variables answered the two research questions posed prior to the pilot study. RQ1 asked what demographic variables might be related to students’ engagement styles, while RQ2 asked which classroom characteristics might relate to engagement styles. In sum, all but two of the control variables were found to be related to either students’ global or specific engagement styles.

Three different types of screening procedures were employed depending on whether the control variable was continuous or categorical data. For continuous data, correlation procedures were calculated to compare the control variable to the 14 composite variables that formed the predictor and dependent variables in the regression models. Specifically, students’ age, cumulative GPA, letter grade received in their target class, and percentage of their target class grade that was assigned to participation grades were run through separate correlations with the predictor and dependent variables. For
those control variables that had been dummy coded, independent samples $t$-tests were calculated to compare the control variable to the 14 composite variables that formed the predictor and dependent variables in the regression models. To be precise, students’ degree level and biological sex, their target class instructors’ biological sex, whether participation was graded in their target class, whether oral participation was graded in their target class, and whether participating helped students’ grades in their target class were subjected to separate independent samples $t$-tests with the predictor and dependent variables. Finally, for those control variables that had been previously effect coded, one-way analysis of variance (ANOVA) procedures were calculated to compare the control variable to the 14 composite variables that formed the predictor and dependent variables in the regression models. Thus, students’ race/ethnicity, membership in unique groups, target class subject matter, class size in their target class, and format of instruction in their target class (i.e., lecture, discussion, or a blend of the two) were explored using separate one-way ANOVAs with the predictor and dependent variables.

The results of these screening procedures revealed that the target class instructors’ biological sex and whether participation was graded in the target class were not significantly related to any of the 14 predictor and dependent variables. Thus, these two target class characteristics were not included in any of the regression models. For the specific engagement styles models, all other control variables demonstrated significant relationships with the variables of interest in those models. For the global engagement styles models, only students’ biological sex, degree level, age, cumulative GPA, and race/ethnicity were revealed to have significant relationships with the variables of interest in those models. Importantly, though, due to the homogeneous composition of the
participants, cell sizes were extremely unbalanced for the control variables of race/ethnicity and membership in unique groups. Thus, these two control variables may be untenable for analysis and would be eliminated from regression models if resulting difficulties arise with regard to interpreting these variables.

*Regression Models*

Two different engagement styles models were run through hierarchical multiple linear regression procedures. Specifically, separate regression models were calculated for students’ global engagement styles (see Figure 2) and their specific engagement styles (see Figure 3). After the 14 cases containing multivariate outliers were filtered out of the data file, both regression models were calculated using the combined group of participants ($n = 549$).

The regression model for students’ global engagement styles employed two entry blocks or steps. The scores for *Global Frequency*, *Global Approach*, and *Global Avoidance*, which were summed and then averaged, were entered, in turn, as dependent variables in three separate regression models. Importantly, each of these variables was entered as the dependent variable in one of the three regression procedures, while the other two were considered to be predictor variables for the two regression procedures that did not use that variable as the dependent variable of interest. Using the sequential block entry method in SPSS, all relevant demographic variables were entered in the first block of the regression model. Then, the summed and averaged scores for predictor variables labeled *Ethics Beliefs*, *Learning Beliefs*, *Reaction Preference*, and *Reaction Behavior* were entered in the second block of the regression model. In addition, the two dependent variables that did not serve as the outcome variable of interest in a particular regression
model were also entered in the second block. Thus, each of the three global engagement styles regression procedures employed six predictor variables.

The regression model for students’ specific engagement styles employed three blocks. The summed and averaged scores for Target Frequency, Target Approach, and Target Avoidance were entered, in turn, as dependent variables in three separate regression models. Importantly, each of these variables was entered as the dependent variable in one of the three regression procedures, while the other two were considered to be predictor variables for the two regression procedures that did not use that variable as the dependent variable of interest. All relevant demographic variables and target class characteristics were entered in the first block of the regression model. Then, the summed and averaged scores for target class predictor variables labeled Oral Forms, Cognitive Forms, Climate Evaluation, and Climate Comfort were entered in the second block of the regression model. In addition, the two dependent variables that did not serve as the outcome variable of interest in a particular regression model were also entered in the second block. In the third block, all the global predictor variables labeled Ethics Beliefs, Learning Beliefs, Reaction Preference, Reaction Behavior, Global Frequency, Global Approach, and Global Avoidance were entered. Thus, each of the three global engagement styles regression procedures employed 13 predictor variables.
CHAPTER 5: PRIMARY STUDY RESULTS

Regression Models for Students’ Global Engagement Styles

Global Engagement Style Frequency Model

The regression model for Global Engagement Style Frequency investigated whether students’ Global Frequency could be predicted by a linear combination of Ethics Beliefs, Learning Beliefs, Reaction Preference, Reaction Behavior, Global Approach, and Global Avoidance after controlling for students’ Degree Level, Biological Sex, Age, Cumulative GPA, and Race/Ethnicity. Therefore, a hierarchical multiple linear regression analysis was conducted to predict Global Frequency from the six global predictor variables and five demographic control variables. Missing cases were excluded listwise. Sequential block entry was employed to regress all global predictor and demographic control variables onto the dependent variable in two steps. Specifically, all demographic control variables were entered in the first step, while all global predictor variables were entered into the second step as there was no strong theoretical rationale to enter these variables in a particular order.

Results of the hierarchical multiple linear regression analysis indicated that 15.5% of the variance in Global Frequency could be predicted by demographic variables, $R^2_{adj} = .137$, $F(11, 514) = 8.559, p < .01$. In the second step, after controlling for the demographic variables, the global predictor variables resulted in a significant change, uniquely accounting for an additional 61.6% of the variance, $\Delta F(6, 508) = 227.083, p < .01$. Overall, the model accounted for 77% of the variance in Global Frequency, $R^2_{adj} = .763$, $F(17, 508) = 100.302, p < .01$. Thus, the significant results of the regression procedure indicated that the linear combination of the six global predictor variables was
able to account for a significant amount of variance in the dependent variable, after statistically controlling for five demographic variables.

Analysis of regression coefficients indicated that *Global Approach*, $\beta = .678$, $t = 17.336$, $p < .01$, and *Learning Beliefs*, $\beta = .184$, $t = 4.810$, $p < .01$, emerged as the only significant predictors when all variables were in the model. The squared part correlations revealed that *Global Approach* uniquely predicted 13.6% of the variance in *Global Frequency*, while *Learning Beliefs* uniquely predicted 1% of the variance. The difference between Caucasian/White and Asian students also emerged as a significant predictor; however, the TOL and VIF for this variable as well as for each category of *Race/Ethnicity* suggested the presence of collinearity. Consequently, the regression model was run again without *Race/Ethnicity*.

This time, the results of the hierarchical multiple linear regression analysis indicated that 12.2% of the variance in *Global Frequency* could be predicted by demographic variables, $R^2_{adj} = .115$, $F(4, 521) = 18.038$, $p < .01$. In the second step, after controlling for the demographic variables, the global predictor variables resulted in a significant change, uniquely accounting for an additional 64.3% of the variance, $\Delta F(6, 515) = 234.391$, $p < .01$. Overall, the model accounted for 76.5% of the variance in *Global Frequency*, $R^2_{adj} = .760$, $F(10, 515) = 167.243$, $p < .01$. Thus, the significant results of the regression procedure indicated that the linear combination of the six global predictor variables was able to account for a significant amount of variance in the dependent variable, after statistically controlling for four demographic variables. Descriptive statistics for the predictor and dependent variables in the final model can be found in Table 19.
Table 19

*Descriptive Statistics for Global Engagement Style Models*

<table>
<thead>
<tr>
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<th>$n = 526$</th>
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<tbody>
<tr>
<td></td>
<td>$M$</td>
</tr>
<tr>
<td>Global Frequency</td>
<td>3.10</td>
</tr>
<tr>
<td>Global Approach</td>
<td>3.18</td>
</tr>
<tr>
<td>Global Avoidance</td>
<td>3.55</td>
</tr>
<tr>
<td>Ethics Beliefs</td>
<td>2.88</td>
</tr>
<tr>
<td>Learning Beliefs</td>
<td>3.39</td>
</tr>
<tr>
<td>Reaction Preference</td>
<td>2.63</td>
</tr>
<tr>
<td>Reaction Behavior</td>
<td>3.63</td>
</tr>
</tbody>
</table>

*Note.* Higher mean scores for Global Frequency indicate an oral style, whereas lower means indicate a silent style. Higher mean scores for Global Approach indicate a greater preference for an oral engagement style, whereas lower means indicate a preference for a silent engagement style. Higher mean scores for Global Avoidance indicate a greater confidence in an oral engagement style, whereas lower means indicate greater fear of an oral engagement style.

Analysis of regression coefficients indicated that *Global Approach*, $\beta = .679$, $t = 17.379$, $p < .01$, and *Learning Beliefs*, $\beta = .186$, $t = 4.851$, $p < .01$, emerged as the only significant predictors when all variables were in the model. The squared part correlations revealed that *Global Approach* uniquely predicted 13.8% of the variance in *Global Frequency*, while *Learning Beliefs* uniquely predicted 1.1% of the variance. This time, no variables produced TOL or VIF statistics indicating collinearity. Even though casewise diagnostics of the standardized residuals indicated two outliers, these cases were not eliminated since they did not appear as multivariate outliers during the Mahalanobis
distance calculations. In addition, a visual inspection of the histogram of the dependent variable, normal P-P plot of the standardized residuals, scatterplot, and partial regression plots did not reveal any abnormalities in the data.

Although Degree Level, Age and Cumulative GPA demonstrated significance in the first block of the hierarchical regression, once the global predictor variables were considered, these demographic variables no longer accounted for a significant amount of unique variance in Global Frequency. In sum, Global Approach and Learning Beliefs predicted significant unique variance in Global Frequency. Thus, the stronger students’ preference is for oral participation and the more they believe they learn from oral participation, the more frequently they will orally participate. In addition, since Global Approach and Learning Beliefs emerged as strong predictors of Global Frequency in the final model, whereas demographic variables did not, instructors interested in generating oral participation from students should, therefore, convince students that oral participation can enhance their learning. Beta weights for the final regression model can be found in Table 20.

The final regression model provided support for H2, H9, and H11. Thus, as hypothesized, students’ learning beliefs was found to be a significant predictor of global engagement style frequency. In addition, as hypothesized, the linear composite of all global predictor variables was found to predict global engagement style frequency. However, the findings failed to support H1, H3, H8, and H10. In other words, contrary to expectations, students’ ethics beliefs and reactions to participation grades were not found to be significant predictors of global engagement style frequency.
Table 20

*Beta Weights for Global Engagement Style Frequency Model*

<table>
<thead>
<tr>
<th>Variable</th>
<th>First Block</th>
<th></th>
<th>Second Block</th>
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</thead>
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<td>$SE B$</td>
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<td>$B$</td>
</tr>
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<td>Degree Level</td>
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<td>.175 *</td>
<td>.060</td>
</tr>
<tr>
<td>Biological Sex</td>
<td>-.155</td>
<td>.080</td>
<td>-.029</td>
<td>.051</td>
</tr>
<tr>
<td>Age</td>
<td>.018</td>
<td>.007</td>
<td>.133 *</td>
<td>.001</td>
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<tr>
<td>Cumulative GPA</td>
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<td>.092</td>
<td>.124 *</td>
<td>.083</td>
</tr>
<tr>
<td>Global Approach</td>
<td></td>
<td></td>
<td>.580</td>
<td>.033</td>
</tr>
<tr>
<td>Global Avoidance</td>
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<td></td>
<td>-.001</td>
<td>.024</td>
</tr>
<tr>
<td>Ethics Beliefs</td>
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<td>.031</td>
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<td>Learning Beliefs</td>
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<td>.180</td>
<td>.037</td>
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<tr>
<td>Reaction Preference</td>
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<td>.028</td>
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<tr>
<td>Reaction Behavior</td>
<td></td>
<td></td>
<td>-.011</td>
<td>.026</td>
</tr>
</tbody>
</table>

$R^2$                      | .122        | .765                      |

$R^2_{\text{adj}}$         | .115        | .760                      |

$\Delta R^2$                | .122        | .643                      |

$F$                        | 18.038      | 167.243                   |

*Note.* An * indicates a unique significant predictor variable at $p < .05$. ($n = 526$)

**Global Engagement Style Approach Model**

The regression model for Global Engagement Style Approach investigated if a students’ *Global Approach* could be predicted by a linear combination of *Ethics Beliefs*, 


Learning Beliefs, Reaction Preference, Reaction Behavior, Global Frequency, and Global Avoidance after controlling for students’ Degree Level, Biological Sex, Age, Cumulative GPA, and Race/Ethnicity. Therefore, a hierarchical multiple linear regression analysis was conducted to predict Global Approach from the six global predictor variables and five demographic control variables. Missing cases were excluded listwise. Sequential block entry was employed to regress all global predictor and demographic control variables onto the dependent variable in two steps. Specifically, all demographic control variables were entered in the first step, while all global predictor variables were entered into the second step as there was no strong theoretical rationale to enter these variables in a particular order.

Results of the hierarchical multiple linear regression analysis indicated that 15.5% of the variance in Global Approach could be predicted by demographic variables, $R^2_{adj} = .137$, $F(11, 514) = 8.560, p < .01$. In the second step, after controlling for the demographic variables, the global predictor variables resulted in a significant change, uniquely accounting for an additional 66% of the variance, $\Delta F(6, 508) = 301.086, p < .01$. Overall, the model accounted for 84.1% of the variance in Global Approach, $R^2_{adj} = .808$, $F(17, 508) = 131.206, p < .01$. Thus, the significant results of the regression procedure indicated that the linear combination of the six global predictor variables was able to account for a significant amount of variance in the dependent variable, after statistically controlling for five demographic variables.

Analysis of regression coefficients indicated that Global Frequency, $\beta = .548$, $t = 17.336, p < .01$, Learning Beliefs, $\beta = .249$, $t = 7.425, p < .01$, Global Avoidance, $\beta = .139$, $t = 6.144, p < .01$, and Reaction Preference, $\beta = .070$, $t = 2.483, p = .013$, emerged
as the only significant predictors when all variables were in the model. The squared part
correlations revealed that Global Frequency uniquely predicted 11% of the variance in
Global Approach, Learning Beliefs uniquely predicted 2% of the variance, Global
Avoidance uniquely predicted 1.4% of the variance, and Reaction Preference uniquely
predicted .2% of the variance. However, the TOL and VIF for each category of
Race/Ethnicity suggested the presence of collinearity. Consequently, the regression
model was run again without Race/Ethnicity.

This time, the results of the hierarchical multiple linear regression analysis
indicated that 12.2% of the variance in Global Approach could be predicted by
demographic variables, $R^2_{adj} = .115$, $F(4, 521) = 18.046$, $p < .01$. In the second step, after
controlling for the demographic variables, the global predictor variables resulted in a
significant change, uniquely accounting for an additional 69% of the variance, $\Delta F(6, 515) = 313.634$, $p < .01$. Overall, the model accounted for 81.1% of the variance in Global
Approach, $R^2_{adj} = .808$, $F(10, 515) = 221.389$, $p < .01$. Thus, the significant results of the
regression procedure indicated that the linear combination of the six global predictor
variables was able to account for a significant amount of variance in the dependent
variable, after statistically controlling for four demographic variables. Descriptive
statistics for the predictor and dependent variables in the final model can be found in
Table 19.

Analysis of regression coefficients indicated that Global Frequency, $\beta = .544$, $t = 17.379$, $p < .01$, Learning Beliefs, $\beta = .247$, $t = 7.427$, $p < .01$, Global Avoidance, $\beta = .145$, $t = 6.486$, $p < .01$, and Reaction Preference, $\beta = .065$, $t = 2.345$, $p = .019$, emerged
as the only significant predictors when all variables were in the model. The squared part
correlations revealed that *Global Frequency* uniquely predicted 11.1% of the variance in *Global Approach*, *Learning Beliefs* uniquely predicted 2% of the variance, *Global Avoidance* uniquely predicted 1.5% of the variance, and *Reaction Preference* uniquely predicted .2% of the variance. This time, no variables produced TOL or VIF statistics indicating collinearity. Even though casewise diagnostics of the standardized residuals indicated one outlier, this case was not eliminated since it did not appear as multivariate outliers during the Mahalanobis distance calculations. In addition, a visual inspection of the histogram of the dependent variable, normal P-P plot of the standardized residuals, scatterplot, and partial regression plots did not reveal any abnormalities in the data.

