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A Test of the Control Value Theory of Achievement Emotions in an Instructional Communication Context

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ABSTRACT

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This dissertation tested the control-value theory of achievement emotions (CVTAE) in an instructional communication context. Based on the assumptions of CVTAE, the researcher predicted that when instructors were clearer, students would feel more confident in their abilities to perform well in their class and, in turn, experience positive achievement emotions (i.e., enjoyment and hope), ultimately becoming be more intrinsically motivated to learn. If instructors were less clear, however, students would experience decreased motivation to learn through negative appraisals of performance efficacy and negative achievement emotions (i.e., boredom, anxiety, and hopelessness). Additionally, the researcher hypothesized that when instructors made the course content relevant to students' interests, they would experience increased motivation through positive appraisals of task value and, in turn, positive emotions. However, when instructors were not relevant, they would experience declines in motivation to learn through negative appraisals of task value and negative emotions. Finally, based on the assumption that students' differences in achievement goals should impact appraisals of control and value, the researcher hypothesized that mastery orientation would moderate these processes proposed in CVTAE. Additionally, one research question was advanced to test the moderating effects of content relevance on the serial processes proposed in the control value theory. A survey was given to undergraduate students to test these hypotheses and research questions. Participants in the project were 299 undergraduate students who answered questions about their instructor's clarity, content relevance, control appraisals (operationalized by performance efficacy), value appraisals (operationalized by task value), student achievement emotions (i.e., enjoyment, hope, boredom, anxiety, and hopelessness), mastery orientation, and intrinsic motivation to learn. The hypotheses and research questions were tested using ordinary least squares path analysis. The serial multiple mediation analyses revealed that when instructors are clear and make content relevant, students are more motivated to learn because of positive appraisals of performance efficacy and task value, promoting enjoyment and hope. Additionally, instructor clarity and relevance predicted motivation through positive appraisals of control and value and reduced boredom. The results also revealed that instructor clarity and content relevance indirectly predicted motivation through enjoyment, hope, and boredom, regardless of control and value appraisals. Anxiety and hopelessness, however, did not serve as mediators. Additionally, mastery orientation and content relevance did not moderate the processes proposed in CVTAE. Finally, the study's findings, practical implications, limitations, and directions for future research are discussed.

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CHAPTER 1

Introduction

Students experience a wide range of emotions as part of their academic lives. While anxiety is the most common emotion that students experience (Pekrun & Stephens, 2010a), research has identified several other emotions students experience other than anxiety when they attend class, study for course material, and take exams in their courses, including enjoyment, boredom, hope, and hopelessness, among others (Pekrun et al., 2002a). These emotions, commonly referred to as achievement emotions, are specifically related to students' feelings about completing academic tasks or the outcomes associated with academic pursuits (Pekrun, 2006). These emotions are directly influenced by students' appraisals of their perceptions of control over their academic tasks and appraisals of value related to academics, according to Pekrun's (2006) control-value theory of achievement emotions. Finally, the theory assumes that student achievement emotion directly predicts student academic outcomes, such as motivation to learn the material, using self-regulated learning strategies, and, ultimately, academic achievement.

While students' appraisals of control and value are the direct cause of achievement emotions according to this theory, the theory also posits that elements of the educational setting, such as quality instruction and the design of the learning environment, may influence the ways students feel about their classes by affecting their perceptions of control over their academic outcomes and the subjective value they place on their learning (Pekrun et al., 2007). Instructors can create a positive instructional environment and promote quality instruction with their communicative behaviors. While many effective teaching behaviors are beneficial for student success, instructor clarity and content relevance could be specific behaviors that encourage

student perceptions of control and value. Both instructional clarity and content relevance may be influential because they are considered rhetorical communication behaviors that focus on strategically developing and delivering instructional messages to persuade students toward learning and positive affect (Mottet et al., 2006). As such, rhetorical behaviors, like clarity and relevance, are used by instructors to promote learning and effective teaching (Mottet et al., 2006, 2008). Scholars have also uncovered the specific benefits associated with each of these behaviors. For example, clarity helps students process course content more deeply (Bolkan et al., 2016) and more effectively through reductions in their cognitive load (Bolkan, 2016). Beyond just processing course content, clear instruction encourages students to take more detailed notes (Titsworth, 2004) and makes them less apprehensive about listening in class (Chesebro, 2003). Content relevance is also incredibly beneficial for students, as it increases student motivation for learning (Frymier & Shulman, 1995) and encourages situational interest and task value related to the course material (Knoster & Goodboy, 2021). Perhaps, then, the elements that make both clarity and relevance helpful for student performance also help students feel more confident in their abilities to complete academic tasks successfully and encourage students to see the value in engaging with course-related activities and material because it relates to their goals, which should then influence the achievement emotions they experience, and ultimately their academic outcomes, according to the control-value theory of achievement emotions.

Therefore, the purpose of this dissertation is to test the propositions of the control-value theory of achievement emotions by exploring how rhetorical instructional teaching behaviors, specifically clarity and content relevance, influence students' achievement emotions through their appraisals of control (i.e., performance efficacy) and value (i.e., task value). More specifically, this dissertation aims to assess clarity's role in perceptions of performance efficacy,

which in turn should affect the achievement emotions they experience in their classes, and as a result, their motivation to learn. The dissertation will also examine the effects of content relevance on students' value appraisals, leading to students' achievement emotions and, ultimately, student motivation to learn.

Not only does CVTAE argue that quality instruction (i.e., instructor behaviors) influences control and value appraisals related to achievement emotions, but the theory also argues that individual differences between students can also influence the appraisals of control and value (Pekrun, 2006). Achievement goal orientation is one of these individual student variables that can influence these control and value appraisals (Pekrun, 2006). Achievement goal orientations refer to the purpose of students' academic behaviors (Elliott, 1999) and aid in directing students' attention towards situational appraisals and cognitions that can help them achieve their specific goals (Dweck & Leggett, 1998). This dissertation will explore the potential effects of mastery orientation on these relationships to test the idea that individual differences can influence students' appraisals of control and value. Mastery orientation specifically influences student appraisal of control and value, according to CVTAE, because these students turn their attention to learning-related outcomes for course activities and course-related outcomes rather than performance-related outcomes (Pekrun et al., 2007), which impact their appraisals of control and value related to learning the material to help them achieve their specific goals related to their academics, thus impacting achievement emotions (Pekrun & Maier, 2009). Finally, the dissertation will test how the effects of instructor clarity on student motivation through changes in their appraisals of control over their performance, the value they place on their academic tasks, and the achievement emotions will be different depending on the relevance of the content

for students, based on the propositions of the control-value theory of achievement emotions (Pekrun, 2006).