Although *Biological Sex*, *Degree Level*, *Age* and *Cumulative GPA* demonstrated significance in the first block of the hierarchical regression, once the global predictor variables were considered, these demographic variables no longer accounted for a significant amount of unique variance in *Global Approach*. In sum, *Global Frequency*, *Learning Beliefs*, *Global Avoidance*, and *Reaction Preference* predicted significant unique variance in *Global Approach*. Thus, the more frequently students participate orally and have confidence in doing so, while believing that they learn from oral participation and not objecting to oral participation grades, the greater their preference for oral participation. In addition, since *Global Frequency*, *Learning Beliefs*, *Global Avoidance*, and *Reaction Preference* emerged as strong predictors of *Global Approach* in the final model, whereas demographic variables did not, instructors interested in encouraging students to prefer oral participation should, therefore, convince students that oral participation can enhance their learning, get them to speak frequently and be
confident in doing so, and develop positive impressions of oral participation grades. Beta weights for the final regression model can be found in Table 21.

Table 21

*Beta Weights for Global Engagement Style Approach Model*

<table>
<thead>
<tr>
<th>Variable</th>
<th>First Block</th>
<th></th>
<th></th>
<th>Second Block</th>
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<td>B</td>
<td>SE B</td>
<td>β</td>
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<tr>
<td>Degree Level</td>
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<tr>
<td>Biological Sex</td>
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<td>.093</td>
<td>-.082 *</td>
<td>-.071</td>
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<td>-.032</td>
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<tr>
<td>Age</td>
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<td>.008</td>
<td>.132 *</td>
<td>.001</td>
<td>.004</td>
<td>.006</td>
</tr>
<tr>
<td>Cumulative GPA</td>
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<td>.108</td>
<td>.111 *</td>
<td>-.006</td>
<td>.052</td>
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<tr>
<td>Global Frequency</td>
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<td></td>
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<td>.637</td>
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<td>.544 *</td>
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<tr>
<td>Global Avoidance</td>
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<td></td>
<td>.157</td>
<td>.024</td>
<td>.145 *</td>
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<td>Ethics Beliefs</td>
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<td>.035</td>
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<td>Learning Beliefs</td>
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<td>.281</td>
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<tr>
<td>Reaction Preference</td>
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<td>.021</td>
<td>.065 *</td>
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<td>Reaction Behavior</td>
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<td>$R^2$</td>
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<td>$R^2_{adj}$</td>
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<td>$F$</td>
<td>18.046</td>
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<td>221.389</td>
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</tbody>
</table>

*Note.* An * indicates a unique significant predictor variable at $p < .05$. ($n = 526$)
The final regression model provided support for H2, H6, H9, and H11. In addition, the results partially support H3 and H10. Thus, as hypothesized, students’ global frequency, learning beliefs, global avoidance, and reaction preference were found to be significant predictors of global engagement style approach. In addition, as hypothesized, the linear composite of all global predictor variables was found to predict global engagement style approach. However, the findings failed to support H1 and H8. In other words, contrary to expectations, students’ ethics beliefs and reaction behavior were not found to be significant predictors of global engagement style approach.

**Global Engagement Style Avoidance Model**

The regression model for Global Engagement Style Avoidance investigated if a students’ Global Avoidance could be predicted by a linear combination of Ethics Beliefs, Learning Beliefs, Reaction Preference, Reaction Behavior, Global Frequency, and Global Approach after controlling for students’ Degree Level, Biological Sex, Age, Cumulative GPA, and Race/Ethnicity. Therefore, a hierarchical multiple linear regression analysis was conducted to predict Global Avoidance from the six global predictor variables and five demographic control variables. Again, missing cases were excluded listwise and sequential block entry was employed to regress all global predictor and demographic control variables onto the dependent variable in two steps. Control variables were entered in the first step, while predictor variables were entered into the second step given the lack of a strong theoretical rationale to enter variables in a particular order.

Results of the hierarchical multiple linear regression analysis indicated that 12.9% of the variance in Global Avoidance could be predicted by demographic variables, $R^2_{adj} = .111, F(11, 514) = 6.933, p < .01$. In the second step, after controlling for the
demographic variables, the global predictor variables resulted in a significant change, uniquely accounting for an additional 20.6% of the variance, $\Delta F(6, 508) = 26.189, p < .01$. Overall, the model accounted for 33.5% of the variance in Global Avoidance, $R^2_{adj} = .313, F(17, 508) = 15.049, p < .01$. Thus, the results of the regression procedure indicated that the linear combination of the six global predictor variables was able to account for a significant amount of variance in the dependent variable, after statistically controlling for five demographic variables.

Analysis of regression coefficients indicated that Global Approach, $\beta = .498, t = 6.114, p < .01$, Biological Sex, $\beta = -.206, t = -5.519, p < .01$, Ethics Beliefs, $\beta = -.186, t = -3.458, p < .01$, and Cumulative GPA, $\beta = .167, t = 3.992, p < .01$, emerged as the only significant predictors when all variables were in the model. The squared part correlations revealed that Global Approach uniquely predicted 4.9% of the variance in Global Avoidance, Biological Sex uniquely predicted 4% of the variance, Ethics Beliefs uniquely predicted 1.6% of the variance, and Cumulative GPA uniquely predicted 2.1% of the variance. The difference between Caucasian/White and African American/Black students also emerged as a significant predictor; however, the TOL and VIF for this variable as well as for each category of Race/Ethnicity suggested the presence of collinearity.

Consequently, the regression model was run again without Race/Ethnicity.

This time, the results of the hierarchical multiple linear regression analysis indicated that 9.8% of the variance in Global Avoidance could be predicted by demographic variables, $R^2_{adj} = .091, F(4, 521) = 14.176, p < .01$. In the second step, after controlling for the demographic variables, the global predictor variables resulted in a significant change, uniquely accounting for an additional 22.3% of the variance, $\Delta F(6,$
Overall, the model accounted for 32.1% of the variance in *Global Avoidance*, \( R^2_{adj} = .308, F(10, 515) = 24.354, p < .01 \). Thus, the significant results of the regression procedure indicated that the linear combination of the six global predictor variables was able to account for a significant amount of variance in the dependent variable, after statistically controlling for four demographic variables. See Table 19 for descriptive statistics for the predictor and dependent variables in the final model.

Analysis of regression coefficients indicated that *Global Approach*, \( \beta = .521, t = 6.486, p < .01 \), *Biological Sex*, \( \beta = -.199, t = -5.361, p < .01 \), *Ethics Beliefs*, \( \beta = -.186, t = -3.472, p < .01 \), and *Cumulative GPA*, \( \beta = .167, t = 4.013, p < .01 \), emerged as the only significant predictors when all variables were in the model. The squared part correlations revealed that *Global Approach* uniquely predicted 5.6% of the variance in *Global Avoidance*, *Biological Sex* uniquely predicted 3.8% of the variance, *Ethics Beliefs* uniquely predicted 1.6% of the variance, and *Cumulative GPA* uniquely predicted 2.1% of the variance. This time, no variables produced TOL or VIF statistics indicating collinearity. Casewise diagnostics of the standardized residuals did not reveal any outliers. In addition, a visual inspection of the histogram of the dependent variable, normal P-P plot of the standardized residuals, scatterplot, and partial regression plots did not reveal any abnormalities in the data.

*Biological Sex* and *Cumulative GPA* demonstrated significance in the first block of the hierarchical regression; and, once the global predictor variables were considered, these demographic variables still accounted for a significant amount of unique variance in *Global Avoidance*. In sum, *Global Approach, Biological Sex, Ethics Beliefs, and Cumulative GPA* predicted significant unique variance in *Global Avoidance*. Thus, the
more students prefer oral participation and feel an ethical responsibility to do so, the
greater their confidence in orally participating. In addition, since *Global Approach*,
*Biological Sex*, *Ethics Beliefs*, and *Cumulative GPA* emerged as strong predictors of
*Global Avoidance* in the final model, instructors interested in increasing students’
confidence to orally participate should, therefore, convince students that they have an
ethical obligation to participate orally and encourage their preference for oral
participation styles. However, instructors should be aware that male students with higher
cumulative GPAs will be more confident in their oral participation and less fearful of
doing so. Beta weights for the final regression model can be found in Table 22.

The final regression model provided support for H1, H8, and H11. In addition, the
results partially support H6. Thus, as hypothesized, students’ global approach, ethics
beliefs, biological sex, and cumulative GPA were found to be significant predictors of
global engagement style avoidance. In addition, as hypothesized, the linear composite of
all global predictor variables was found to predict global engagement style avoidance.
However, the findings failed to support H2, H3, H9, and H10. In other words, contrary to
expectations, students’ learning beliefs and reactions to oral participation grades were not
found to be significant predictors of global engagement style avoidance.
Table 22

*Beta Weights for Global Engagement Style Avoidance Model*

<table>
<thead>
<tr>
<th>Variable</th>
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<th>First Block</th>
<th></th>
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<td>B</td>
<td>SE</td>
<td>B</td>
<td>SE B</td>
<td>B</td>
</tr>
<tr>
<td>Degree Level</td>
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<td>.120</td>
<td>-.025</td>
<td>-.172</td>
<td>.107</td>
<td>-.083</td>
</tr>
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<td>Biological Sex</td>
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<td>.087</td>
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<td>*-.413</td>
<td>.077</td>
<td>*-.199</td>
</tr>
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<td>Age</td>
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<td>.008</td>
<td>.026</td>
<td>-.005</td>
<td>.007</td>
<td>-.033</td>
</tr>
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<td>Cumulative GPA</td>
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<td>.101</td>
<td>.215</td>
<td>* .359</td>
<td>.089</td>
<td>* .167</td>
</tr>
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<td>-.003</td>
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<td>Global Approach</td>
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<td>Ethics Beliefs</td>
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<td>Reaction Preference</td>
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<td>.077</td>
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<td>Reaction Behavior</td>
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<td>.049</td>
<td>-.038</td>
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</tbody>
</table>

\[ R^2 \]
\[ .098 \]

\[ R^2_{adj} \]
\[ .091 \]

\[ \Delta R^2 \]
\[ .098 \]

\[ F \]
\[ 14.176 \]

\[ 24.354 \]

*Note.* An * indicates a unique significant predictor variable at \( p < .05. \) (\( n = 526 \))

*Synthesis of Global Engagement Styles Models*

When compared, the three hierarchical linear regression models of students’ global engagement styles indicate that the global predictor variables are able to account
for significant amounts of variance in the dependent variables after controlling for the demographic variables. Interestingly, although some demographic variables were significant in the first step of the regression models, only *Biological Sex* and *Cumulative GPA* remained significant in the second step of the *Global Avoidance* model. In other words, male students with higher cumulative GPA’s reported more confidence in oral participation and less fear thereof. Three of the four uniquely predictor variables accounted for significant amounts of variance in the dependent variables. Only *Reaction Behavior* failed to be a significant predictor in all three models. Subscripts in Figure 4 indicate significant variables for each regression model. Specifically, subscript “a” represents significant variables in the *Global Frequency* model, subscript “b” represents significant variables in the *Global Approach* model, and subscript “c” represents significant variables in the *Global Avoidance* model.
Figure 4. Final Model of Variables Predicting Global Engagement Styles.

- **Predictor Variable:**
  - Ethics Beliefs
  - Learning Beliefs
  - Reaction Preference

- **Dependent Variables:**
  1. Global Engagement Style Frequency
  2. Global Engagement Style Preference (Global Approach)
  3. Global Engagement Style Preference (Global Avoidance)

- **Demographic Variables:**
  1. Degree Level
  2. Biological Sex
  3. Cumulative GPA
  4. Age
  5. Race/Ethnicity
Regression Models for Students’ Specific Engagement Styles

Specific Engagement Style Frequency Model

The regression model for Specific Engagement Style Frequency investigated if a students’ Target Frequency could be predicted by a linear combination of Ethics Beliefs, Learning Beliefs, Reaction Preference, Reaction Behavior, Global Frequency, Global Approach, Global Avoidance, Oral Forms, Cognitive Forms, Climate Evaluation, Climate Comfort, Target Approach, and Target Avoidance after controlling for students’ Degree Level, Biological Sex, Age, Cumulative GPA, Race/Ethnicity, Unique Group Characteristics, target class Subject Area, Class Size, Discussion vs. Lecture, Participation Grade Percentage, Oral Participation Graded, Participation Helped Grade, and Grade Received. Therefore, a hierarchical multiple linear regression analysis was conducted to predict Target Frequency from the seven global and six target predictor variables while controlling for six demographic and seven target class control variables. Missing cases were excluded listwise. Sequential block entry was employed to regress all global and target predictor as well as all demographic and target class control variables onto the dependent variable in three steps. Specifically, all demographic and target class control variables were entered in the first step, all global predictor variables were entered into the second step, and all target predictor variables were entered into the third step. Although there is no strong theoretical rationale for entering either the global or the target predictor variables in any particular order, all global predictor variables were entered into the regression model before the target predictor variables since students bring global perceptions with them to particular classes. Thus, it makes sense to reason that students’ global perceptions precede their target class perceptions, at least initially.
Results of the hierarchical multiple linear regression analysis indicated that 42.3% of the variance in Target Frequency could be predicted by demographic and target class control variables, $R^2_{adj} = .370$, $F(36, 394) = 8.020$, $p < .01$. In the second step, after controlling for the demographic and target class variables, the global predictor variables resulted in a significant change, uniquely accounting for an additional 33.3% of the variance, $\Delta F(7, 387) = 75.454$, $p < .01$. In the third step, after controlling for the demographic and target class variables as well as the global predictor variables, the target predictor variables resulted in a significant change, uniquely accounting for an additional 12% of the variance, $\Delta F(6, 381) = 61.230$, $p < .01$. Overall, the model accounted for 87.6% of the variance in Target Frequency, $R^2_{adj} = .860$, $F(49, 381) = 54.810$, $p < .01$. Thus, the results of the regression procedure indicated that the linear combination of the seven global and six target predictor variables was able to account for a significant amount of variance in the dependent variable, after statistically controlling for six demographic and seven target class variables.

Analysis of regression coefficients indicated that Oral Forms, $\beta = .386$, $t = 9.854$, $p < .01$, Target Approach, $\beta = .309$, $t = 6.610$, $p < .01$, Global Frequency, $\beta = .219$, $t = 5.408$, $p < .01$, and Target Avoidance, $\beta = .108$, $t = 3.366$, $p < .01$, emerged as the only significant predictors when all variables were in the model. The squared part correlations revealed that Oral Forms uniquely predicted 3.2% of the variance in Target Frequency, while Target Approach uniquely predicted 1.4% of the variance, Global Frequency uniquely predicted 1% of the variance, and Target Avoidance uniquely predicted .4% of the variance. Analysis of regression coefficients further indicated that Lecture versus Discussion, $\beta = -.095$, $t = -3.587$, $p < .01$, Foreign Languages versus Other classes, $\beta =
.056, \( t = 2.220, p = .027 \), and Participation Grade Percentage, \( \beta = .042, t = 1.990, p = .047 \), were significant predictors when all variables were in the model. The squared part correlations revealed that Lecture versus Discussion uniquely predicted .4\% of the variance in Target Frequency, while Foreign Languages versus Other classes uniquely predicted .2\% of the variance, and Participation Grade Percentage uniquely predicted .1\% of the variance. The difference between Caucasian/White and “Other” students also emerged as a significant predictor; however, the TOL and VIF for this variable as well as for each category of Race/Ethnicity suggested the presence of collinearity. In addition, although not significant predictors, each category of Unique Group Characteristics had TOL and VIF statistics that suggested the presence of collinearity. Consequently, the regression model was run again without Race/Ethnicity and Unique Group Characteristics.

This time, the results of the hierarchical multiple linear regression analysis indicated that 37.5\% of the variance in Target Frequency could be predicted by demographic and target class control variables, \( R^2_{adj} = .338, F(24, 406) = 10.149, p < .01 \). In the second step, after controlling for the demographic and target class variables, the global predictor variables resulted in a significant change, uniquely accounting for an additional 36.8\% of the variance, \( \Delta F(7, 399) = 81.845, p < .01 \). In the third step, after controlling for the demographic and target class variables as well as the global predictor variables, the target predictor variables resulted in a significant change, uniquely accounting for an additional 12.5\% of the variance, \( \Delta F(6, 393) = 62.023, p < .01 \). Overall, the model accounted for 86.8\% of the variance in Target Frequency, \( R^2_{adj} = .856, F(37, 393) = 69.971, p < .01 \). Thus, the results of the regression procedure indicated
that the linear combination of the seven global and six target predictor variables was able to account for a significant amount of variance in the dependent variable, after statistically controlling for six demographic and seven target class variables. Descriptive statistics for the predictor and dependent variables in the final model can be found in Table 23.

Analysis of regression coefficients indicated that *Oral Forms*, $\beta = .378$, $t = 9.826$, $p < .01$, *Target Approach*, $\beta = .325$, $t = 7.035$, $p < .01$, *Global Frequency*, $\beta = .220$, $t = 5.402$, $p < .01$, and *Target Avoidance*, $\beta = .109$, $t = 3.344$, $p < .01$, emerged as the only significant predictors when all variables were in the model. The squared part correlations revealed that *Oral Forms* uniquely predicted 3.2% of the variance in *Target Frequency*, while *Target Approach* uniquely predicted 1.7% of the variance, *Global Frequency* uniquely predicted 1% of the variance, and *Target Avoidance* uniquely predicted .4% of the variance. Analysis of regression coefficients further indicated that Lecture versus Discussion, $\beta = -.086$, $t = -3.228$, $p < .01$, and *Participation Grade Percentage*, $\beta = .053$, $t = 2.492$, $p = .013$, were significant predictors when all variables were in the model. The squared part correlations revealed that Lecture versus Discussion uniquely predicted .3% of the variance in *Target Frequency*, while *Participation Grade Percentage* uniquely predicted .2% of the variance. This time, no variables produced TOL or VIF statistics indicating collinearity. Even though casewise diagnostics of the standardized residuals indicated two outliers, these cases were not eliminated since they did not appear as multivariate outliers during the Mahalanobis distance calculations. Also, a visual inspection of the histogram, normal P-P plot of the standardized residuals, scatterplot, and partial regression plots did not reveal any abnormalities in the data.
Table 23

*Descriptive Statistics for Specific Engagement Style Models*

<table>
<thead>
<tr>
<th></th>
<th>$M$</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Global Frequency</td>
<td>3.06</td>
<td>.93</td>
</tr>
<tr>
<td>Global Approach</td>
<td>3.12</td>
<td>1.08</td>
</tr>
<tr>
<td>Global Avoidance</td>
<td>3.56</td>
<td>.98</td>
</tr>
<tr>
<td>Ethics Beliefs</td>
<td>2.85</td>
<td>.95</td>
</tr>
<tr>
<td>Learning Beliefs</td>
<td>3.37</td>
<td>.95</td>
</tr>
<tr>
<td>Reaction Preference</td>
<td>2.60</td>
<td>1.01</td>
</tr>
<tr>
<td>Reaction Behavior</td>
<td>3.64</td>
<td>.80</td>
</tr>
<tr>
<td>Oral Forms</td>
<td>3.54</td>
<td>1.01</td>
</tr>
<tr>
<td>Cognitive Forms</td>
<td>4.12</td>
<td>.61</td>
</tr>
<tr>
<td>Climate Evaluation</td>
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<td>.90</td>
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<tr>
<td>Climate Comfort</td>
<td>3.55</td>
<td>.98</td>
</tr>
<tr>
<td>Target Frequency</td>
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<td>.99</td>
</tr>
<tr>
<td>Target Approach</td>
<td>3.13</td>
<td>1.12</td>
</tr>
<tr>
<td>Target Avoidance</td>
<td>3.70</td>
<td>.99</td>
</tr>
</tbody>
</table>

*Note.* Higher mean scores for Global Frequency indicate an oral style, whereas lower means indicate a silent style. Higher mean scores for Global Approach indicate a greater preference for an oral engagement style, whereas lower means indicate a preference for a silent engagement style. Higher mean scores for Global Avoidance indicate a greater confidence in an oral engagement style, whereas lower means indicate greater fear of an oral engagement style.
Although Class Sizes of 1-15 versus 100+, Oral Participation Graded, Participation Helped Grade, and Grade Received demonstrated significance in both the first and second blocks of the hierarchical regression, once the target predictor variables were considered, these demographic and target class control variables no longer accounted for a significant amount of unique variance in Target Frequency. In addition, although Foreign Languages versus Art/Music/Theatre classes, Class Sizes of 1-15 versus 16-30, and Class Sizes of 1-15 versus 50-99, demonstrated significance in the second block of the hierarchical regression, once the target predictor variables were considered, these demographic and target class control variables no longer accounted for a significant amount of unique variance in Target Frequency. In sum, Oral Forms, Target Approach, Global Frequency, Target Avoidance, Lecture versus Discussion, and Participation Grade Percentage predicted significant unique variance in Target Frequency. Thus, students will orally participate more frequently in their target class when they use oral forms of engagement, prefer oral engagement in their target class and have confidence in doing so, are frequent global participators, take target classes that emphasize discussion over lecture, and take target classes that assign a greater percentage of their grade to oral participation. In addition, since Oral Forms, Target Approach, Global Frequency, Target Avoidance, Lecture versus Discussion, and Participation Grade Percentage emerged as strong predictors of Target Frequency in the final model, whereas demographic variables did not, instructors interested in generating oral participation from students should, therefore, use mostly discussion based methods of instruction while assigning participation grades, reducing students’ fear of oral participation, and encouraging oral
forms of engagement. Beta weights for the final regression model can be found in Tables 24, 25, and 26.

The final regression model provided support for H14. Additionally, the final regression model provided partial support for H6, H7, H9, and H12. Thus, as hypothesized, students’ oral forms of engagement, frequency of global engagement, and preference for and confidence in oral participation in target classes were found to be a significant predictor of specific engagement style frequency. In addition, as hypothesized, the linear composite of all global and target predictor variables was found to predict specific engagement style frequency. However, the findings failed to support H5 and H13. In other words, contrary to expectations, students’ evaluations of and comfort with their target class climate were not found to be significant predictors of specific engagement style frequency.
Table 24

*Control Variable Beta Weights for Specific Engagement Style Frequency Model (n = 431)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>First Block</th>
<th>Second Block</th>
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<tbody>
<tr>
<td></td>
<td>B</td>
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<tr>
<td>Degree Level</td>
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<td>.127</td>
<td>.018</td>
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<tr>
<td>Biological Sex</td>
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<td>-.073</td>
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<tr>
<td>Age</td>
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<td>Cumulative GPA</td>
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<td>-.019</td>
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<tr>
<td>Class Size 1-15 vs. 16-30</td>
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<td>.077</td>
<td>.103</td>
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<tr>
<td>Class Size 1-15 vs. 31-49</td>
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<td>.101</td>
<td>-.026</td>
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<tr>
<td>Class Size 1-15 vs. 50-99</td>
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<td>.123</td>
<td>-.120</td>
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<td>Class Size 1-15 vs. 100+</td>
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<td>Participation Grade Percentage</td>
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<td>Oral Participation Graded</td>
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<td>Participation Helped Grade</td>
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<tr>
<td>Grade Received</td>
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</table>

*Note.* An * indicates a unique significant predictor variable at \( p < .05 \). Final model: \( R^2 = .868, \; R^2_{adj} = .856, \; \Delta R^2 = .125 \; (ps < .01) \).
### Table 25

**Remaining Control Variable Beta Weights for Specific Engagement Style Frequency Model (n = 431)**

<table>
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<tr>
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<td>β</td>
<td>B</td>
<td>SE B</td>
<td>β</td>
<td>B</td>
<td>SE B</td>
<td>β</td>
<td>B</td>
<td>SE B</td>
</tr>
<tr>
<td>Foreign Languages vs. Communication Studies/HSLS</td>
<td>.106</td>
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<td>.049</td>
<td>-.051</td>
<td>.073</td>
<td>-.024</td>
<td>-.103</td>
<td>.053</td>
<td>-.047</td>
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<tr>
<td>Foreign Languages vs. English/Humanities</td>
<td>-.122</td>
<td>.122</td>
<td>-.054</td>
<td>.050</td>
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<td>.022</td>
<td>.003</td>
<td>.058</td>
<td>.001</td>
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<td>Foreign Languages vs. Education</td>
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<td>-.050</td>
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<td>-.021</td>
<td>-.045</td>
<td>.063</td>
<td>-.019</td>
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<tr>
<td>Foreign Languages vs. History/Political Science/Social Work</td>
<td>-.103</td>
<td>.119</td>
<td>-.045</td>
<td>-.044</td>
<td>.077</td>
<td>-.019</td>
<td>-.024</td>
<td>.057</td>
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<td>Foreign Languages vs. Business/Marketing/Accounting/Math</td>
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<td>.050</td>
<td>.040</td>
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<td>Foreign Languages vs. Other</td>
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<td>.026</td>
<td>-.005</td>
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*Note. An * indicates a unique significant predictor variable at $p < .05$. Final model: $R^2 = .868$, $R^2_{adj} = .856$, $\Delta R^2 = .125$ ($ps < .01$).
Table 26  
*Predictor Variable Beta Weights for Specific Engagement Style Frequency Model*

<table>
<thead>
<tr>
<th>Variable</th>
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<th>Third Block</th>
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<td>$\beta$</td>
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<td>$SE$</td>
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<td>$SE$</td>
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<td>.220 *</td>
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<td>Global Approach</td>
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<td>.043</td>
<td>.003</td>
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<tr>
<td>Global Avoidance</td>
<td>.095</td>
<td>.032</td>
<td>.094 *</td>
<td>-.047</td>
<td>.032</td>
<td>-.046</td>
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<td>Ethics Beliefs</td>
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<td>Learning Beliefs</td>
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<td>Reaction Behavior</td>
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<tr>
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<td>Climate Comfort</td>
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<td>Target Approach</td>
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</tr>
<tr>
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<td>.032</td>
<td>.109 *</td>
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</tr>
</tbody>
</table>

$R^2 = .743$  
$R^2_{adj} = .723$  
$\Delta R^2 = .368$  
$F = 37.291$  

$R^2 = .868$  
$R^2_{adj} = .856$  
$\Delta R^2 = .125$  
$F = 69.971$

*Note.* An * indicates a unique significant predictor variable at $p < .05. (n = 431)$
Specific Engagement Style Approach Model

The regression model for Specific Engagement Style Approach investigated if a students’ Target Approach could be predicted by a linear combination of Ethics Beliefs, Learning Beliefs, Reaction Preference, Reaction Behavior, Global Frequency, Global Approach, Global Avoidance, Oral Forms, Cognitive Forms, Climate Evaluation, Climate Comfort, Target Frequency, and Target Avoidance after controlling for students’ Degree Level, Biological Sex, Age, Cumulative GPA, Race/Ethnicity, Unique Group Characteristics, target class Subject Area, Class Size, Discussion vs. Lecture, Participation Grade Percentage, Oral Participation Graded, Participation Helped Grade, and Grade Received. Therefore, a hierarchical multiple linear regression analysis was conducted to predict Target Approach from the seven global and six target predictor variables while controlling for six demographic and seven target class control variables. Missing cases were excluded listwise. Sequential block entry was employed to regress all global and target predictor as well as all demographic and target class control variables onto the dependent variable in three steps. Specifically, all demographic and target class control variables were entered in the first step, all global predictor variables were entered into the second step, and all target predictor variables were entered into the third step. Although there is no strong theoretical rationale for entering either the global or the target predictor variables in any particular order, all global predictor variables were entered into the regression model before the target predictor variables since students bring global perceptions with them to particular classes. Thus, it makes sense to reason that students’ global perceptions precede their target class perceptions, at least initially.
Results of the hierarchical multiple linear regression analysis indicated that 36.1% of the variance in *Target Approach* could be predicted by demographic and target class control variables, $R^2_{adj} = .303$, $F(36, 394) = 6.181, p < .01$. In the second step, after controlling for the demographic and target class variables, the global predictor variables resulted in a significant change, uniquely accounting for an additional 37.1% of the variance, $\Delta F(7, 387) = 76.515, p < .01$. In the third step, after controlling for the demographic and target class variables as well as the global predictor variables, the target predictor variables resulted in a significant change, uniquely accounting for an additional 13.4% of the variance, $\Delta F(6, 381) = 63.604, p < .01$. Overall, the model accounted for 86.6% of the variance in *Target Approach*, $R^2_{adj} = .849$, $F(49, 381) = 50.282, p < .01$.

Thus, the results of the regression procedure indicated that the linear combination of the seven global and six target predictor variables was able to account for a significant amount of variance in the dependent variable, after statistically controlling for six demographic and seven target class variables.

Analysis of regression coefficients indicated that *Target Frequency*, $\beta = .333, t = 6.610, p < .01$, *Climate Comfort*, $\beta = .305, t = 8.035, p < .01$, *Global Approach*, $\beta = .170, t = 3.596, p < .01$, *Oral Forms*, $\beta = .129, t = 2.867, p < .01$, and *Learning Beliefs*, $\beta = .111, t = 3.000, p < .01$, emerged as the only significant predictors when all variables were in the model. The squared part correlations revealed that *Target Frequency* uniquely predicted 1.5% of the variance in *Target Approach*, while *Climate Comfort* uniquely predicted 2.3% of the variance, *Global Approach* uniquely predicted .4% of the variance, *Oral Forms* uniquely predicted .3% of the variance, and *Learning Beliefs* uniquely predicted .3% of the variance. Analysis of regression coefficients further indicated that
Degree Level, $\beta = -.077$, $t = -2.555$, $p = .012$, and Oral Participation Graded, $\beta = .046$, $t = 1.984$, $p = .048$, were significant predictors when all variables were in the model. The squared part correlations revealed that Degree Level uniquely predicted .2% of the variance in Target Approach, while Oral Participation Graded uniquely predicted .1% of the variance. However, although not significant predictors, the TOL and VIF for each category of Race/Ethnicity as well as each category of Unique Group Characteristics had TOL and VIF statistics that suggested the presence of collinearity. Consequently, the regression model was run again without Race/Ethnicity and Unique Group Characteristics.

This time, the results of the hierarchical multiple linear regression analysis indicated that 31.6% of the variance in Target Approach could be predicted by demographic and target class control variables, $R^2_{adj} = .276$, $F(24, 406) = 7.829$, $p < .01$. In the second step, after controlling for the demographic and target class variables, the global predictor variables resulted in a significant change, uniquely accounting for an additional 40.4% of the variance, $\Delta F(7, 399) = 82.491$, $p < .01$. In the third step, after controlling for the demographic and target class variables as well as the global predictor variables, the target predictor variables resulted in a significant change, uniquely accounting for an additional 14% of the variance, $\Delta F(6, 393) = 65.552$, $p < .01$. Overall, the model accounted for 86% of the variance in Target Approach, $R^2_{adj} = .847$, $F(37, 393) = 65.456$, $p < .01$. Thus, the results of the regression procedure indicated that the linear combination of the seven global and six target predictor variables was able to account for a significant amount of variance in the dependent variable, after statistically controlling
for six demographic and seven target class variables. Descriptive statistics for the predictor and dependent variables in the final model can be found in Table 23.