The Control-Value Theory of Achievement Emotions

Pekrun's (2006) control-value theory of achievement emotions (CTVAE) explains how appraisals of academic experiences influence the specific achievement emotions felt in academic situations (Pekrun, 2006). CVTAE first assumes that students' appraisals of subjective control over academic activities and outcomes directly influence the achievement emotions they experience. Appraisals of subjective control refer to students' belief that they have a causal influence over their actions and outcomes related to their learning (Pekrun, 2006). According to this theory, several different forms of control appraisals exist that are important to the experience of emotion. First, situation-outcome expectancies assume that the academic situation will either result in positive outcomes (i.e., success) when the student takes action, and adverse outcomes (i.e., failure) will arise when no action is taken (Pekrun, 2006). Situation-outcome expectancies relate most closely to external control appraisals (Pekrun et al., 2007). For example, a situation-outcome expectancy for students may occur when they expect to fail an exam because they did not study.

Additionally, action-control and action-outcome expectancies are focused on students' specific actions to control their achievement outcomes. More specifically, action-control expectancies refer to perceptions that someone can initiate and perform an action (Pekrun, 2006), while action-outcome expectancies refer to the perception that individuals' actions will either produce a positive outcome or prevent a negative outcome associated with achievement (Pekrun et al., 2007). The assessments of situation outcomes, action-control expectancies, and action-outcome expectances work together to form perceptions of total outcome expectancies, which

assess the overall perception of control over an achievement-related outcome, such as passing or failing a class (Pekrun, 2006).

In addition to appraisals of subjective control, CVTAE posits that appraisals of the subjective value of achievement activities and outcomes also influence the emotions students may experience (Pekrun, 2006). Value appraisals consist of intrinsic and extrinsic values (Pekrun, 2006). Intrinsic value appraisals refer to the specific values that one places on achievement activities or outcomes, independent of outcomes such as grades (Pekrun, 2006), while extrinsic value appraisals refer to the perceived instrumentality of activities or outcomes related to goals such as receiving a good grade (Pekrun, 2006). Much like control appraisals, the theory assumes that assessments of both intrinsic and extrinsic values combine to form outcome value appraisals, which assess the overall value associated with achievement-related activities and outcomes (Pekrun, 2006).

The control-value of achievement emotions then argues that the appraisals of control and value determine the different achievement emotions students experiences. *Achievement emotions* are defined as emotions that are specifically related to the completion of academic tasks or focused on academic outcomes (Pekrun, 2006). Achievement emotions can be classified in three ways. First, achievement emotions can be classified by valence (i.e., whether or not the emotion is positive or negative; Pekrun & Linnenbrick-Garcia, 2012). Second, achievement emotions can be organized by their object focus (Pekrun & Linnenbrick-Garcia, 2012). For example, activity-related achievement emotions focus on ongoing achievement-related activities such as attending class or studying for exams (Pekrun, 2006). In contrast, outcome-related emotions are focused on the specific perceptions of achievement from these activities, such as perceptions of success or failure (Pekrun, 2006). Third, their activation can classify achievement emotions (Pekrun &

Linnenbrick-Garcia, 2012). The activating emotions encourage some action while deactivating emotions discourage action (Pekrun et al., 2002a). The control-value theory posits that because different foci and time points categorize these different categorizations of achievement emotions, the perceptions of control and value have different functions for individuals (Pekrun, 2006). For example, when an individual feels a prospective outcome emotion (i.e., hope, hopelessness, or anxiety), the appraisal of control is focused on whether the individual can either achieve success or avoid failure in pursuit of their achievement-related goals (Pekrun, 2006). For example, when one places a positive value on their perceptions of the outcome and experiences high levels of control, one may experience hope or anticipatory joy. However, when the appraisals of control are low, one may experience hopelessness as a function of the positive appraisal of value (Pekrun, 2006).

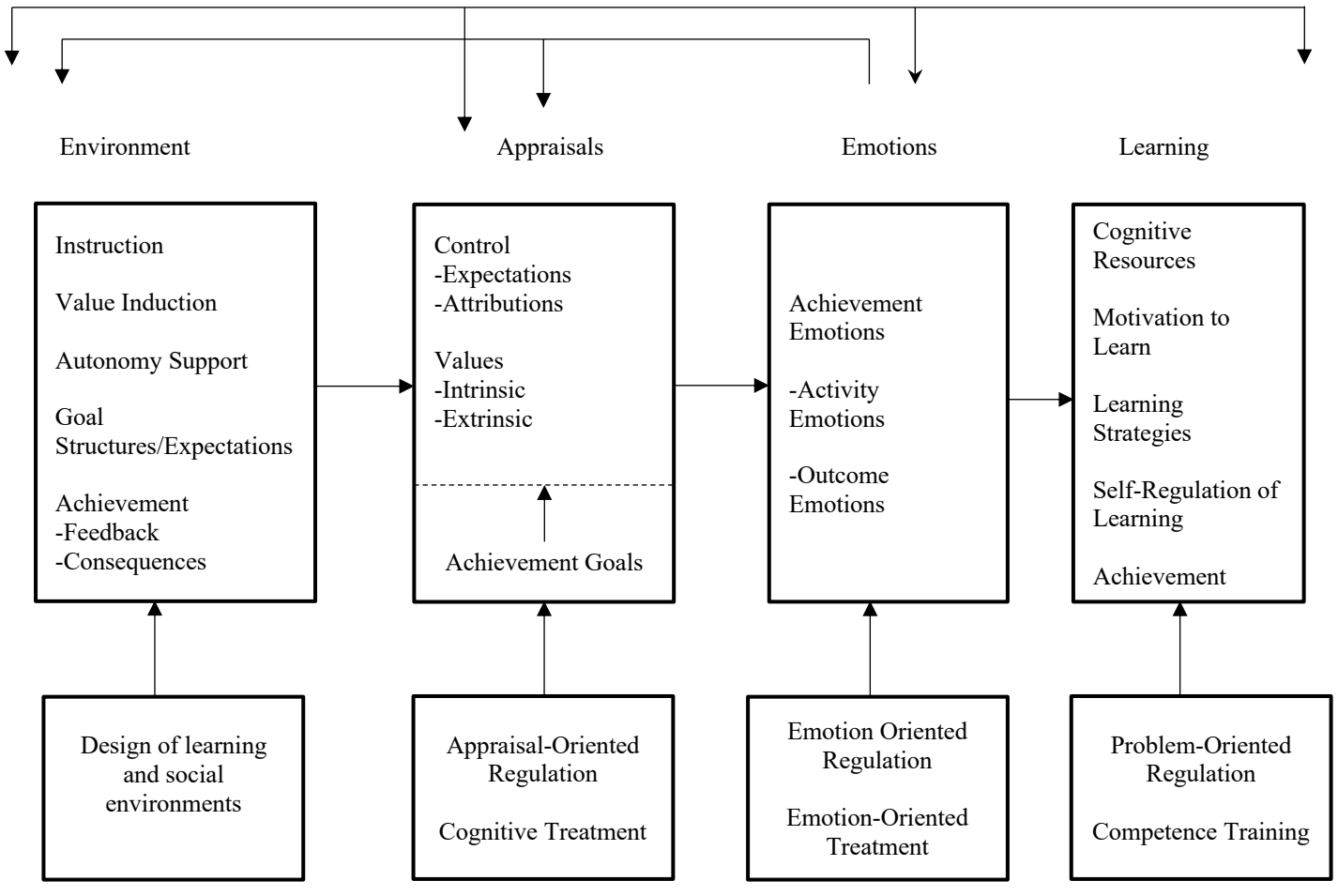
Conversely, when one experiences retrospective outcome emotions (i.e., shame or pride), perceptions of control are concerned with whether or not outcomes were caused by the individual themselves or by external persons or circumstances related to that outcome (Pekrun, 2006). For example, when students positively value success in their classes as an academic outcome and feel as though they performed well because, as a result of their behaviors, they experience pride. However, when individuals experience failure (value) due to others, students experience shame (Pekrun, 2006). Finally, when one experiences activity-related emotions (i.e., enjoyment or boredom), the control and value appraisals are focused solely on the action itself and not on outcomes associated with completing that action (Pekrun, 2006). For example, when students feel high levels of control and value their efforts, they experience enjoyment.