Analysis of regression coefficients indicated that $Target \ Frequency, \ \beta = .344, \ t = 7.035, \ p < .01, \ Climate \ Comfort, \ \beta = .315, \ t = 8.419, \ p < .01, \ Global \ Approach, \ \beta = .185, \ t = 3.930, \ p < .01, \ Oral \ Forms, \ \beta = .116, \ t = 2.639, \ p < .01,$ and $Learning \ Beliefs, \ \beta = .106, \ t = 2.875, \ p < .01,$ emerged as the only significant predictors when all variables were in the model. The squared part correlations revealed that $Target \ Frequency$ uniquely predicted 1.8% of the variance in $Target \ Approach,$ while $Climate \ Comfort$ uniquely predicted 2.5% of the variance, $Global \ Approach$ uniquely predicted .5% of the variance, $Oral \ Forms$ uniquely predicted .3% of the variance, and $Learning \ Beliefs$ uniquely predicted .3% of the variance. Analysis of regression coefficients further indicated that $Degree \ Level, \ \beta = -.058, \ t = -1.977,$ was a significant predictor when all variables were in the model. The squared part correlations revealed that $Degree \ Level$ uniquely predicted .1% of the variance in $Target \ Approach.$ This time, no variables produced TOL or VIF statistics indicating collinearity. Even though casewise diagnostics of the standardized residuals indicated the presence of one outlier, this case was not eliminated since it did not appear as multivariate outliers during the Mahalanobis distance calculations. In addition, a visual inspection of the histogram of the dependent variable, normal P-P plot of the standardized residuals, scatterplot, and partial regression plots did not reveal any abnormalities in the data.

Although $Foreign \ Languages \ versus \ Hard \ Sciences/Engineering,$ $Biological \ Sex,$ and $Age$ demonstrated significance in the first block of the hierarchical regression, once the general predictor variables were considered, these demographic and target class
control variables no longer accounted for a significant amount of unique variance in 
Target Approach. In addition, although Discussion versus Lecture, Oral Participation 
Graded, Helped Grade, and Grade Received demonstrated significance in the both the 
first and second blocks of the hierarchical regression, once the target predictor variables 
were considered, these demographic and target class control variables no longer 
accounted for a significant amount of unique variance in Target Approach. In sum, 
Target Frequency, Climate Comfort, Global Approach, Oral Forms, Learning Beliefs, 
and Degree Level predicted significant unique variance in Target Approach. Thus, 
students prefer an oral engagement style in their target class when they use oral forms of 
engagement, oral participate frequently in their target class, generally prefer oral 
engagement styles, are comfortable with the climate of their target class, believe they 
learn through oral participation, and are graduate students. In addition, since Target 
Frequency, Climate Comfort, Global Approach, Oral Forms, Learning Beliefs, and 
Degree Level emerged as strong predictors of Target Approach in the final model, 
instructors interested in generating oral participation from students should, therefore, 
encouraging frequent oral participation, create a comfortable classroom climate, and 
convince students that they can learn through oral participation. Beta weights for the final 
regression model can be found in Tables 27, 28, and 29.

The final regression model provided support for H14. Additionally, the final 
regression model provided partial support for H2, H4, H5, H6, H7, H12, and H13. Thus, 
as hypothesized, students’ oral forms of engagement, frequency of target engagement, 
comfort with their target class climate, learning beliefs, and general preference for oral 
participation were found to be a significant predictor of specific engagement style
frequency. In addition, as hypothesized, the linear composite of all global and target predictor variables was found to predict specific engagement style approach. However, the findings failed to support H1 and H3. In other words, contrary to expectations, students’ ethics beliefs and reactions to oral participation grades were not found to be significant predictors of specific engagement style approach.
### Table 27

*Control Variable Beta Weights for Specific Engagement Style Approach Model (n = 431)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>First Block</th>
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<th>Third Block</th>
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<td>.010</td>
<td>.135 *</td>
</tr>
<tr>
<td>Cumulative GPA</td>
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<td>-.034</td>
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<tr>
<td>Class Size 1-15 vs. 16-30</td>
<td>.042</td>
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<td>.029</td>
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<tr>
<td>Class Size 1-15 vs. 31-49</td>
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<td>Class Size 1-15 vs. 50-99</td>
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<tr>
<td>Grade Received</td>
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</table>

*Note.* An * indicates a unique significant predictor variable at $p < .05$. Final model: $R^2 = .860$, $R^2_{adj} = .847$, $\Delta R^2 = .140$ ($ps < .01$).
Table 28

*Remaining Control Variable Beta Weights for Specific Engagement Style Approach Model (n = 431)*

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<td>Foreign Languages vs. Education</td>
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<td>Foreign Languages vs. History/Political Science/Social Work</td>
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<td>.018</td>
<td>.092</td>
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</tr>
<tr>
<td>Foreign Languages vs. Sociology/Psychology/Anthropology</td>
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<td>.020</td>
<td>.014</td>
<td>.112</td>
<td>.005</td>
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<tr>
<td>Foreign Languages vs. Media Studies/Tcomm./Journalism</td>
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<td>Foreign Languages vs. Business/Marketing/Accounting/Math</td>
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<td>Foreign Languages vs. Other</td>
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<td>Discussion vs. Lecture</td>
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<td>.087</td>
<td>-.129*</td>
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<td>-.080*</td>
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<td>Discussion vs. Balance</td>
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<td>-.015</td>
<td>.042</td>
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*Note.* An * indicates a unique significant predictor variable at *p < .05*. Final model: \( R^2 = .860, \ R^2_{adj} = .847, \Delta R^2 = .140 (ps < .01) \).
Table 29

*Predictor Variable Beta Weights for Specific Engagement Style Approach Model*

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<td>Reaction Preference</td>
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<td>Reaction Behavior</td>
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<td>Target Avoidance</td>
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$R^2$ = .721          $R^2_{adj}$ = .699

$\Delta R^2$ = .404 $F$ = 33.205

$R^2$ = .860          $R^2_{adj}$ = .847

$\Delta R^2$ = .140 $F$ = 65.456

*Note.* An * indicates a unique significant predictor variable at $p < .05$. ($n = 431$)
Specific Engagement Style Avoidance Model

The regression model for Specific Engagement Style Avoidance investigated if a students’ Target Avoidance could be predicted by a linear combination of Ethics Beliefs, Learning Beliefs, Reaction Preference, Reaction Behavior, Global Frequency, Global Approach, Global Avoidance, Oral Forms, Cognitive Forms, Climate Evaluation, Climate Comfort, Target Frequency, and Target Approach after controlling for students’ Degree Level, Biological Sex, Age, Cumulative GPA, Race/Ethnicity, Unique Group Characteristics, target class Subject Area, Class Size, Discussion vs. Lecture, Participation Grade Percentage, Oral Participation Graded, Participation Helped Grade, and Grade Received. Therefore, a hierarchical multiple linear regression analysis was conducted to predict Target Avoidance from the seven global and six target predictor variables while controlling for six demographic and seven target class control variables. Missing cases were excluded listwise. Sequential block entry was employed to regress all global and target predictor as well as all demographic and target class control variables onto the dependent variable in three steps. Specifically, all demographic and target class control variables were entered in the first step, all global predictor variables were entered into the second step, and all target predictor variables were entered into the third step. Although there is no strong theoretical rationale for entering either the global or the target predictor variables in any particular order, all global predictor variables were entered into the regression model before the target predictor variables since students bring global perceptions with them to particular classes. Thus, it makes sense to reason that students’ global perceptions precede their target class perceptions, at least initially.
Results of the hierarchical multiple linear regression analysis indicated that 23.2% of the variance in *Target Avoidance* could be predicted by demographic and target class control variables, $R^2_{adj} = .162$, $F(36, 394) = 3.312$, $p < .01$. In the second step, after controlling for the demographic and target class variables, the global predictor variables resulted in a significant change, uniquely accounting for an additional 38.5% of the variance, $\Delta F(7, 387) = 55.519$, $p < .01$. In the third step, after controlling for the demographic and target class variables as well as the global predictor variables, the target predictor variables resulted in a significant change, uniquely accounting for an additional 7.8% of the variance, $\Delta F(6, 381) = 16.227$, $p < .01$. Overall, the model accounted for 69.5% of the variance in *Target Avoidance*, $R^2_{adj} = .656$, $F(49, 381) = 17.712$, $p < .01$. Thus, the results of the regression procedure indicated that the linear combination of the seven global and six target predictor variables was able to account for a significant amount of variance in the dependent variable, after statistically controlling for six demographic and seven target class variables.

Analysis of regression coefficients indicated that *Global Avoidance*, $\beta = .616$, $t = 16.492$, $p < .01$, *Target Frequency*, $\beta = .266$, $t = 3.366$, $p < .01$, *Climate Comfort*, $\beta = .238$, $t = 3.917$, $p < .01$, *Global Approach*, $\beta = -.153$, $t = -2.115$, $p = .035$, and *Climate Evaluation*, $\beta = .076$, $t = 1.974$, $p = .049$, emerged as the only significant predictors when all variables were in the model. The squared part correlations revealed that *Global Avoidance* uniquely predicted 21.8% of the variance in *Target Avoidance*, while *Target Frequency* uniquely predicted .9% of the variance, *Climate Comfort* uniquely predicted 1.2% of the variance, *Global Approach* uniquely predicted .4% of the variance, and *Climate Evaluation* uniquely predicted .3% of the variance. Analysis of regression
coefficients further indicated that Class Size 1-15 versus 100+, $\beta = .103$, $t = 2.102$, $p = .045$, and Foreign Languages versus Business/Marketing/Accounting/Math, $\beta = .080$, $t = 1.997$, $p = .027$, were significant predictors when all variables were in the model. The squared part correlations revealed that Class Size 1-15 versus 100+ uniquely predicted .3% of the variance in Target Avoidance, while Foreign Languages versus Business/Marketing/Accounting/Math uniquely predicted .3% of the variance. However, although not significant predictors, each category of Race/Ethnicity and each category of Unique Group Characteristics had TOL and VIF statistics that suggested the presence of collinearity. Consequently, the regression model was run again without Race/Ethnicity and Unique Group Characteristics.

This time, the results of the hierarchical multiple linear regression analysis indicated that 18.1% of the variance in Target Avoidance could be predicted by demographic and target class control variables, $R^2_{adj} = .132$, $F(24, 406) = 3.733$, $p < .01$. In the second step, after controlling for the demographic and target class variables, the global predictor variables resulted in a significant change, uniquely accounting for an additional 43.1% of the variance, $\Delta F(7, 399) = 63.240$, $p < .01$. In the third step, after controlling for the demographic and target class variables as well as the global predictor variables, the target predictor variables resulted in a significant change, uniquely accounting for an additional 8% of the variance, $\Delta F(6, 393) = 17.063$, $p < .01$. Overall, the model accounted for 69.2% of the variance in Target Avoidance, $R^2_{adj} = .663$, $F(37, 393) = 23.854$, $p < .01$. Thus, the results of the regression procedure indicated that the linear combination of the seven global and six target predictor variables was able to account for a significant amount of variance in the dependent variable, after statistically
controlling for six demographic and seven target class variables. Descriptive statistics for the predictor and dependent variables in the final model can be found in Table 23.

Analysis of regression coefficients indicated that **Global Avoidance**, $\beta = .629$, $t = 17.465$, $p < .01$, **Target Frequency**, $\beta = .254$, $t = 3.344$, $p < .01$, **Climate Comfort**, $\beta = .245$, $t = 4.146$, $p < .01$, and **Global Approach**, $\beta = -.146$, $t = -2.054$, $p = .041$, emerged as the only significant predictors when all variables were in the model. The squared part correlations revealed that **Global Avoidance** uniquely predicted 23.9% of the variance in **Target Avoidance**, while **Target Frequency** uniquely predicted .9% of the variance, **Climate Comfort** uniquely predicted 1.3% of the variance, and **Global Approach** uniquely predicted .3% of the variance. Analysis of regression coefficients further indicated that Class Size 1-15 versus 100+, $\beta = .102$, $t = 2.056$, $p = .04$, Class Size 1-15 versus 16-30, $\beta = -.094$, $t = -2.108$, $p = .036$, and Foreign Languages versus Business/Marketing/Accounting/Math, $\beta = .083$, $t = 2.117$, $p = .035$, were significant predictors when all variables were in the model. The squared part correlations revealed that Class Size 1-15 versus 100+ uniquely predicted .3% of the variance in **Target Avoidance**, while Class Size 1-15 versus 16-30 uniquely predicted .3% of the variance, and Foreign Languages versus Business/Marketing/Accounting/Math uniquely predicted .3% of the variance. This time, no variables produced TOL or VIF statistics indicating collinearity. Even though casewise diagnostics of the standardized residuals indicated two outliers, these cases were not eliminated since they did not appear as multivariate outliers during the Mahalanobis distance calculations. In addition, a visual inspection of the histogram of the dependent variable, normal P-P plot of the standardized residuals, scatterplot, and partial regression plots did not reveal any abnormalities in the data.
Although *Oral Participation Graded* and *Biological Sex* demonstrated significance in the first block of the hierarchical regression, once the global predictor variables were considered, these demographic and target class control variables no longer accounted for a significant amount of unique variance in *Target Avoidance*. In addition, although *Grade Received* demonstrated significance in both the first and second blocks of the hierarchical regression, once the target predictor variables were considered, this target class control variable no longer accounted for a significant amount of unique variance in *Target Avoidance*. In sum, *Global Avoidance*, *Target Frequency*, *Climate Comfort*, *Global Approach*, Class Size 1-15 versus 16-30, Class Size 1-15 versus 100+, and Foreign Languages versus Business/Marketing/Accounting/Math predicted significant unique variance in *Target Avoidance*. Thus, students are more confident and less fearful about oral engagement in their target class when they are generally so, frequently participate orally in their target class, are comfortable with the climate of their target class, generally prefer oral engagement styles, are in relatively small target classes, and take foreign language as opposed to business and mathematics courses. In addition, since *Global Avoidance*, *Target Frequency*, *Climate Comfort*, *Global Approach*, Class Size 1-15 versus 16-30, Class Size 1-15 versus 100+, and Foreign Languages versus Business/Marketing/Accounting/Math emerged as strong predictors of *Target Avoidance* in the final model, instructors interested in generating oral participation from students should, therefore, create a comfortable classroom climate and encourage frequent oral participation. Beta weights for the final regression model can be found in Tables 30, 31, and 32.
The final regression model provided support for H14. Additionally, the final regression model provided partial support for H5, H7, and H13. Thus, as hypothesized, students’ general preference for and confidence in oral forms of engagement, frequency of oral engagement in their target class, and comfort with the climate of their target class were found to be significant predictors of specific engagement style avoidance. In addition, as hypothesized, the linear composite of all global and target predictor variables was found to predict specific engagement style avoidance. However, the findings failed to support H1, H2, H3, H4, H8, H9, H10 and H12. In other words, contrary to expectations, students’ ethics beliefs, learning beliefs, reactions to oral participation grades, and forms of target class engagement were not found to be significant predictors of specific engagement style avoidance.
Table 30

*Control Variable Beta Weights for Specific Engagement Style Avoidance Model (n = 431)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>First Block</th>
<th>Second Block</th>
<th>Third Block</th>
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<tr>
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<td>B</td>
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<tr>
<td>Degree Level</td>
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<td>Biological Sex</td>
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<td>Oral Participation Graded</td>
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<tr>
<td>Grade Received</td>
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*Note.* An * indicates a unique significant predictor variable at \( p < .05 \). Final model: \( R^2 = .692, \ R^2_{adj} = .663, \Delta R^2 = .080 \) (\( ps < .01 \)).
### Table 31

**Remaining Control Variable Beta Weights for Specific Engagement Style Avoidance Model** (*n* = 431)

<table>
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<td><em>B</em></td>
<td><em>SE</em> <em>B</em></td>
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<td>Foreign Languages vs. Communication Studies/HSLS</td>
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<td>Foreign Languages vs. Hard Sciences/Engineering</td>
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*Note.* An * indicates a unique significant predictor variable at *p* < .05. Final model: $R^2 = .692$, $R^2_{adj} = .663$, $ΔR^2 = .080$ (ps < .01).
Table 32

*Predictor Variable Beta Weights for Specific Engagement Style Avoidance Model*

<table>
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<tr>
<th>Variable</th>
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<th>Third Block</th>
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<td>B</td>
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<td>.036</td>
<td>.629*</td>
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\[ R^2 = .612 \quad \text{and} \quad R^2_{adj} = .581 \]

\[ \Delta R^2 = .431 \quad \text{and} \quad F = 20.271 \]

\[ F = 23.854 \]

*Note.* An * indicates a unique significant predictor variable at \( p < .05 \). (\( n = 431 \))
Synthesis of Specific Engagement Styles Models

When compared, the three hierarchical linear regression models of students’ specific engagement styles indicate that the global and target predictor variables are able to account for significant amounts of variance in the dependent variables after controlling for the demographic and target class characteristic variables. Interestingly, although some demographic and target class characteristic variables were significant in the first and/or second step of the regression models, only Class Size, Subject Area, Discussion versus Lecture, Participation Grade Percentage, and Degree Level remained significant in the third step of the models. Only two of the four uniquely target class predictor variables accounted for significant amounts of variance in the dependent variables, while four of the global predictor variables accounted for significant amounts of variance in the models. Thus, global perceptions appear to play an important role in specific engagement styles. Among the predictor variables, only Ethics Beliefs, Reaction Preference, Reaction Behavior, Cognitive Forms, and Climate Evaluation failed to be significant predictors in three models. Subscripts in Figure 5 indicate significant variables for each regression model. Specifically, subscript “a” represents significant variables in the Target Frequency model, subscript “b” represents significant variables in the Target Approach model, and subscript “c” represents significant variables in the Target Avoidance model.
Figure 5. Final Model of Variables Predicting Specific Engagement Styles.
CHAPTER 6: DISCUSSION

Student participation in classroom discussion is perhaps the very core of communication in an instructional setting. Yet, the majority of previous research concerning instructional communication has focused attention on how instructors’ communication behaviors influence students’ perceptions, behaviors, and performance outcomes (Auster & MacRone, 1994; Chesebro & McCroskey, 1998; Frymier, 1994; Goodboy & Myers, 2008; Menzel & Carrell, 1999; Myers et al., 2005; Rocca, 2001). The relative paucity of studies addressing students’ communication has examined compliance-gaining behaviors (Burroughs, Kearney, & Plax, 1989; Golish, 1999), out-of-class communication (Myers et al., 2005), or challenge behaviors (Simonds, 1997), to name a few. When scholars have turned their attention to students’ classroom participation in classroom discussions, they have tended to begin from a standpoint that privileges oral participation while regarding silent forms of engagement as either less valuable or altogether unproductive (Canary & MacGregor, 2008; Dallimore et al., 2004, 2006, 2008; Frymier & Houser, 1997; Petress, 2001, 2006; Rattenborg et al., 2004). Such assumptions are often made on the basis that oral speech is a prerequisite to learning for all students (Davis, 1993; Howard & Henney, 1998; Fassinger, 1995). In practice, instructors often encourage oral participation through participation grades, thus rewarding oral participation and penalizing silent forms of engagement (Balas, 2000; Bean & Peterson, 1998; Fritschner, 2000; Jacobs & Chase, 1992; Tatar, 2005). However, communication in the classroom, like communication in other settings and relationships, involves more than oral forms of expression.
Arguably, silence comprises at least half of the communication phenomena that scholars would recognize as nonverbal in other communicative circumstances (Bateson, 1972; Mehrabian & Ferris, 1967; Richmond & McCroskey, 2008; Watzlawick, Beavin Bavelas, & Jackson, 1967). Thus, it is curious that instructors and scholars have failed to account for students’ silence in more productive theoretical and pedagogical ways. Surely, silence is characteristic of the majority of communication that takes place in the classroom. In a like manner, the majority of learning that occurs in the classroom must certainly be manifest through silence. Consequently, a re-evaluation of the role that silence plays in students’ classroom engagement is long overdue.

The present investigation explored students’ perceptions of classroom participation and silence through the framework of engagement styles. Rather than perpetuating the dichotomy between speech and silence through the terminology of participation, this project argued that engagement is a more accurate term for encompassing the range of oral and silent communicative behaviors performed by students in classrooms. Specifically, the pilot study developed and tested a new survey instrument addressing students’ engagement styles at both global and specific levels as well as the variables that might predict engagement styles. Global engagement styles were conceptualized as students’ communicative behaviors in most classes, whereas specific engagement styles were conceptualized as students’ communicative behaviors in particular classes, as operationalized through inquiry about a target class that the respondent took in a previous term. Following refinement of this survey instrument, the primary study explored the relationship of variables predicting both global and specific engagement styles. More specifically, a series of hierarchical linear regression procedures
were employed to test which variables predict students’ global and specific engagement styles.

**Summary of Findings**

**Survey Instrument**

The engagement styles survey instrument developed for the present investigation represents an important step forward in the study of students’ classroom communication. As compared to existing measures, such as the PRCA-24 (McCroskey, 1982), WTC scale (McCroskey, 1992; McCroskey & Richmond, 1987), and Shyness scale (McCroskey & Richmond, 1982), which do not suit the specific needs of studies attempting to explore student engagement, the engagement styles instrument is more robust in that it accounts for both speech and silence as well as perceptions of learning, ethical responsibility, classroom climate, and cognitive involvement. Specifically, the instrument permits a comparison of students’ global and specific engagement styles as well as several predictor variables based on students’ beliefs and behaviors while also accounting for demographic differences among participants and unique characteristics of the target class identified by respondents.

In the pilot study, the EFA procedures and acceptable reliability estimates indicated that the nine original scales, of which five were found to be multidimensional and four were found to be unidimensional, were able to be factored into 14 composite variables. Thus, the EFA procedures established content validity for the survey instrument (DeVellis, 2003; deVaus, 2001; Frey et al., 2000). The CFA procedures and subsequent reliability analysis in the primary study confirmed this factor structure and indicated that the instrument was able to effectively operationalize the 14 composite
variables of interest. In addition, correlations among scales demonstrated that each of the constructs behaved in the way they were purported to behave. Therefore, the CFA procedures confirmed the construct validity of the survey instrument (DeVellis, 2003; deVaus, 2001; Frey et al., 2000). Correlations among the 14 composite variables in both the pilot and primary study further suggested that the variables examined were related. Thus, the results of this project suggest that the new survey instrument is capable of operationalizing those variables of interest and testing the relationships among those variables.

Global Engagement Styles

Students’ global engagement styles were initially hypothesized to be manifest through three indicators. First, the frequency of students’ speech or silence in the classroom was suspected to be central to their global engagement style. In other words, how talkative or silent students generally perceive themselves to be in most classes is an indication of their global engagement style frequency. Second, the general preferences students have in most classes for speaking or remaining silent was expected to be a crucial indicator of their approach behaviors. Third, the general confidence or fear students have about speaking in class was suspected to be an indicator of their avoidance behaviors. Each of these global engagement style indicators (frequency, approach, and avoidance) was hypothesized to function as both a dependent and predictor variable in various models. Thus, the frequency of students’ oral participation as well as their approach and avoidance behaviors toward speaking in class were interesting dependent variables in the three global regression models. However, given the suspected relationship among these three variables, it was expected that for any one of these
outcome variables the other two could predict or influence that outcome. As suspected, the results indicated that global frequency, approach, and avoidance functioned as both dependent and predictor variables in each of the global regression models.

The three global engagement style models subjected to hierarchical linear regression procedures were premised on two additional types of predictor variables. First, students’ beliefs about the central issues concerning classroom participation were hypothesized to predict global engagement styles. Specifically, students’ beliefs about having an ethical responsibility to orally participate in class were expected to influence their global frequency, approach, and avoidance. In addition, students’ beliefs about how essential their oral participation is to their own learning were suspected to predict their global frequency, approach, and avoidance. Second, students’ reactions to instructors’ expectations as reflected in participation grades were hypothesized to influence their global frequency, approach, and avoidance. More specifically, students’ preferences regarding participation grades as well as their communicative reactions to such grades were expected to influence their global behaviors. As hypothesized, both predictor variables about students’ beliefs were significant predictors of their global behaviors. However, reaction behaviors did not emerge as a significant predictor, although reaction preference did.

Finally, the global regression models controlled for demographic differences among survey respondents by placing these variables in the first step of the regression procedures. Contrary to some previous literature on classroom participation, students’ degree level (Aulls, 2004; Meyer, 2007, 2008, 2009), age (Howard et al., 1996), and race/ethnicity (Armstrong, 2007a, 2007b; Balas, 2000; Nakane, 2005; Nance & Foeman,
1993; Peterson, 2001; Tatar, 2005) did not emerge as significant predictors. However, students’ biological sex (Aulls, 2004; Howard & Henney, 1998; Howard et al., 1996; Jones, 1997) and cumulative GPA remained significant predictors in the global avoidance model.

Global Engagement Style Frequency Model

The global engagement style frequency model examined which variables predicted students’ global engagement frequency. After controlling for students’ degree level, biological sex, cumulative GPA, age, and race/ethnicity, the results indicated that students’ global approach and their learning beliefs were significant predictors of global frequency. Specifically, students’ global approach accounted for the most variance in their global frequency, followed by their learning beliefs. Overall, the regression model accounted for 76.5% of the variance in students’ global engagement style frequency. Thus, it appears that the greater students’ general preference for oral participation is and the stronger their beliefs that oral participation enhances their learning are, the more frequently they will participate orally in most classes. Conversely, the more students generally prefer to remain silent in most classes and the less important they perceive oral participation to be to their learning, the less frequently they will participate orally in most classes.

These findings suggest two conclusions. First, students’ general preferences concerning engagement styles determine their general frequency of oral participation. In other words, if students generally prefer to orally participate, they will do so more often. However, if students generally prefer to remain silent, they will be inclined to do so more frequently. Thus, students’ general preferences or approach behaviors predict the
frequency of their oral participation in most classes. Second, how integral students perceive oral participation to be to their learning determines their general frequency of oral participation. To put it another way, if students believe they learn through speaking in class, they will do so more often. However, if students believe they do not learn through speaking in class, or even believe that they learn better by remaining silent, they will speak less often in most classes. Some may read these conclusions as supportive of instructional strategies, such as participation grades, that encourage students to orally participate in class. On the contrary, though, these findings suggest students’ general dispositions toward oral approach behaviors and beliefs about learning determine the frequency of their oral participation. Because neither reaction subscale emerged as a significant predictor of global frequency, it would be incorrect to interpret these findings as supportive of participation grades. In fact, one possible counter-interpretation would be that students’ general preferences and beliefs override instructional policies. Or, perhaps, grading policies are irrelevant to participation?

Global Engagement Style Approach Model

The global engagement style approach model examined which variables predicted students’ global approach behaviors. After controlling for students’ degree level, biological sex, cumulative GPA, age, and race/ethnicity, the results indicated that students’ global frequency, global avoidance, learning beliefs, and reaction preference were significant predictors of global approach. Specifically, students’ global frequency accounted for the most variance in their global approach behaviors, followed by their learning beliefs, global avoidance behaviors, and reaction preference. Overall, the regression model accounted for 81.1% of the variance in students’ global engagement
Thus, it appears that the more frequently students participate orally in most classes, the more confident they are in speaking during classes, the stronger their beliefs that oral participation enhances their learning are, and the more favorably they view participation grades, the more likely they are to prefer an oral approach to participation in most classes. Conversely, the more students generally remain silent in most classes, the more fearful they are of speaking in class, the less important they perceive oral participation to be to their learning, and the more negatively they react to participation grades, the more likely they are to prefer to remain silent in most classes.

These findings suggest several possible conclusions. First, the frequency of students’ oral participation, as well as their confidence in participating, determines their approach behaviors in most classes. Thus, students who speak often in most classes and have confidence in doing so are more likely to prefer oral engagement styles. At the same time, however, students who speak infrequently in class and fear oral participation will be inclined to prefer silent engagement styles. Second, the more students perceive oral participation to be connected to their learning, the more likely they are to prefer an oral engagement style. However, when students perceive the link between oral engagement and learning to be weak, they tend to prefer a silent engagement style. Third, students’ general preferences for oral participation grades play a significant role in their global approach behaviors. In other words, students who express positive perceptions of oral participation grades are more likely to prefer oral engagement styles, whereas students who perceive oral participation grades negatively are more likely to prefer silent engagement styles. Thus, it appears that oral participation grades could encourage approach behaviors in some students while discouraging these behaviors in other
students. Consequently, rather than bridging the gap between oral and silent students by encouraging oral participation from silent students, participation grades may actually widen that gap by encouraging more speech from orally inclined students and discouraging speech by students who are inclined to remain silent.

*Global Engagement Style Avoidance Model*

The global engagement style avoidance model examined which variables predicted students’ global avoidance behaviors. After controlling for students’ degree level, biological sex, cumulative GPA, age, and race/ethnicity, results indicated that students’ global approach, ethics beliefs, biological sex, and cumulative GPA were significant predictors of global avoidance. Specifically, students’ global approach accounted for the most variance in their global avoidance behaviors, followed by their biological sex, cumulative GPA, and ethics beliefs. Overall, the regression model accounted for 32.1% of the variance in students’ global engagement style avoidance.

Thus, it appears that if students generally prefer an oral engagement style, they are more likely to be confident speaking in most classes. However, male students and students with higher cumulative GPAs were more likely to be confident in oral engagement styles. Interestingly, though, students who perceived themselves as having less of an ethical responsibility to orally participate were more fearful of oral engagement styles.

Importantly, it should be noted that the concept of avoidance behaviors complicate the reasons why students remain silent. Whereas previous literature on CA (McCroskey, 1982), WTC (McCroskey, 1992; McCroskey & Richmond, 1987), and shyness (McCroskey & Richmond, 1982) conceptualize silence as a passive trait characteristic, avoidance regards silence as an active choice that students make based on
their comfort with oral communication. Thus, students may remain silent in some circumstances but not in others. One limitation of the literature concerning CA, WTC, and shyness is that these constructs fail to distinguish between silence that is motivated by trait characteristics and silence that is based on students’ comfort levels in various situations. Although CA, WTC, and shyness measure students’ anxiety in particular situations, these constructs do not account for how students speech and silence in the classroom is contextually influenced by unique characteristics such as their instructors, classmates, perceptions of classroom climate, participation grades, and beliefs concerning learning and ethical obligations. In comparison, avoidance provides a means by which variance in students’ engagement styles can be measured.

The results of the present study suggest several possible conclusions. First, students’ general preferences for oral engagement styles predicted greater confidence in oral engagement. Conversely, students who prefer silent engagement styles are more fearful of oral participation in most classes. Second, students who are confident with oral engagement styles are more likely to be male or have high cumulative GPAs. Interestingly, this regression model was the only one in which students’ biological sex remained a significant predictor. Thus, consistent with previous studies, which discovered only partial support for the chilly climate hypothesis (Crombie et al., 2003), the present findings suggest that biological sex is not a significant predictor of students’ participation for most outcome variables. Third, and most intriguing, students who see less of an ethical responsibility to speak in class are more fearful of using oral engagement styles. Similarly, students who see it as their ethical responsibility to speak in class are more confident in oral participation. Thus, the perceived pressure of an
ethical obligation to speak in class may result in silent behaviors. Importantly, this relationship suggests that instructors may not want to emphasize messages that tell students they have a responsibility to speak in class as such messages could place enough pressure on students that they become more frightened of looking bad in the eyes of their instructors and classmates.

In sum, all three global engagement models were able to explain meaningful amounts of variance in the dependent variables. As a result, all three models appear to be useful in explaining students’ global engagement styles, although the global avoidance model would benefit from future refinement since it accounts for a significant, but comparatively small, amount of variance. Perhaps other variables could be added to this model to help explain students’ global avoidance behaviors. Students’ fears of negative reinforcement by instructors following incorrect oral responses or answers, for example, might explain greater variance in global avoidance behaviors. However, the global frequency and approach models were able to explain large amounts of variance in their respective dependent variables.

Specific Engagement Styles

Students’ specific engagement styles were measured through the identification of their reported communication behaviors in a target class taken during a previous quarter. Thus, specific engagement styles referred to those exhibited by students in a particular target class. As with global engagement styles, students’ specific engagement styles were comprised of the frequency of oral engagement as well as preferences toward approach and avoidance behaviors. The identification of a specific target class, therefore, afforded a comparison between students’ global engagement styles as reported in most classes
with their specific engagement styles as reported in a particular target class. Importantly, because students bring general notions about their engagement styles with them into particular classes, global engagement styles, beliefs about ethics and learning, and reactions to participation grades were hypothesized to predict specific engagement styles. In addition, specific communicative behaviors within the target class as well as characteristics of the target class itself were also hypothesized to predict students’ specific engagement styles.