Figure 1 provides a conceptual model of the pathways of CVTAE. First, CVTAE argues that the educational environment can impact control and value appraisals (Pekrun, 2006).

Elements of the educational environment that influence these appraisals include quality instruction, value induction, autonomy support, goal structures, goal expectations, and achievement related to instructor feedback and consequences associated with success or failure (Pekrun et al., 2007). Each of these influences the appraisals of control and value by promoting students' feelings of competence (Pekrun et al., 2007), allowing students to practice new skills (Pekrun, 2000), and promoting values related to academics (Pekrun, 2006). The theory also assumes that these environmental effects can be impacted by the design of the social and

Figure 1

Conceptual Model of the Control Value Theory of Achievement Emotions



Note. This model was adapted from Pekrun's (2006) article outlining the control-value theory of achievement emotions.

learning environment (Pekrun, 2006). These environmental factors then directly influence control and value appraisals, as demonstrated in the second box of the figure (Pekrun et al., 2007). Control appraisals are concerned with expectations and appraisals related to control in academic settings. In contrast, value appraisals are concerned with both the intrinsic and extrinsic value of academic tasks and outcomes (Pekrun, 2006).

In addition, CTVAE argues that individual determinants, such as students' goal orientation, can influence the appraisals of control and value. Broadly, achievement goal orientation describes the purpose of student academic behavior (Elliot, 1999). Early work studied achievement goal orientation as patterns of cognitions, behaviors, and affect that influence student academic outcomes (Ames, 1992; Dweck, 1986). Scholars have identified two main types of achievement goals that concern the ways competence is defined (Elliot, 1999). First, a mastery orientation refers to students' desire to gain competence in a subject by learning as much as possible (Ames, 1984). Students with a high mastery orientation are more interested in developing personal skills and learning the course material rather than receiving better grades than their peers (Pastor et al., 2007). Second, performance orientation refers to the belief that academic success is related to outperforming others (Ames, 1984). Performance-oriented students work to perform better than their peers as a form of validation (Pastor et al., 2007). Essential to the theory's assumptions is that goal orientations help students focus on situational factors or self-related cognitions that can help them achieve their personal goals in their courses (Dweck & Leggett, 1998). According to CVTAE, achievement goals should influence their cognitions surrounding their learning (i.e., control and value appraisals) (Pekrun, 2006). More specifically, mastery goals for student influence appraisals by focusing their attention on learning-related cognitions to help them effectively learn the course material because learning for

personal development is their definition of competence or mastering the material for the sake of learning (Elliott, 1999). In contrast, performance-related achievement goals encourage students to focus their attention on performance outcomes that aid in their ability to be successful, altering their perceptions of control and value and, as such, determining how much control students feel they have in achieving their goals or the subjective value of the material for achieving their achievement-related goals (Pekrun, 2006) because they are focusing their attention on cognitions about their perceptions of control and value (Dweck & Leggett, 1988) related to their abilities to outperform their peers. CVTAE also assumes that control and value appraisals can be impacted or altered through appraisal-based regulation or cognitive treatment (Pekrun, 2006). These appraisals of control and value directly cause the achievement emotions experienced by students, as highlighted by the theory's central premise and the third box of the figure (Pekrun, 2006). The achievement emotions can be classified as either activity or outcome-focused (Pekrun, 2006). Importantly, the experiences of achievement emotions can also be impacted by individual emotion regulation and emotion-oriented treatments (Pekrun, 2006).

The final path of CVTAE demonstrates that the achievement emotions experienced by students influence both learning and academic achievement (Pekrun, 2006). First, CVTAE assumes that achievement emotions can impact students' cognitive resources by focusing their attention away from outcomes and onto the experience of emotion (Pekrun et al., 2007). Achievement emotions also impact learning by stimulating interest and motivation (Pekrun, 2006). More specifically, positive achievement emotions, such as enjoyment, encourage intrinsic and extrinsic motivation, while negatively valanced achievement emotions, such as hopelessness and boredom, negatively affect interest and motivation (Pekrun et al., 2002a). Achievement emotions also influence the cognitive resources students will expend on academics, such that

when students feel positive achievement emotions, they will expend more cognitive resources on learning (Pekrun, 2006). However, students who experience negative emotions will put less cognitive effort into their tasks (Pekrun et al., 2007). Additionally, positively valenced emotions encourage using more creative learning strategies and promote self-regulated learning, while negatively valenced emotions discourage using these behaviors (Pekrun, 2006). These outcomes related to the achievement emotions then inform academic achievement, such that positive emotions positively impact achievement and negative emotions negatively impact achievement (Pekrun et al., 2007). The effects on learning and achievement can also be impacted by problem-oriented regulation and competence training (Pekrun, 2006).

Finally, CVTAE argues that there are reciprocal links between control and value appraisals, emotions, and the educational environment (Pekrun, 2006). Specifically, CVTAE argues that appraisals influence achievement emotions, but achievement emotions can also influence appraisals, and appraisals of control and value can also influence perceptions of the educational environment (Pekrun, 2007). CVTAE demonstrates that positive emotions do not always have positive effects and negative emotions do not always have adverse outcomes but that these relationships are more complex (Pekrun, 2006). Scholarship testing the CVTAE has demonstrated that these appraisals of control and value have unique and complex effects on several achievement emotions, including enjoyment, boredom, hope, hopelessness, and anxiety.