Variables specific to students’ target class experiences were expected to predict their engagement styles in those classes. First, the climate of their target class was suspected to influence how students engaged in those classes. This hypothesis was based on previous evidence showing that classroom climate affects students’ perceptions of the quality of the class and instruction (Aulls, 2004). Classroom climate was further revealed to consist of evaluations of the fairness and justice of their target class as well as impressions of students’ overall comfort level in those classes.

Second, the forms through which students actually engaged in their target classes were expected to predict their specific engagement styles. For instance, students’ engagement in their target classes could consist of oral and/or cognitive forms. More specifically, some students might have engaged through asking or responding to questions in their target classes, while other students might have engaged through active listening or taking notes. Because students have broader definitions of participation than instructors typically do (Dallimore et al., 2004; Fritschner, 2000), both oral and cognitive forms of engagement could be expected to be important predictors of specific engagement styles. Interestingly, cognitive forms of engagement did not uniquely
account for significant amounts of variance in any of the three specific engagement styles dependent variables. One possible explanation for these results could lie in the nature of the dependent variables explored in this study. Because all three dependent variables focused on oral versus silent behaviors, rather than cognitive processes such as thinking or learning, it is possible that cognitive forms of engagement are relevant to students’ engagement style preferences but might emerge as a significant unique predictor if the dependent variables more directly concerned thinking and learning. However, each of the models produced statistically significant findings while accounting for cognitive engagement. Thus, cognitive forms of engagement are still included in each of the models and cannot be ruled out as an important factor influencing students’ specific engagement styles.

*Specific Engagement Style Frequency Model*

The specific engagement style frequency model examined which variables predicted students’ specific frequency in their target classes. After controlling for demographic factors such as students’ degree level, biological sex, cumulative GPA, and age, and controlling for target class characteristics such as the subject area, class size, discussion or lecture format, presence of participation or oral participation grades, percentage of grade assigned to participation, whether participation helped the students’ grades, and the grades they received, the results indicated that students’ specific approach and avoidance preferences, oral forms of engagement, global frequency, discussion or lecture format, and participation grade percentage were significant predictors of specific engagement frequency. In particular, students’ oral forms of engagement accounted for the most variance in their specific engagement frequency, followed by their specific
approach behaviors, global frequency, specific avoidance behaviors, the discussion or lecture format of their target class, and the percentage of their grade assigned to participation. Overall, the regression model accounted for 86.8% of the variance in students’ specific engagement style frequency. Thus, it appears that the more students use oral forms of engagement in their target class, the greater their preference for oral engagement, the more often they orally participate in most classes, the more confident they are at orally participating in their target class, the more their target class uses a discussion format, and the greater the percentage of their grade that is assigned to participation, the more frequently students will use oral engagement in their target classes. Of course, the inverse is also true; the less students employ oral forms of engagement in their target classes, for instance, the less frequently they will orally participate in those classes.

These findings suggest several pertinent conclusions about the frequency of students’ oral engagement in their target classes. First, oral forms of engagement in target classes are a significant predictor of the frequency of their oral engagement. Second, students’ preferences for approach and avoidance behaviors in their target class also predict the frequency of their oral engagement. Third, if students are frequent oral engagers in most classes, they are more likely to be in specific classes as well. Finally, the format of the class and the percentage of the total class grade that are devoted to participation predict students’ oral engagement frequency. More specifically, target classes that employ discussion methods more often than lecture and those that assign higher grade percentages to participation are more likely to spur students’ oral engagement frequency. Interestingly, the regression model for specific engagement
frequency was the only one in which participation grades in target classes significantly impacted students’ communication behaviors. Thus, it appears that although the percentage of students’ grades assigned to participation may increase their frequency of oral engagement in those classes, it does not significantly impact other communication behaviors. The explanation for this finding could be that students are merely speaking in class more often as a compliance response (Balas, 2000; Meyer & Hunt, 2004).

Specific Engagement Style Approach Model

The specific engagement style approach model examined which variables predicted students’ specific approach behaviors in their target classes. After controlling for demographic factors such as students’ degree level, biological sex, cumulative GPA, and age, and controlling for target class characteristics such as the subject area, class size, discussion or lecture format, presence of participation or oral participation grades, percentage of grade assigned to participation, whether participation helped the students’ grades, and the grades they received, the results indicated that students’ specific frequency, oral forms of engagement, global approach, learning beliefs, climate comfort, and degree level were significant predictors of specific approach behaviors. In particular, students’ comfort with the climate of their target class accounted for the most variance in their specific engagement approach, followed by their specific engagement frequency, global approach, learning beliefs, oral forms of engagement, and degree level. Overall, the regression model accounted for 86% of the variance in students’ specific engagement style approach. Thus, the more comfortable students feel in their target classes, the more likely they are to prefer an oral approach to engagement in such classes. Furthermore, the more often students orally engage in their target classes, the more they generally prefer
an oral approach to engagement, the more they believe they learn by speaking, the greater their use of oral engagement forms, the more likely students will be to prefer an oral approach to engagement in their target classes. Finally, graduate students are more likely to prefer oral engagement approaches than are undergraduate students.

Several conclusions can be drawn from the results of this regression model. First, a comfortable classroom climate facilitates stronger student preferences for oral engagement approaches. Thus, comfortable classroom climates are associated with a greater willingness by students to use oral approach behaviors. Second, frequent oral engagement and oral forms of engagement in their target classes leads students to prefer oral approaches. In other words, the more students speak in class the more they prefer to use oral approach behaviors. The effect is, thus, cyclical in that speech begets more speech. Third, students who believe their learning benefits from oral participation and frequently use oral engagement in most classes tend to be more likely to prefer oral approaches in specific classes. Put another way, students were more apt to use oral approach behaviors in their target classes if they believed they learned through oral participation.

*Specific Engagement Style Avoidance Model*

The specific engagement style avoidance model examined which variables predicted students’ specific avoidance behaviors in their target classes. After controlling for demographic factors such as students’ degree level, biological sex, cumulative GPA, and age, and controlling for target class characteristics such as the subject area, class size, discussion or lecture format, presence of participation or oral participation grades, percentage of grade assigned to participation, whether participation helped the students’
grades, and the grades they received, the results indicated that students’ frequency of oral engagement in their target classes, comfort with the classroom climate, global approach preferences and avoidance behaviors, target class subject area, and class size were significant predictors of specific engagement avoidance. In particular, global avoidance behaviors accounted for the most variance in their specific engagement avoidance behaviors, followed by their comfort with the target class climate, frequency of oral engagement in target classes, subject area, global approach preferences, and class size. Overall, the regression model accounted for 69.2% of the variance in students’ specific engagement style avoidance. Importantly, the amount of variance in specific engagement avoidance explained by global avoidance behaviors (23.9%) far exceeded the explanatory power of other significant predictor variables. One explanation for this might be that students’ general confidence regarding oral engagement overwhelms other factors in particular classes. In other words, the lasting influence of global confidence in oral engagement translates into confidence within specific classes. The corollary is, of course, that students who are generally fearful of or hesitant to use oral engagement will bring that orientation into specific classes. This finding is roughly consistent with much of the existing literature on CA, WTC, and shyness (McCroskey, 1977; McCroskey & Richmond, 1982; McCroskey & Richmond, 1987). However, it should be recognized that the concept of avoidance is conceptually distinct from CA, WTC, and shyness. Whereas those constructs regard silence as a passive trait characteristic, avoidance refers to an active choice to speak or remain silent that students make based upon particular contextual factors such as their comfort levels with instructors, classmates, and perceptions of classroom climate. Moreover, the results of this regression model indicate
that students are more likely to be confident in oral engagement styles if the classroom climate is comfortable, the class size is either very small or very large, and they generally prefer oral engagement approaches.

These findings present a variety of interesting conclusions about students’ confidence at oral engagement in specific classes. First and foremost, students’ general fears or confidence in oral engagement follow them into specific classes. However, as opposed to being a trait characteristic such as the anxiety associated with CA, WTC, and shyness, avoidance varies according to students’ perceptions within particular classroom settings. Thus, instructors should be aware that their particular classes may not cause students to overcome their more global hesitancy about speaking in class. Second, establishing a comfortable classroom climate can enhance students’ confidence in oral engagement. Third, the frequency of students’ oral engagement within specific classes can help to improve their confidence in doing so. Fourth, global preferences for oral engagement approaches predict students’ confidence in oral engagement within specific classes. Finally, certain characteristics of target classes are more likely to instill confidence in oral engagement. For example, class sizes with 1 to 15 students were associated with higher levels of confidence in oral engagement than classes between 16 and 30 students. But, classes with enrollments of 100 students or more lead to higher confidence levels in oral engagement than classes with 1 to 15 students. The explanation for these results could be that students who are hesitant to use oral engagement feel safer in very small classes or in very large classes. These students could feel more comfortable with just a few classmates listening or feel safely anonymous and less likely to be called on to speak in large lecture halls. Finally, classes in business, marketing, accounting, and
mathematics were associated with higher confidence levels than foreign language courses. The reason for this could be that learning a foreign language is challenging and may create risks of failure. Or, it could be that students who enroll in business and mathematics courses are more confident expressing answers than students in foreign language courses either due to the subject matter or personality traits of students who major in those areas.

*Streamlined Models of Students’ Engagement Styles*

In sum, the six hierarchical linear regression models of students’ engagement styles indicate that the global and target class predictor variables are able to account for significant amounts of variance in global and specific engagement styles after controlling for the demographic variables and target class characteristics. To provide a succinct representation of the significant predictive relationships discovered through each regression analysis, six streamlined models omitting variables that were not able to uniquely account for statistically significant amounts of variance in the dependent variables are shown in Figures 6 through 11.

Specifically, Figure 6 shows the uniquely significant predictor variables in the *Global Engagement Style Frequency* model. After controlling for all other global predictor and demographic variables, results indicated that *Learning Beliefs* and *Global Approach* accounted for significant amounts of unique variance in *Global Frequency*. 
Figure 6. Streamlined Model of Global Engagement Style Frequency.

Figure 7 shows the uniquely significant predictor variables in the *Global Engagement Style Approach* model. After controlling for all other global predictor and demographic variables, results indicated that *Learning Beliefs, Reaction Preference, Global Frequency,* and *Global Avoidance* accounted for significant amounts of unique variance in *Global Approach*.

Figure 8 shows the uniquely significant predictor variables in the *Global Engagement Style Avoidance* model. After controlling for all other global predictor and demographic variables, results indicated that *Ethics Beliefs, Global Approach, Biological Sex,* and *Cumulative GPA* accounted for significant amounts of unique variance in *Global Avoidance*.
Figure 7. Streamlined Model of Global Engagement Style Approach.

Figure 8. Streamlined Model of Global Engagement Style Avoidance.
Figure 9 shows the uniquely significant predictor variables in the Specific Engagement Style Frequency model. After controlling for all other global predictor, target predictor, target class characteristics, and demographic variables, results indicated that Global Frequency, Oral Forms, Specific Approach, Specific Avoidance, Discussion versus Lecture, and Participation Grade Percentage accounted for significant amounts of unique variance in Specific Frequency.

Figure 9. Streamlined Model of Specific Engagement Style Frequency.
Figure 10 shows the uniquely significant predictor variables in the *Specific Engagement Style Approach* model. After controlling for all other global predictor, target predictor, target class characteristics, and demographic variables, results indicated that *Learning Beliefs, Global Approach, Oral Forms, Climate Comfort, Specific Frequency,* and *Degree Level* accounted for significant amounts of unique variance in *Specific Approach*.

*Figure 10. Streamlined Model of Specific Engagement Style Approach.*
Figure 11 shows the uniquely significant predictor variables in the *Specific Engagement Style Avoidance* model. After controlling for all other global predictor, target predictor, target class characteristics, and demographic variables, results indicated that *Global Approach, Global Avoidance, Climate Comfort, Specific Frequency, Class Size*, and *Subject Area* accounted for significant amounts of unique variance in *Specific Avoidance*.

*Figure 11. Streamlined Model of Specific Engagement Style Avoidance.*
Implications

Students’ engagement styles encompass their communicative behaviors in the classroom. Thus, engagement styles at both global and specific levels provide a framework for researching and discussing communication in an instructional context. In fact, much of the work instructors do on a daily basis involves encouraging, discouraging, or responding to certain engagement styles of students. As opposed to more traditional conceptualizations of participation as mutually exclusive categories of speech and silence, engagement styles provide a better framework for explaining how students communicate with instructors and peers. Consequently, results of the present investigation offer several practical, pedagogical, and theoretical implications of import to instructors, scholars, and researchers interested in classroom communication.

Practical Implications

The findings hold ramifications for how instructors approach everything from grading policies in the syllabus to the instructional format of daily lessons. Furthermore, the findings can serve to inform instructors’ general approaches in relating to students. For instance, from a practical vantage point, the results of the present study suggest that instructors ought to rethink various approaches to encouraging student participation and crafting grading policies. More specifically, results indicate that participation grades do little to alter students’ engagement styles. Thus, instructors should heed the advice offered by students for creating classroom environments more likely to provoke oral participation; namely that a more comfortable climate is established through encouraging responses to students’ comments, reserving judgment about students’ opinions, reducing tension, and treating all students equally. But, instructors should also recognize that
participation could come in silent forms. Armed with this knowledge, instructors can alter
general classroom policies, activities, instructional format, and grading procedures
accordingly. Already, we know that most students do not participate orally and most of
the speaking is done by a handful of students (Howard et al., 1996; Nunn, 1996). Does
that mean the silent students are not participating? If instructors define participation as
exclusively oral in nature, the answer is yes. However, the framework of engagement
styles allows us to explore other ways in which students might engage during class. By
understanding what predicts oral and silent engagement styles, instructors can come to
appreciate the ways many students cognitively engage in specific classes.

One practical recommendation that emerges from the present study echoes
previous findings. For instance, Dallimore et al. (2006) found that as the number of
students who orally participate in class increases, there may be an accompanying increase
in students’ comfort with participating because such behavior would be seen as
something done by all students, not just a few. Thus, involving a wide cross-section of
students in oral participation can lead to an expectation that speech is the norm in the
classroom environment. However, this is quite different from expecting all students to
speak with similar frequency. Clearly, the present results indicate that some students
prefer and practice silent engagement styles in most classes and within particular
classes—often regardless of other conditions. So, getting oral contributions from all
students might be a more reasonable goal than getting all students to speak with relatively
equal frequency. Of course, instructors may wonder when it is appropriate to expect oral
participation from students. One answer to this question would be when questions are
specifically addressed to the individual student and coupled with ample wait time
(Nakane, 2005). Although some students may ask questions of their instructors or readily volunteer responses to questions posed by their instructors, other students are more comfortable answering questions when they have been specifically invited to do so.

Another practical implication of this investigation is that instructors should be concerned with creating a comfortable classroom climate if they wish to promote oral engagement by students. Like previous studies, results presented here suggest that students’ comfort level with the classroom climate is likely to promote oral engagement styles. Students’ comfort during classroom discussions has been shown to be associated with concomitant increases in oral participation (Dallimore et al., 2008). Conversely, though, one’s confidence in expressing her or his opinion may spiral downward if the individual believes such an opinion is in the minority or will lead to isolation (Noelle-Neumann, 1977). Thus, creating a comfortable classroom climate necessarily entails sending a clear message to students that their responses will not lead to isolation. Furthermore, instructors must address students’ global and specific comfort with oral engagement through practices that increase feelings of comfort with the classroom environment.