Achievement Emotions in Education

Enjoyment

Enjoyment is a common achievement emotion that students may experience in academic life. Early research into enjoyment first aimed to differentiate enjoyment from other educational emotions, such as interest (Ainley & Hidi, 2014). According to Izard (1977), enjoyment refers to

individuals' satisfaction with participating in an activity, while interest is the feeling of being curious or engaged. Additionally, enjoyment is commonly cited as a primary emotion in most typologies of emotions, while interest is often not included in the early conceptions of basic emotions (Ainley & Hidi, 2014). Additionally, enjoyment and interest serve different functions. For example, enjoyment encourages individuals to be creative and challenge themselves, while interest enhances curiosity for individuals who experience it (Fredrickson, 2001). Despite these differences, research has demonstrated that enjoyment and interest are positive emotions that encourage the individual expansion of ideas and knowledge during each phase of human development (Izard, 2007). From an achievement emotions perspective, enjoyment is classified as a positively-valenced, activating emotion in traditional typologies of achievement emotions (Pekrun & Linnenbrick-Garcia, 2012). Additionally, enjoyment is classified as an activity-focused emotion, as enjoyment is directed at course-related activities rather than perceptions of success or failure at any given time (Pekrun & Linnenbrick-Garcia, 2012). From this approach, enjoyment is considered a high-arousal emotion students experience when they perceive that their activities are both valuable for their education and that they have control over completing them (Camacho-Morales et al., 2019; Pekrun, 2006).

Enjoyment has been positively associated with perceptions of both control and value appraisals for students, as these appraisals are essential predictors of positive affective classroom experiences (Buff et al., 2011; Pekrun et al., 2011). Importantly, student perceptions of competence in their courses positively predict enjoyment throughout math courses (Forsblom et al., 2022). Perceptions of control over the completion of academic activities have important implications for enjoyment in various educational settings. For example, including increases in enjoyment for foreign language students (Yu et al., 2022) and students completing math courses

(Buff, 2014). For value appraisals, research has demonstrated that both perceptions of the intrinsic and extrinsic value of achievement-related activities positively predict the enjoyment of those activities. (Simonton & Garn, 2020). Task value is also a positive predictor of enjoyment of course-related activities (Artino et al., 2010) for second-year medical students. The appraisals of control and value have unique effects on enjoyment and work together to affect student enjoyment. For example, for primary school students, the interaction between perceptions of perceived control and the subjective value predicted the feeling of enjoyment of math-related activities over time (Putwain et al., 2018b) and positive changes in perceived control and perceived value associated with course-related activities in mathematics courses positively predict the enjoyment of math (Buff, 2014).

Beyond the connections to control and value appraisals, enjoyment also has significant benefits for students' learning and achievement. Camacho-Morales et al. (2021) found in their meta-analysis that enjoyment has a moderate, positive correlation with academic achievement. Scholarship exploring the benefits of enjoyment for students has also discovered that when students enjoy the activities they complete in their classes, it positively predicts academic achievement in both the short and the long term (Ahmed et al., 2013; Putwain et al., 2018b). Enjoyment also is a predictor of achievement for different types of students and academic contexts, as enjoyment that is experienced through increases in task value positively affects medical students' achievement (Artino et al., 2010), and enjoyment positively correlates with achievement for college students in synchronous online courses (Butz et al., 2016). Beyond just achievement, when students enjoy their courses, they can better adapt to challenges that arise during the completion of their coursework (Simonton & Garn, 2020). The enjoyment students experience from positive appraisals of both control and value encourages them to use more self-

regulatory and problem-solving strategies when working on math equations in their math courses (Muis et al., 2015). Finally, consistent with the predictions of control-value theory (Pekrun, 2006), the relationships between enjoyment and academic achievement have reciprocal effects on each other, such that enjoyment positively predicts academic achievement, and academic achievement is also a positive predictor of enjoyment of course-related activities, both in the moment and throughout the course (Pekrun et al., 2017; Putwain et al., 2018a). For example, Gibbons et al. (2018) tested a reciprocal causation model for students' enjoyment and achievement in chemistry courses over a semester and found that not only did enjoyment predict achievement in chemistry, but that achievement also positively influenced enjoyment.

Research in instructional communication has also identified how instructor behaviors can influence enjoyment. For example, Titsworth et al. (2013) found that teachers' clarity, competence, and immediacy behaviors predict enjoyment through student perceptions of emotional support and emotion work associated with the course. More specifically, emotional support positively predicted enjoyment directly, while emotional work negatively predicted enjoyment directly (Titsworth et al., 2013). Instructional communication scholars have also explored how enjoyment can impact student communication with instructors through instructional dissent. Enjoyment positively predicts students' use of vengeful dissent (Goodboy et al., 2019). Overall, this research demonstrates that enjoyment of academic activities affects students' performance and behaviors across the educational spectrum, reflecting the importance of enjoyment for students.

Boredom

Boredom is an emotion that students may commonly experience in response to their academic experiences. Boredom is often reported to be among the most experienced in college,

as around 59% of students report feeling bored in their university classes (Mann & Robertson, 2009). While scholars have yet to agree on one specific definition of boredom (Vogel-Walcutt et al., 2012), there are a few factors that scholars agree are necessary characteristics of boredom. First, boredom is characterized by low levels of arousal (Goetz & Hall, 2014). In addition to arousal, scholars generally agree that boredom is an unpleasant (i.e., negatively valenced) emotional state. Additionally, scholars agree that boredom negatively affects learning and academic performance (Sharp et al., 2020).

From an achievement emotions perspective, boredom is a negatively-valenced, deactivating, and activity-focused emotion (Pekrun & Linnebrick-Garica, 2012). Boredom can be classified in five ways, based on the valence and activation experienced by the individual in achievement-related settings. The first type of boredom is *indifferent boredom*, which is classified by low levels of arousal and a slightly positive valence (Goetz et al., 2013). Indifferent boredom is experienced when an individual is withdrawn or indifferent toward the achievement-related situation (Goetz et al., 2013). The second type of boredom individuals may experience is *calibrating boredom* which occurs as a response to uncertainty about not knowing what to do (Goetz et al., 2013). When one experiences calibrating boredom, they are not motivated to search for a distraction to escape the boredom. However, if something comes up, they will shift their focus to that distraction (Goetz et al., 2013). The third type of boredom individuals experience in achievement settings is *searching boredom*, which is classified as an active search for a distraction or change (Goetz et al., 2013). This is considered a more productive form of calibrating boredom, such that this form encourages someone to find a task to escape the feeling of boredom. The fourth type of boredom that can be experienced is *reactant boredom*, which is classified by high levels of negative valence and arousal (Goetz et al., 2013). When this type of

boredom is experienced, individuals become restless and motivated to leave the situation, causing boredom. Finally, the last type of boredom is *apathetic boredom*, which is classified by high levels of negative valence and low levels of arousal (Goetz et al., 2013). When this type of boredom is experienced, the person is unhappy with their situation but cannot find the motivation to leave the situation that is causing boredom (Goetz et al., 2013). It is important to note, however, that despite the different levels of arousal and valence that one may experience as a result of boredom, each of these types still features the same underlying ideas associated with the conceptualization of boredom (Goetz & Hall, 2014).

In addition to the types of boredom that individuals experience in achievement-related settings, researchers studying academic boredom have identified several causes of boredom in academic settings. First, environmental characteristics associated with achievement situations have been found to impact boredom. For example, boredom is caused by monotonous lectures (Goetz & Hall, 2014). In addition, low levels of teacher interest, repetitive academic tasks, lack of resources for learning, and lack of alternate options can also influence students' feelings of boredom in classrooms (Goetz & Hall, 2014). Additionally, achievement-related boredom can be felt when students perceive that the academic situation is not challenging enough (Acee et al., 2010). Teaching methods have also been shown to have implications for the experience of boredom. For example, laboratory work, online lecture notes, copying notes in lectures, and passive PowerPoint notes are positively associated with student boredom for university students (Mann & Robinson, 2009). Consistent with the assumptions of CVTAE, the perceptions of perceived control and subjective value of academic experiences have been shown to influence boredom, as higher levels of perceived control are associated with lower levels of boredom at all levels of the educational system, including middle school-age children (Bieg et al., 2013) and

college students (Pekrun et al., 2010). The declines in boredom that students experience due to positive appraisals of control are consistent for both boredoms related to specific activities and the general experiences of boredom (Pekrun et al., 2010).

First-year college students high in academic control also experience lower levels of boredom in their courses through different learning strategies over the year (Perry et al., 2001). First and second-year STEM students reported that perceptions of academic control were negatively associated with boredom (Respondek et al., 2017). Higher perceptions of the subjective value of achievement activities are also associated with lower levels of boredom (Bieg et al., 2013). Additionally, student perceptions of intrinsic value related to mathematics reduce the feelings of boredom for primary school-aged students over the semester (Putwain et al., 2018b). Additionally, these results were consistent cross-culturally, as demonstrated by a test of boredom in US and German classrooms (Pekrun et al., 2010).

In addition to the direct effects control and value appraisals have on the experience of boredom, these appraisals can also indirectly affect boredom in academic settings. For example, Goetz et al. (2020) tested how supportive presentation style and excessive demands within classroom settings impacted boredom indirectly through perceptions of control and value. They found that when instructors used more supportive lecture styles, feelings of boredom declined due to increases in their feelings of control (Goetz et al., 2020). The results of this study also demonstrate that students' perceptions of intrinsic value mediate this relationship, as increases in supportive teaching behavior reduced feelings of boredom through positive value appraisals, while excessive demands increased boredom through declines in feelings of control and intrinsic value (Goetz et al., 2020). Instructor communication behaviors also influence boredom. For example, teacher clarity, competence, and nonverbal immediacy behaviors negatively predict

boredom through student perceptions of emotional support and emotion work (Mazer et al., 2014). Additionally, declines in emotional support and increases in emotion work predicted the experience of boredom directly (Mazer et al., 2014). Feelings of boredom also influence student communication behaviors. For example, boredom negatively predicts student rhetorical dissent behaviors (Goodboy et al., 2019).

Boredom also influences academic achievement, as boredom has a moderate, negative correlation with achievement (Camacho-Morales et al., 2021). Boredom is a significant predictor of achievement and problem-solving skills in different academic contexts across all academic levels. For example, boredom was a negative predictor of motivation for high school students in geometry courses, which influenced students' use of problem-solving strategies (Bailey et al., 2014). For university students, increases in boredom in their courses predict poorer time management (Ranellucci et al., 2015), intention to drop out (Respondek et al., 2017), and is negatively associated with performance on tests and overall grades (Camacho-Morales et al., 2021). Boredom in university-level, online asynchronous mathematics courses also predicts declines in student satisfaction in those classes (Cho & Heron, 2015). More importantly, these increases in boredom are an important result of students' appraisals of control and value related to their academic activities, consistent with the assumptions of CVTAE.

Hope and Hopelessness

Hope is another positive emotion that impacts different educational outcomes. From an achievement emotions perspective, hope is classified as positively valanced and activating, as it encourages the student to engage in achievement-related behaviors (Pekrun & Linnenbrick-Garcia, 2012). Hope is also classified as prospective-focused outcome emotion, as hope is often associated with the potential for success in the future (Pekrun & Linnenbrick-Garcia, 2012).

According to the control-value theory, hope for students is triggered when students are anticipating success, despite uncertainty over perceptions of control (Pekrun & Stephens, 2010a). Hope generally correlates positively with control and value appraisals (Pekrun et al., 2011), consistent with the theory's predictions. For example, students' self-regulatory behaviors positively predict their feelings of hope (Huang, 2022). Different types of values that students place on achievement influence students' feelings of hope. For example, students who perceive high intrinsic value, utility value (i.e., the usefulness of information for obtaining goals), and cost value (i.e., perceptions of time spent on activities) reported feeling higher levels of hope (Berweger et al., 2022).

These results also hold in more specific academic contexts. For example, in foreign language courses, student perceptions of control and value were positive predictors of hope (Shao et al., 2020). Additionally, student levels of self-regulation predicted hope, as more self-regulated students experienced higher levels of hope compared to students with lower levels of self-regulation (de la Fuente et al., 2020). Hope also has implications for student achievement. For example, students who experienced hope perform better in their classes because of positive control appraisals (Shao et al., 2020). Instructional communication research has also assessed how student perceptions of instructors' behavior influence feelings of hope. For example, student perceptions of emotion work and emotional support in their courses directly predict their feelings of hope and mediate the relationship between clarity, immediacy, competence behaviors, and hope (Titsworth et al., 2013). Student feelings of hope also predict instructional dissent behaviors, as hope negatively predicts students' expressive dissent (Goodboy et al., 2019). Despite these positive associations between control and value appraisals, hope, and achievement,

less research has focused on this achievement emotion, especially when compared to its counterpart, hopelessness.