An additional practical concern which many instructors face is how to deal with students who remain silent even in comfortable classroom climates in which oral participation is the norm. What should instructors do with silence? First, instructors should redefine what it means to participate. Offering alternative means of participating would be one potential answer. In other words, instructors could accept that some students prefer to and will continue to use silent engagement styles irrespective of instructor efforts to the contrary. Dallimore et al. (2006, 2008) recommend the use of
cold calling, provided the cold call is warmed up by allowing preparation time and adjusting the difficulty level of the question to the particular student, along with the use of participation grades. Although the results of the present study suggest that participation grades have little effect other than encouraging compliance responses, the notion of using “warm” cold calls to involve silent students in classroom discussions might be a viable approach. Second, instructors could provide non-oral participation assignments, such as having students turn in reflective notes or questions generated from assigned readings, as a means through which to gauge the cognitive involvement of more silent, but engaged, students.

Importantly, instructors should alter their assumptions about the connection between speech and learning. Even if orality facilitates learning, this does not mean learning has to be oral; silence, too, can facilitate learning. And, clearly, students who do not believe they learn through oral participation are not inclined to use oral engagement styles. Consequently, instructors would be wise to broaden their definitions of student learning. The best evidence supporting a link between speech and learning only suggests that involving students in class discussions or creating student-centered learning environments benefits students’ learning generally. However, this evidence does not support the conclusion that each student must speak in order to learn effectively. As a result, instructors should not automatically assume that silent students are not learning. In fact, a more useful perspective might be finding a suitable match between students’ engagement styles and their learning preferences. Students’ beliefs about the relationship between their engagement styles and their own learning emerged as a significant
predictor in three of the six regression models. More specifically, students’ learning beliefs predicted both their global and specific approach behaviors.

Finally, instructors may wonder what circumstances would justify the use of participation grades. Results of the present study suggest that participation grades do little more than increase the frequency of oral comments from some students, which could indicate that more speech is merely a compliance response to achieve a grade (Balas, 2000; Meyer & Hunt, 2004). For instance, the percentage of target class grades devoted to participation grades increased the frequency of students’ oral engagement, but did not significantly affect their approach or avoidance behaviors. Thus, the use of participation grades appears to be less important than the particular characteristics of the class itself. For example, factors such as the subject area and class size were associated with fewer avoidance behaviors. Moreover, the degree level of students and the classroom climate positively influenced approach behaviors. In sum, then, rather than using participation grades to elicit oral contributions from students, instructors would be better off to consider situational and environmental influences as well as teaching practices that focus on getting students involved in the discussion without the pressure of grades. More specifically, instructors could incorporate questioning strategies, such as cold calling, and use of wait time to encourage more silent students to speak during class discussions.

Pedagogical Implications

Currently, most instructors operate from a pedagogical perspective favoring speech and devaluing silence. This approach encourages the use of participation grades and pressures or expectations for students to speak during class discussions. Importantly, formal speeches and presentations fall outside the realm of participation and engagement
as defined by previous literature as well as the present study. Pedagogically speaking, instructors should recognize that silence does not necessarily imply a lack of participation or learning by students. In fact, cognitive processing may still occur when students remain silent during classroom discussions. Thus, instructors would do well to listen to students’ perspectives of classroom engagement. What is instructors’ ultimate pedagogical objective? Is it oral engagement, or simply engagement? If student engagement is a positive force in the classroom, then does it matter that some students prefer or practice silent engagement while others choose oral engagement? In the end, the most productive pedagogical question that instructors and scholars should ask themselves is: what is the outcome that is most important for students to achieve? There may be more than one route to achieving this outcome.

One important pedagogical concern arising from the results of the present study is the use of participation grades. Some scholars have argued for the use of participation grades and cold calling to involve greater numbers of students in discussion (Dallimore et al., 2006). While there are practical implications arising from such strategies, there is an additional pedagogical concern which has not been examined. Although these scholars are comfortable with instructional strategies that stimulate admittedly “nonvoluntary class participation” (p. 354), a more desirable objective would be the voluntary participation of students in class discussions. The global and specific engagement style models tested in this study indicate that voluntary student engagement can be predicted by means other than participation grades. In fact, participation grades were found to be a significant predictor of engagement styles in only two of the regression models. In particular, students’ preferences in reaction to participation grades influenced their global
approach behaviors, but in a manner that is not surprising. Students who had positive reactions to participation grades were more likely to prefer oral engagement styles. But, students who had negative reactions to participation grades were more likely to prefer silent engagement styles. Only the percentage of students’ grades that was assigned to participation in their target classes affected their frequency of oral engagement in those classes. Again, this result could be an artifact of a compliance response since the participation grade percentage did not emerge as a significant predictor of approach or avoidance behaviors. Do participation grades have the effect that instructors desire? And, is that effect pedagogically justified?

Another pedagogical implication of the study’s results concern students’ supposed ethical responsibility or obligation to speak in class. In only one model did ethical beliefs end up being a significant predictor of engagement style. Interestingly, students who believed they did not have an ethical responsibility to speak in class were more fearful of using oral engagement styles. So, instructors should ask themselves how much they ought to emphasize an ethical responsibility to speak in class. If such a message is perceived as pressure by students who might be less confident in oral engagement, more damage than good could result.

Theoretical Implications

Importantly, classroom communication consists of both oral and silent behaviors. Student engagement, therefore, should be regarded as encompassing a continuum of participation behaviors ranging from silent to oral forms of expression. Yet, classroom silence remains an under-theorized and largely unexplored phenomenon. Ultimately, silence underlies our understanding of communication. Silence is not passive, but is an
One theoretical implication of the present study echoes Acheson’s (2008a) claim that the majority of scholarship holds speech and silence as polar opposites when, in fact, they are inseparably intertwined. Thus, she argued, “scholars remain unable to study the full range of the meanings and uses of silence in human interactions or even to fully recognize its communicative power” (p. 535). Within an instructional setting, then, instructors should recognize the communicative nature of and seek meaning in students’ silence. She further urged that scholars escape the predominant binary of speech and silence. More specifically, as Acheson remarked, “these conceptual limitations placed upon silence result in limitations of our understanding. Restricting silence to field promotes the misconception that unlike speech, silence is not actively productive” (p. 537). The framework of engagement styles appears to meet her call for an escape from the binary of speech and silence insofar as engagement styles recognize not only that students may have oral or silent engagement styles, but may also have engagement styles that fall somewhere between the two extremes. Furthermore, the engagement style framework recognizes that students may have a global engagement style in most classes that differs from their engagement styles in specific classes. Thus, students could be generally silent students who will perform oral engagement styles within particular classes. As with speech, silence is a performative action as well as a conduit of meaning and knowledge (Acheson, 2008b). Consequently, silent engagement styles ought not be read as an absence of knowledge or learning. If students believe they learn best through
cognitive forms of engagement, then such a possibility should also be recognized by instructors.

A second theoretical implication arising from the present investigation concerns how instructors interpret students’ silence. When multiple students simultaneously perform silence, they collectively create what Acheson (2008a) calls not a cacophony, but a symphony. For instructors, though, this symphony can be unnerving. Faced with students’ silent voices raised in unison, instructors might understandably misinterpret this silence. Rather than representing the absence of feedback, though, the collective silence of students contains a meaningful message that can be harnessed in productive ways within the classroom. For instance, collective silence could mean that students understand and have nothing further to add. On the other hand, it could mean they disagree but do not feel empowered to say so. Noelle-Neumann (1977), for example, found that one’s wiliness to stand up for his or her opinions is based on a quasi-statistical sense of the majority’s opinion on a given issue. Or, it could simply mean that they prefer the instructor take a different approach in presenting the material. Sometimes, Acheson explained, silence is an “active, learning silence on the part of listeners” (p. 550). In any case, though, the collective silence of students can provide useful feedback to instructors who are sensitive enough to attempt to understand its meaning and make necessary alterations.

Another theoretical implication suggested by the findings presented here addresses the valence of silence. If silence can be a positive force (Houston & Kramarae, 1991), then instructors might be able to harness that positive energy in productive ways that benefit themselves and their students. For example, pre-service teacher education
programs often recommend using wait time to elicit student responses instead of instructors answering their own questions (Nakane, 2005). Students could use silence as wait time in response to instructors’ questions that are phrased at a simple recall level (Nunn, 1996). Or, students’ silence could be the result of instructors not winning the “battle” of wait time. For instance, if instructors tend to quickly answer their own questions when students respond with silence, then students could come to expect that their silent behavior is an effective approach for avoiding oral engagement.

A final theoretical implication of central concern in the present study concerns why students participate in class. The global and specific engagement style models provide several answers to this question. Five of the six models were able to explain more than 60% of the variance in students’ engagement styles. Thus, the results indicate that certain variables such as students’ beliefs are effective predictors of their engagement styles. Consequently, these findings provide an empirical basis from which to build theoretical models that might be explored in future studies.

Limitations

Although studies may find statistically significant results that affirm their hypotheses, no study is without limitations. In fact, a study’s limitations are often revealed in how the researcher would redesign the study if it were begun again with the knowledge of hindsight. Thus, following the completion of data analysis, the iterative process of conducting research would entail an examination of several areas in which improvements could have been made. Not surprisingly, future efforts in this line of research can benefit from evaluating the weaknesses of the present study.
First, even though the new survey instrument developed for the present study fared well in exploratory and confirmatory factor analyses and demonstrated solid scale reliabilities, the instrument could certainly be improved in several areas. Specifically, subjecting the instrument to Horn’s 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. Moreover, some of the variables hypothesized to predict engagement styles were more measurable than others. Although some students’ appear to have very strong reactions to participation grades, the survey instrument was unable to establish a firm connection between participation grades and students’ engagement styles. It could be that the scales tapping into students’ preferences and behavioral reactions regarding participation grades were not sensitive enough to identify the presence of such a relationship—if it exists. Thus, further modification and refinement of these subscales would be a worthwhile endeavor. Another way to approach this model in the future would be to build in interactions among variables in order to identify potential suppressor relationships.

Second, from a research design standpoint, a more robust statistical procedure that is able to account for multiple dependent variables would provide a clearer picture of the relationship among the variables examined in this study. Hierarchical linear regression procedures are only able to account for a single predictor variable per analysis. Thus, the lack of a clear theoretical model or more extensive body of empirical evidence that might have allowed the data collected here to be examined through more advanced statistical procedures necessitated an examination of each dependent variable in isolation. With the
findings presented here, however, future studies could develop alternative or competing integrated models to be tested through advanced statistical procedures. In turn, such analysis would provide the advantage of examining multiple dependent and multiple independent variables simultaneously to test which model best fits the data.

Third, the response rate for both the pilot and primary studies was noticeably less than ideal. Even though the response rates were in line with expectations for a survey administered online without the lure of incentives for respondents, the vast majority of the samples did not respond to the survey invitation. Why they might not have responded is a lingering question that cannot be answered by the data collected in this study. However, future endeavors could seek to address this quandary.

Fourth, as an iterative process, this line of research concerning students’ engagement styles should trim variables from the model and add new ones that hold the potential to explain global or specific engagement styles. Because the classroom is a dynamic and complex communicative environment in which multiple variables are present, other predictors which were not explored in the present study could prove fruitful.

Fifth, the design of the survey instrument employed in the present study did not allow for a comparison of the student’s identified target class to other particular classes the student had taken. In other words, how would the target class rank in comparison to other classes the student has taken with regard to comfort with classroom climate? Even though the present study is able to measure how students perceived the classroom climate of their target classes, the study is not able to determine if students are more comfortable in their target classes than in other classes. Perhaps modifications to the survey
instrument would permit students to indicate how their comfort level with the climate of their target classes compared to their comfort levels in their other classes.

Suggestions for Future Research

The pilot and primary studies grew out of an exploratory study on student engagement (Meyer, 2007, 2008, 2009). And, while this investigation was able to answer many questions raised by the exploratory study, there is a great deal more to be done in this line of research. In fact, this project has raised as many questions as it has answered. Several extensions of this research project are recommended for future exploration.

First and most importantly, the results of the present study provide the empirical evidence on which to develop specific theoretical models predicting relationships among variables related to engagement styles. These models should next be tested through advanced modeling procedures, such as path analysis or structural equation modeling, using another group of participants. The use of such methods of exploration would permit the potentially complex relationships among the variables examined in the present study to be fleshed out in greater detail. For instance, the specific engagement style models tested in this project were based on intuitive reasoning positing that students bring their global engagement styles with them into their target classes since global styles represent students’ default positions. In other words, global engagement styles acted as predictor variables of specific engagement styles in these models. However, it is also possible that students’ specific engagement styles formed in their target classes may, in turn, cause their global engagement styles to alter or evolve as their educational careers proceed. Thus, advanced modeling techniques would be able to provide an answer as to whether such a relationship existed.
Second, qualitative data should be used to explore explanations of engagement styles in students’ own words. For instance, use of open-ended questions could provide a rich source of data about students’ perceptions regarding classroom engagement. 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 responses to the seven open-ended questions on the primary survey will provide a useful starting place as this line of research moves forward, more extensive qualitative evidence could illuminate the reasons behind students’ perceptions of classroom participation and grading practices. For example, in-depth interviews with students would provide greater insight into the motivations of students to orally participate in class and the reasons why most choose to remain silent. In addition, classroom ethnographic observations could prove useful in identifying patterns of oral engagement and observable forms of silent engagement. Independently, future studies should query instructors about the attributions they assign to student silence in order to compare their assumptions about silent students to students’ own explanations for such behavior. If discrepancies were found to exist, this information could prove helpful in bridging the divide between instructor and student definitions of participation. Left unchecked, instructors ascribe silent behavior to “less than ideal” students because they value classroom communication and perceive ideal students as frequent performers of verbal behavior (Canary & MacGregor, 2008, p. 57). Such attributions could create self-fulfilling prophecies in the classroom unless instructors come to appreciate that silence can coincide with cognitive engagement and interest.
Third, the survey instrument should be compared to existing measures which have some degree of conceptual overlap with the 14 composite variables examined here. For instance, comparing the engagement styles instrument, especially the avoidance models, to the PRCA-24 (McCroskey, 1982), WTC scale (McCroskey, 1992; McCroskey & Richmond, 1987), and Shyness scale (McCroskey & Richmond, 1982) would demonstrate potential similarities and differences, while providing evidence about the concurrent validity (DeVellis, 2003; deVaus, 2001; Frey et al., 2000) of the engagement styles instrument. Moreover, subjecting the new engagement instrument to a multi-trait, multi-method analysis would be a useful next step in expanding the validity evidence for the instrument.

Fourth, by comparing the engagement styles of graduate and undergraduate students to those of students at the secondary or primary levels, evidence could be gathered to explore developmental characteristics of engagement styles. If students’ engagement styles do develop or evolve over the course of their educational careers, resulting theoretical and pedagogical impact of engagement styles would be magnified. Examining how global engagement styles change across students’ experiences or undergo transformation to a specific engagement style in a particular class would be interesting. Such research endeavors would permit an evaluation of the process of engagement styles, rather than a snapshot of students’ engagement. Thus, future investigations could seek to determine if engagement styles do develop or evolve over time.

Fifth, an experimental research design would be an interesting method for testing the potential effects of various participation grading practices on students’ reactions to such strategies as well as measuring how their forms of engagement might fluctuate as a
result. More specifically, using a control group which does not receive participation grades in comparison with experimental groups that either receive participation grades or oral participation grades would help to settle the issue of whether such grades ultimately have an effect on engagement styles or trigger students’ reactance. Of course, a modification of such a design could present students with various syllabus grading policies for participation and ask them to complete a survey instrument with that grading policy in mind.

Finally, scales for other potential variables could be developed and then tested alongside the engagement survey instrument developed here. One logical variable to add to the survey instrument would be one aimed at measuring students’ emotions in the classroom. Because students may have various emotional reasons for using oral or silent engagement styles, measuring these emotions would offer the benefit of exploring their relationship with the dependent variables. In addition, it might be interesting to develop a scale that examines the effects of over-talkers, or students who monopolize class discussions, on students’ behavioral reactions. It is possible that the active oral engagers may chill the oral engagement of more reticent students.

Conclusions

Perhaps the most important conclusion that can be reached from the present findings is that students’ global and specific engagement styles are influenced by a multiple of factors, most of which do not directly concern their demographic characteristics. Results indicate that the variables which most strongly predict students’ engagement styles might be malleable. Thus, it would be fair to say that instructors,
classmates, the classroom climate, and even students themselves can affect changes in the variables that predict engagement styles.