Hopelessness is a negatively valenced, deactivating emotion (Pekrun & Linnenbrick-Garcia, 2012). In terms of object focus, hopelessness is often classified as outcome-focused, with a prospective focus, meaning that hopelessness is triggered when students anticipate failure due to concerns about control (Pekrun & Stephens, 2010a). Hopelessness is generally negatively related to control and value appraisals (Pekrun et al., 2011). More specifically, negative appraisals of self-efficacy and perceived value of learning negatively predicted hopelessness (Burić & Sorić, 2012). Additionally, these appraisals of control and value mediated the relationship between self-regulated learning strategies and hopelessness (Burić & Sorić, 2012). Further, for university students enrolled in math and statistics courses, perceptions of a lack of control over their learning significantly impacted feelings of hopelessness (Niculescu et al., 2015). Hopelessness also affects perceptions of control and value at educational levels other than university students. For example, for middle school math and science students, hopelessness is the only emotion that impacts students' perceptions in both classroom and test situations (Peixoto et al., 2017).

Hopelessness also has significant effects on students' learning outcomes. For example, hopelessness negatively affects intrinsic and extrinsic motivation (Sansone et al., 1992). Additionally, hopelessness is negatively associated with students' study behaviors and academic achievement (Pekrun et al., 2004). Importantly, hopelessness has been studied in instructional communication related to perceptions of instructor behavior and communication with instructors. For example, hopelessness positively predicts students' rhetorical and vengeful dissent behaviors (Goodboy et al., 2019). Goodboy et al. (2021) also assessed the effects of hopelessness on

instructional dissent over the semester. Results of the study indicated that hopelessness was positively associated with all three types of dissent across the semester (Goodboy et al., 2021). Additionally, hopelessness was a positive predictor of expressive dissent in the middle and at the end of the semester and was a positive predictor of vengeful dissent midway through the semester (Goodboy et al., 2021). Communication behavior also influences Hopelessness, such that clarity, competence, and nonverbal behaviors predict hopelessness through changes in student perceptions of emotional support and emotion work (Mazer et al., 2014). Declines in student perceptions of emotional support and increases in emotion work needed for the course also directly predicted student experiences of hopelessness (Mazer et al., 2014). While research on these two emotions is less prevalent, the importance of hope and hopelessness in students' educational experiences is still evident through its impacts on control and value appraisals and students' behavior and performance.

Anxiety

Finally, anxiety is another salient achievement emotion that impacts students at all levels. Anxiety has received the most scholarly attention in the literature on emotions (Pekrun & Stephens, 2010a). Historically, anxiety is defined as the anticipation of future misfortune or danger, leading to avoidant behaviors (Zeidner, 2014). The study of anxiety in education has relied on several vital distinctions and models. First, essential distinctions have been made to differentiate anxiety as trait-like or state-like. Most notably, Spielberger (1972) defines trait anxiety as a stable personality characteristic that reflects individual differences in anxiety-proneness, while state anxiety is a temporary reaction to stressful events characterized by tension or worry. This distinction between state and trait anxiety set the stage for further development of models and frameworks for studying anxiety in education, most notably the interactional model

of anxiety and stress and the self-regulation model of anxiety. First, Endler and Parker's (1992) interactional model of anxiety and stress aims to assess how situational factors and personality characteristics interact to determine the anxiety levels someone may experience in any given situation. Research using this model has identified four situations where the interaction of state and trait anxiety influences feelings of anxiety. These include daily routines, social evaluation, ambiguity, and physical danger (Endler & Parker, 1992). In addition to this model explaining the interaction of state and trait anxiety, research in this area has also posed the differentiation hypothesis, which argues that individuals will experience state anxiety in any given situation when there is a match (i.e., congruency) between how vulnerable a person might be and the nature of the situation (Endler & Parker, 1992). For example, when students take an important exam, they may feel more vulnerable because they are being evaluated. This congruency would lead to that student feeling more state anxiety (Endler & Parker, 1992).

From an achievement emotions perspective, anxiety is a negatively valanced, outcome-focused emotion that is felt when students are concerned about future course failure (Pekrun & Linnenbrick-Garcia, 2012). Additionally, anxiety is considered an activating emotion because it encourages approach behaviors related to achievement and completing academic tasks (Pekrun & Linnenbrick-Garcia, 2012). Much research assessing anxiety as an achievement emotion has focused primarily on test anxiety. Test anxiety has proven to be an important outcome associated with student control beliefs because test anxiety is positively related to students' expectations of failure (Pekrun & Stephens, 2010b). For example, self-efficacy beliefs (i.e., perceptions of control over learning) negatively affect college students' test-related anxiety (Pekrun, 2011; Zeidner, 1998, 2014). These results are also consistent at other levels of education, including elementary school (Lohbeck et al., 2016). Additionally, consistent with the predictions of the

control-value theory, the relationships between test anxiety and perceptions of control are reciprocal. For example, Wei et al. (2022) found that test anxiety inhibits feelings of control during testing situations. This happens, they argue, because of the evaluative nature of exams (Wei et al., 2022).

Control appraisals also influence students' general feelings of anxiety. For example, Perry (2001) found that students with high levels of academic control experienced less anxiety over their first year of college due to increased effort and self-regulatory learning strategies (Perry et al., 2001). Control appraisals are negatively related to anxiety's motivational, cognitive, affective, and physiological components (Roos et al., 2021). Additionally, recent longitudinal research has also assessed how changes in control and value appraisals influence changes in emotions over time. For example, Held and Hascher (2022) found that changes in anxiety for students throughout their courses led to changes in their perceptions of control and value of the material. Not only do control appraisals matter to the experience of anxiety in face-to-face classes, but they also influence online courses. Heckel and Ringeisen (2019) found that university students' self-efficacy negatively predicted anxiety in online courses. Additionally, appraisals of value, specifically related to the subjective importance of failure for students, are also negatively associated with anxiety related to achievement (Pekrun & Perry, 2014). Appraisals of value are also associated with student behavior. These perceptions of control and value related to anxiety also influence the completion of academic tasks. For example, perceptions of control over reading comprehension were a negative predictor of anxiety for elementary school students, which hurt their performance on reading comprehension tasks (Zaccoletti et al., 2020).

Much of the research assessing anxiety has focused on anxiety's impacts on achievement and learning. For example, in their meta-analysis of anxiety on academic performance, Seipp (1991) found a moderate negative correlation between anxiety and academic performance. Chappell et al. (2005) aimed to test the relationships between test anxiety and GPA for both undergraduate and graduate students. They found that both student populations negatively associated test anxiety with GPA. Additionally, test anxiety is negatively correlated with low levels of achievement in post-graduate education (Rana & Mahmood, 2010). These effects are also reciprocal, consistent with the prediction of the control-value theory. For example, in chemistry courses, anxiety negatively predicted achievement, and declines in achievement negatively predicted anxiety over the semester (Gibbons et al., 2018). Research has also tested the causes of anxiety for students. For example, higher anxiety levels for undergraduate students can be predicted by factors such as poor study skills (Culler & Holahan, 1980). Additionally, research has found that motivation moderates the relationship between anxiety and performance, such that the relationship between anxiety and performance was less intense for highly motivated students (Balogun et al., 2017).

Consistent with the predictions of the control-value theory, changes in anxiety based on appraisals of control and value also influence academic performance. For example, cognitive appraisals, such as worries about performance and failure, are strongly associated with feelings of test anxiety for postgraduate students (Rana & Mahmood, 2010). Cognitive anxiety also impacts academic performance through declines in feelings of control (Roos et al., 2021). Additionally, Roick and Ringisen (2019) tested a longitudinal model of perceptions of self-efficacy, achievement emotions, and academic success. Results of this study indicate that over time, students' perceptions of self-efficacy negatively predict test anxiety, which leads to declines

in academic achievement (Roick & Ringisen, 2019). Putwain and Wood (2022) longitudinally tested the relationships between appraisals of control and value, anxiety, and performance for middle school-aged children in mathematics courses. They confirmed the control-value theory's predictions, as feelings of control negatively predicted anxiety in the mathematics course, which predicted better performance (Putwain & Wood, 2022). Additionally, the results of this study demonstrated reciprocal effects for anxiety and appraisals, as anxiety predicted both lower levels of control and value (Putwain & Wood, 2022).

Instructional communication scholars have also begun to test anxiety as an achievement emotion, as scholars have assessed anxiety's role in instructor and student communication behaviors. For example, teaching behaviors, such as immediacy, clarity, and competence, indirectly predict anxiety through student perceptions of emotion work and emotional support (Mazer et al., 2014). Additionally, students' perceptions of emotion work in their courses positively predict the experience of anxiety directly, while student perceptions of emotional support from instructors negatively predict anxiety (Mazer et al., 2014). Student communication behaviors are also influenced by their feelings of anxiety. For example, anxiety positively predicts student use of expressive dissent and negatively predicts using vengeful dissent behaviors (Goodboy et al., 2019). As evidenced by research across multiple fields, anxiety is an influential emotion that students experience that has important implications for performance at all levels of the educational system. It is not enough, however, to only focus on control and value appraisals as the sole determinants of the achievement emotions that students feel about their academics. CTVAE also highlights other factors influencing achievement emotions through these appraisals (Pekrun, 2006). One of these factors is the educational environment, which includes effective instruction and the effective design of the learning environment (Pekrun et al.,

2007). The effects of quality instruction on control and value appraisals, and in turn, achievement emotions, allow instructional communication scholars to explore how rhetorical communication behaviors, which are used to promote effective teaching (Mottet et al., 2006), affect students' achievement emotions by influencing their appraisals of both control over their learning and the value they place on what they are learning.

Instructor Clarity

The control value theory of achievement emotions posits that the environment plays an influential role in the achievement emotions that students experience because these environments help students appraise their perceptions of control and value (Pekrun, 2006). Several elements of the environment, including the quality of both instruction and feedback, as well as the design of the educational environment, are important determinants of both control and value appraisals (Pekrun et al., 2007). Control-value theory's assumption that the instructional environment matters for achievement emotions opens the door to studying traditional instructional communication behaviors that influence students' achievement emotions. One of these communication behaviors that has proven to be important to students (Mottett et al., 2008) is instructor clarity. Clarity is defined as creating organized and logical instructional messages that enhance student understanding (Witt, 2016). Instructor clarity is classified as a rhetorical teaching behavior, which according to rhetorical and relational goals theory, are behaviors that instructors use to create and deliver effective instruction (Motett et al., 2006). The study of clarity in instructional communication began with Rosenshine and Furst's (1971) seminal work, which identified teacher clarity as essential for quality instruction and teacher training. Following identifying clarity as an essential teaching behavior, the earliest work assessed the elements that define teacher clarity and the conceptualization of clarity in education (Civikly,

1992). This started with a series of influential studies, known as the Ohio State Studies, conducted from 1977 to 1985. The first of these significant studies was done in 1977 by Bush and colleagues, who argued that Rosenshine and Furst's initial work on teacher clarity was "plagued with problems of ambiguity and impreciseness of definition" (Bush et al., 1977, p. 53). They also argued that measures of instructor clarity had not been considered through the instructor's observable behaviors. Bush et al. (1977) identified several factors associated with teacher clarity, including giving students individual help, giving time for students to think about course concepts, providing explanations about completing course work, repeating questions or explanations of content when students do not understand, checking for student understanding, and teaching at an appropriate pace so students can understand. This early study differentiated clear teachers from unclear teachers using observable teaching behaviors and helped set the stage for further creation of measures and clarification of the definition of clarity. For example, Kennedy et al. (1978) refined the clarity measures created by Bush and colleagues and tested these observable behaviors cross-culturally by collecting student samples in both the United States and Australia. Results of this study indicated that clear teachers, compared to unclear teachers, used strategies including simple explanations of course content, frequently using examples to explain concepts, repetition of content, and appropriate pacing of class lectures (Kennedy et al., 1978). The results of this study also indicated that these communicative elements of teacher clarity were consistent across the samples in both the US and Australia, demonstrating the generalizability of teacher clarity behaviors (Kennedy et al., 1978). While the creation of these measures was done using samples of junior high students, results of later work testing these clarity behaviors on university students revealed that teachers' clarity behaviors that

junior high students rate as necessary are also rated highly by college students (Hines et al., 1985).

Following the creation and refinement of these clarity measures, Hines et al. (1985) tested clarity's role in student achievement and satisfaction. The results of this study indicated that the clarity behaviors most highly associated with both student achievement and student satisfaction included the teacher's use of relevant examples, reviewing the course material, appropriately answering questions, repeating material when students do not understand, teaching at an appropriate pace, and providing students with time to think about course material (Hines et al., 1985). The results of this study also uncovered the importance of students' perceptions of clarity, as student perceptions of clarity mediated the relationship between clarity behaviors and student satisfaction and achievement. Finally, Cruickshank (1985) outlined the significant implications of the Ohio State Studies for both instructors who would like to be clearer and for researchers who plan to study instructor clarity moving forward. He argued that clarity is a construct that students of all ages rate as important, as these behaviors are essential to student achievement and student satisfaction (Cruickshank, 1985). He also argued that because students value these behaviors, teachers should be evaluated on their ability to be clear both in the hiring process and as part of teacher evaluations (Cruickshank, 1985). Overall, this foundational group of studies was influential in identifying communicative teacher clarity behaviors and early associations between clarity behaviors, achievement, and satisfaction. This group of studies would set the stage for later refinement and exploration of teacher clarity.