Both the pilot and primary studies represent steps in the iterative process of developing a line of research concerning students’ engagement styles. From here, future studies are needed to explore the variables addressing in this project in greater detail and examine the possibility of other variables that might influence engagement styles. Nevertheless, the findings revealed here indicate progress in this line of research and raise other questions which can be addressed in the future. At the very least, a new survey instrument for exploring students’ global and specific engagement styles has withstood the scrutiny of factor analysis procedures and reliability analysis. Furthermore, several significant predictors of students’ global and specific engagement styles have been identified through the regression models.
REFERENCES


APPENDIX A: PILOT STUDY SURVEY

Directions: Thank you for participating in this survey! As you answer the following sets of questions, please think of your classroom tendencies in most classes rather than about a specific class. There are no right or wrong answers; simply record your first impression by clicking the applicable response.

Global Engagement Style Frequency

1. During most classes, how often do you participate orally?
   Never  1  2  3  4  5  Very Often

2. When instructors direct questions to the whole class, how often do you volunteer an answer?
   Never  1  2  3  4  5  Very Often

3. How often do you talk or volunteer comments in most classes?
   Never  1  2  3  4  5  Very Often

4. In most classes, how often do you remain silent for the whole class period? [Recoded]
   Never  1  2  3  4  5  Very Often

5. How often do you ask questions in most classes?
   Never  1  2  3  4  5  Very Often

Global Engagement Style Preference

6. I enjoy orally participating during most classes.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

7. I prefer to remain silent in most classes. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

8. I contribute oral comments without hesitation during most classes.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

9. In most classes, I do not like it when instructors call on me to answer questions. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

10. During most classes, I orally contribute more than my classmates do.
    Strongly Disagree  1  2  3  4  5  Strongly Agree

11. I am comfortable participating orally in most classes.
    Strongly Disagree  1  2  3  4  5  Strongly Agree
12. I cannot organize my thoughts quickly enough to offer oral comments. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

13. I feel too nervous to orally participate in most classes. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

14. In most classes, I do not speak because I fear appearing unintelligent to my instructor. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

15. During most classes, I fear my comments will offend others. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

16. During most classes, I do not speak because I fear appearing unintelligent to my classmates. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

*Ethics and Rights*

17. I have an ethical obligation to participate orally in class.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

18. I have a right to remain silent in the classroom. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

19. It is the instructor’s responsibility to generate my interest in orally participating. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

20. I deprive others of knowledge when I remain silent.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

21. Instructors should expect me to talk in class.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

22. It is my responsibility as a student to participate orally in class.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

23. I do not have a right to remain silent in class.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

*Learning and Oral Participation*

24. I retain information best when I orally participate in class.
   Strongly Disagree 1 2 3 4 5 Strongly Agree
25. I get more out of class when I remain silent. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

26. Oral participation is an important part of my learning.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

27. Even when I remain silent I am still learning. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

28. Orally participating in class helps me to learn.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

29. I learn best by remaining silent in class. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

30. I learn less when I orally participate in class. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

Reaction to Oral Participation Grades

31. In general, oral participation grades are unfair evaluation tools. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

32. Oral participation grades help improve the quality of my comments in class.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

33. In general, oral participation grades lead me to speak less in class than I would otherwise. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

34. In my experience, instructors use oral participation grades fairly.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

35. Oral participation grades do not result in me making better quality comments than I would otherwise. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

36. If oral participation is graded, I will participate orally in class.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

37. Oral participation grades are too subjective. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree
38. In general, oral participation grades cause me to talk more in class than I would otherwise.

   Strongly Disagree  1  2  3  4  5  Strongly Agree

39. If oral participation is graded, I will remain silent in class. [Recoded]

   Strongly Disagree  1  2  3  4  5  Strongly Agree

40. I feel that instructors should grade oral participation.

   Strongly Disagree  1  2  3  4  5  Strongly Agree

41. Instructors should not use oral participation grades. [Recoded]

   Strongly Disagree  1  2  3  4  5  Strongly Agree

42. I like oral participation grades.

   Strongly Disagree  1  2  3  4  5  Strongly Agree

Identification of Target Class

Directions: Now that you have answered questions about your classroom behavior in general, I want to ask about your impressions of a specific class that you have taken. Please select a class you attended last quarter. The class you select will be referred to as your “TARGET CLASS” for the remainder of this survey. To determine the characteristics and number of different target classes that survey participants pick, please answer a few questions about your target class. Remember, all answers will be kept anonymous.

43. What was your target class department, course number, and course name (e.g., COMS103 Fundamentals of Public Speaking, ENG151 Writing and Rhetoric, etc.)? Please fill in as much information as you can. _______________________________

44. What is your best guess on the number of people that were in your target class?

   1-15  16-30  31-49  50-99  100 or more

45. Was your target class instructor:  Male  Female

46. Was your target class:
   _____Mostly Lecture Oriented
   _____Even Mixture of Lecture and Discussion
   _____Mostly Discussion Oriented

47. Was participation graded in your target class?
   No     Yes     I don’t know

48. Was oral participation graded in your target class?
   No     Yes     I don’t know
49. Approximately what percentage of the total course grade was assigned to participation?  ________

50. Did participating in your target class help your grade?
   No  Yes  I’m not sure

51. What grade did you earn in your target class?  ________

Forms of Engagement

Directions: The next series of questions are about your target class. Please answer all questions honestly based on your interpretation of the questions. Please pick the answer that best describes your response to the statements.

52. I participated in my target class by showing my attention nonverbally with eye contact.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

53. I participated by speaking in my target class.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

54. I remained engaged in my target class by thinking about the material.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

55. I participated by taking written notes in my target class.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

56. I stayed engaged in my target class by focusing my attention on what was discussed.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

57. I participated in my target class through behaviors that were observable to my instructor.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

58. I participated in my target class by showing my attention nonverbally with my body language (for example, by nodding my head).
   Strongly Disagree  1  2  3  4  5  Strongly Agree

59. I remained engaged in my target class by thinking about and relating the material to my own experiences.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

60. I stayed engaged in my target class by actively listening to what was discussed.
   Strongly Disagree  1  2  3  4  5  Strongly Agree
61. I participated by asking questions in my target class.  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

62. I participated in my target class through behaviors that were not observable to my instructor.  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

63. I participated by responding to questions in my target class.  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

64. I stayed engaged in my target class by not allowing myself to become distracted.  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

**Target Class Climate**

65. I felt comfortable talking with my target class instructor during class.  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

66. I felt pressure from classmates not to speak in my target class. [Recoded]  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

67. My instructor maintained tight control over my target class. [Recoded]  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

68. I felt encouraged before giving my opinion in my target class.  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

69. The atmosphere my instructor usually created in my target class was tense. [Recoded]  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

70. Students in my target class did not respect each other’s views. [Recoded]  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

71. My instructor was judgmental during my target class discussions. [Recoded]  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

72. My instructor did not treat each student equally in my target class. [Recoded]  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

73. I found my instructor’s teaching method in my target class to be exciting.  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

74. I felt pressure to keep comments brief in my target class. [Recoded]  
   Strongly Disagree  1  2  3  4  5  Strongly Agree

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75. My classmates did not listen attentively in my target class. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

76. I understood my instructor’s questions.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

77. My instructor was humorous when he/she gave examples in my target class to explain a point.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

78. My classmates relied on a few students to speak during class. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

79. I was comfortable participating orally in my target class.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

Target Class Engagement Style Frequency

80. In your target class, how often did you participate orally?
   Never  1  2  3  4  5  Very Often

81. When your instructor directed a question to your whole class, how often did you volunteer an answer?
   Never  1  2  3  4  5  Very Often

82. How often did you talk or volunteer comments in your target class?
   Never  1  2  3  4  5  Very Often

83. In your target class, how often did you remain silent for the whole class period? [Recoded]
   Never  1  2  3  4  5  Very Often

84. How often did you ask questions in your target class?
   Never  1  2  3  4  5  Very Often

Target Class Engagement Style Preference

85. I enjoyed participating orally in my target class.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

86. I preferred to remain silent in my target class. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

87. I contributed oral comments in my target class without hesitation.
   Strongly Disagree  1  2  3  4  5  Strongly Agree
88. I did not like it when my target class instructor called on me to answer questions. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

89. I volunteered to answer questions in my target class when I knew the answers.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

90. I feared that my comments would offend others in my target class. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

91. I remained silent because I feared appearing unintelligent to my classmates. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

92. I could not organize my thoughts to offer oral comments as quickly as my classmates. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

93. I was nervous about orally participating in my target class. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

94. I remained silent because I feared appearing unintelligent to my target class instructor. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

Demographic Items

Directions: Finally, I would like to get some general information about you. Your answers to these questions will help me better understand the opinions you expressed in other sections of this survey and to compare your responses to other groups of students. Please be assured that your responses will remain anonymous since no information is being collected that can be traced back to particular individuals. When finished, please remember to click the “submit your responses” button below.

95. What is your year in school?

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<tr>
<td>Senior</td>
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</table>

96. Are you: Male Female

97. What is your age? ________
98. What is your cumulative Grade Point Average (GPA)? ___________

99. What is your ethnic background/race?

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<tr>
<td>None of the above</td>
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APPENDIX B: PRIMARY STUDY SURVEY

Directions: Thank you for participating in this survey! As you answer the following sets of questions, please think of your classroom tendencies in most classes rather than about a specific class. There are no right or wrong answers; simply record your first impression by clicking the applicable response.

Global Engagement Style Frequency

1. During most classes, how often do you participate orally?
   Never  1  2  3  4  5  Very Often

2. When instructors direct questions to the whole class, how often do you volunteer an answer?
   Never  1  2  3  4  5  Very Often

3. How often do you talk or volunteer comments in most classes?
   Never  1  2  3  4  5  Very Often

4. In most classes, how often do you remain silent for the whole class period? [Recoded]
   Never  1  2  3  4  5  Very Often

5. How often do you ask questions in most classes?
   Never  1  2  3  4  5  Very Often

Global Engagement Style Preference

6. I enjoy orally participating during most classes.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

7. I prefer to remain silent in most classes. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

8. I contribute oral comments without hesitation during most classes.
   Strongly Disagree  1  2  3  4  5  Strongly Agree

9. I cannot organize my thoughts quickly enough to offer oral comments. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

10. In most classes, I do not speak because I fear appearing unintelligent to my instructor. [Recoded]
    Strongly Disagree  1  2  3  4  5  Strongly Agree
11. During most classes, I do not speak because I fear appearing unintelligent to my classmates. [Recoded]

Strongly Disagree 1 2 3 4 5 Strongly Agree

_Ethics and Rights_

12. I have an ethical obligation to participate orally in class.

Strongly Disagree 1 2 3 4 5 Strongly Agree

13. Instructors should expect me to talk in class.

Strongly Disagree 1 2 3 4 5 Strongly Agree

14. It is my responsibility as a student to participate orally in class.

Strongly Disagree 1 2 3 4 5 Strongly Agree

_Learning and Oral Participation_

15. I retain information best when I orally participate in class.

Strongly Disagree 1 2 3 4 5 Strongly Agree

16. I get more out of class when I remain silent. [Recoded]

Strongly Disagree 1 2 3 4 5 Strongly Agree

17. Oral participation is an important part of my learning.

Strongly Disagree 1 2 3 4 5 Strongly Agree

18. Orally participating in class helps me to learn.

Strongly Disagree 1 2 3 4 5 Strongly Agree

19. I learn best by remaining silent in class. [Recoded]

Strongly Disagree 1 2 3 4 5 Strongly Agree

_Reaction to Oral Participation Grades_

20. In general, oral participation grades are unfair evaluation tools. [Recoded]

Strongly Disagree 1 2 3 4 5 Strongly Agree

21. If oral participation is graded, I will participate orally in class.

Strongly Disagree 1 2 3 4 5 Strongly Agree

22. In general, oral participation grades cause me to talk more in class than I would otherwise.

Strongly Disagree 1 2 3 4 5 Strongly Agree
23. If oral participation is graded, I will remain silent in class. [Recoded]
   Strongly Disagree 1 2 3 4 Strongly Agree

24. I feel that instructors should grade oral participation.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

25. Instructors should not use oral participation grades. [Recoded]
   Strongly Disagree 1 2 3 4 5 Strongly Agree

26. I like oral participation grades.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

Open-Ended Questions

Directions: The following questions are designed to allow you to explain, in your own words, your opinions and perceptions. The text boxes will allow you to continue typing as much as you would like. The more explanation you can provide, the better.

27. How do you define “participation” in class?

28. What motivates you to orally participate in class discussions?

29. How do you remain cognitively involved and learn in class?

30. How do you feel about being graded for your oral participation in class?

31. When you remain silent in class, what emotions influence, motivate, or trigger your silence?

32. When you do remain silent in class, why do you do so?

33. When your classmates remain silent in class, why do you think they do so?

Identification of Target Class

Directions: Now that you have answered questions about your classroom behavior in general, I want to ask about your impressions of a specific class that you have taken. Please select a class you attended LAST quarter. The class you select will be referred to as your “TARGET CLASS” for the remainder of this survey. To determine the characteristics and number of different target classes that survey participants pick, please answer a few questions about your target class. Remember, all answers will be kept anonymous.
34. What was your target class department, course number, and course name (e.g., COMS103 Fundamentals of Public Speaking, ENG151 Writing and Rhetoric, etc.)? Please fill in as much information as you can. _________________________________

35. What is your best guess on the number of people that were in your target class?

| 1-15 | 16-30 | 31-49 | 50-99 | 100 or more |

36. Was your target class instructor: Male Female

37. Was your target class:

- Mostly Lecture Oriented
- Even Mixture of Lecture and Discussion
- Mostly Discussion Oriented

38. Was participation graded in your target class?

No Yes I don’t know

39. Was oral participation graded in your target class?

No Yes I don’t know

40. Approximately what percentage of the total course grade was assigned to participation? ________

41. Did participating in your target class help your grade?

No Yes I’m not sure

42. What grade did you earn in your target class? _______

*Forms of Engagement*

Directions: The next series of questions are about your target class. Please answer all questions honestly based on your interpretation of the questions. Please pick the answer that best describes your response to the statements.

43. I participated by speaking in my target class.

Strongly Disagree 1 2 3 4 5 Strongly Agree

44. I remained engaged in my target class by thinking about the material.

Strongly Disagree 1 2 3 4 5 Strongly Agree

45. I stayed engaged in my target class by focusing my attention on what was discussed.

Strongly Disagree 1 2 3 4 5 Strongly Agree

46. I stayed engaged in my target class by actively listening to what was discussed.

Strongly Disagree 1 2 3 4 5 Strongly Agree
47. I participated by asking questions in my target class.
   \[\text{Strongly Disagree} \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad \text{Strongly Agree}\]

48. I participated by responding to questions in my target class.
   \[\text{Strongly Disagree} \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad \text{Strongly Agree}\]

**Target Class Climate**

49. I felt comfortable talking with my target class instructor during class.
   \[\text{Strongly Disagree} \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad \text{Strongly Agree}\]

50. I felt encouraged before giving my opinion in my target class.
   \[\text{Strongly Disagree} \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad \text{Strongly Agree}\]

51. The atmosphere my instructor usually created in my target class was tense. [Recoded]
   \[\text{Strongly Disagree} \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad \text{Strongly Agree}\]

52. My instructor was judgmental during my target class discussions. [Recoded]
   \[\text{Strongly Disagree} \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad \text{Strongly Agree}\]

53. My instructor did not treat each student equally in my target class. [Recoded]
   \[\text{Strongly Disagree} \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad \text{Strongly Agree}\]

54. I was comfortable participating orally in my target class.
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**Target Class Engagement Style Frequency**

55. In your target class, how often did you participate orally?
   \[\text{Never} \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad \text{Very Often}\]

56. When your instructor directed a question to your whole class, how often did you volunteer an answer?
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Target Class Engagement Style Preference

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63. I remained silent because I feared appearing unintelligent to my classmates. [Recoded]
   Strongly Disagree  1  2  3  4  5  Strongly Agree

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   Strongly Disagree  1  2  3  4  5  Strongly Agree

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