Following the Ohio State studies, which focused on the linguistic elements of clarity, scholars also became interested in the ways teachers demonstrated a lack of clarity, as well as clarity's impacts on student learning. These concepts were assessed through a group of studies

known as the Land and Smith Studies, which specifically assessed the role of teacher clarity in mathematics education. Land (1979) wanted to assess different teacher behaviors that indicate a lack of clarity and found that four major linguistic elements indicated a lack of teacher clarity and were negatively related to student achievement. These included *vagueness terms* (i.e., teachers' use of generic, non-concrete wording), *mazes* (i.e., frequent use of halts or pauses in the speech), *extra unexplained content* (i.e., including extra content in a lecture), and *utterances and vocalized pauses,* (i.e., frequent use of "um and "uh"; Land, 1979).

Smith (1977) also assessed elements of teacher communication, including vagueness terms and mazes, but also the use of examples and explanations of the learning objectives and their effects on achievement. The results of this study indicated that positive teaching behaviors were positively associated with student achievement (Smith, 1977). Finally, Smith and Land (1980) also assessed student perception's role in the reports of teacher clarity. Results of this study indicated that students rate teachers highly when they do not use vague terms in their lectures or mazes in their teaching (Smith & Land, 1980). Additionally, they found that when instructors did not use mazes, it positively impacted student achievement (Smith & Land, 1980). The Land and Smith studies were influential because they identified new teaching behaviors that indicated both high levels of clarity and a lack of teacher clarity and continued to assess the effects of these behaviors on student achievement.

Most recently, Bolkan (2017a) identified five dimensions of teacher clarity. The first is disfluency, which occurs when students perceive that instructors are having difficulty communicating content to them (Bolkan, 2017a). The second dimension is working memory overload, which occurs when teachers present too much information in lectures, which overwhelms students (Bolkan, 2017a). The third dimension is interaction, based on findings from

the Ohio State Studies. Interaction occurs when instructors leave time for students to ask questions during lectures (Bolkan, 2017a). The fourth dimension is coherence. Coherence occurs when instructors have too much unnecessary content or go off-topic frequently during the lecture (Bolkan, 2017a). Finally, the last dimension of this measure is structure, which assesses the organizational features of lectures (Bolkan, 2017a).

Clarity and Learning

Research assessing teacher clarity in instructional communication has centered around assessing the direct and indirect relationships between clarity and cognitive and affective learning. Meta-analysis reveals that instructor clarity has moderate, positive correlations with cognitive and affective learning and that this relationship is more robust for affective learning (Titsworth et al., 2015). Experimental data also reveal that students perceive teacher clarity to be one of the most influential characteristics of both cognitive and affective learning (Comadena et al., 2007). Teacher clarity has also been shown to directly increase student test scores by an average of one letter grade (Bolkan et al., 2017). These findings also hold up in cross-cultural contexts, as teacher clarity has a moderate positive association with affective learning in Chinese classrooms (Zhang, 2011). Clarity is also rated as the most crucial teaching behavior for medical students for effective instruction (Knoster et al., 2021).

In addition to the direct benefits clarity has on cognitive and affective learning, instructor clarity indirectly influences learning. For example, Bolkan et al. (2016) tested how clarity and motivation to process course content interact to influence cognitive learning. They found that when students were highly motivated to process the course content, clear instruction improved their scores on a test, such that those who were highly motivated to process the content scored an average of 71%, compared to 49% for those low in motivation to process the content (Bolkan,

2016b). Additionally, clear instruction combined with immediacy behaviors increases student performance through increases in sustained attention (Bolkan et al., 2017). Schrodt et al. (2009) also tested the relationship between clarity, credibility, and learning outcomes and found that teacher clarity positively predicted perceptions of teacher credibility, which then predicted increased student learning outcomes,

Instructor clarity also has benefits for students beyond just learning. For example, teacher clarity in college classrooms positively correlates with students' affect toward their coursework and instructors (Chesebro & McCroskey, 2001; Sidelinger & McCroskey, 1997), state motivation to learn (Chesebro & McCroskey, 2001; Comadena et al., 2007), and with student perceptions of instructor responsiveness, immediacy, and assertiveness (Sidelinger & McCroskey, 1997). Inside the classroom, clarity encourages student elaboration (i.e., the deep processing of information) by reducing the cognitive load that they experience during their courses (Bolkan et al., 2015), reduces receiver apprehension during lectures (Chesebro & McCroskey, 1998; 2001; Chesebro, 2003), and increases perceived understanding for college students, which in turn helps them feel empowered in their learning (Finn & Schrodt, 2012). Outside of class, clarity also influences student information-seeking strategies because students are more likely to approach the instructor directly for information about the class when they perceive the instructor is clear and less likely to use a third party for information (Myers & Knox, 2001).

Along with the communicative behaviors associated with clarity, the organization of lectures is also beneficial for students. For example, when teachers create organized lectures, students can perform better on recall quizzes (Chesebro, 2003). Titsworth (2001) used experimental procedures to test the relationship between clarity and note-taking behaviors. The

results of the experiment indicate that students take more notes when they are exposed to a lecture with clear organizational cues (Titsworth, 2001). Titsworth (2004) continued this line of research by experimentally testing the effects of clear organizational cues on the details of student notetaking. The results reveal that when students were exposed to a lecture with clear organizational cues, they took more detailed and organized notes compared to those in a lecture without clear organizational cues (Titsworth, 2004). Both experiments revealed that students performed better on recall tests when exposed to a lecture with clear organizational cues (Titsworth, 2001; 2004). In addition to organizational cues, signaling behaviors and structural clarity also benefit cognitive learning. For example, Bolkan (2017b) experimentally tested the relationships between signaling, structural clarity, and cognitive learning by randomly exposing students to a lecture that either contained signaling behaviors or did not. He found that compared to the students in the control group, students exposed to signaling behaviors scored higher on a test because they could organize lecture content more effectively (Bolkan, 2017b).

Importantly for this dissertation, researchers have found that instructor clarity influences students' emotional responses to their courses. For example, Titsworth et al. (2010) found that students with clear teachers have a more positive emotional valence toward the class, perceive more emotional support from instructors, and use less emotion work in that course (Titsworth et al., 2010). Teacher clarity is also positively associated with student engagement in undergraduate courses (Mazer, 2013a) and positively predicts cognitive interest in undergraduate classes (Mazer, 2013b). Clarity has also been tested in relation to student achievement emotions. For example, instructor clarity increases students’ enjoyment and reduces student boredom in mathematics classes (Chen & Liu, 2022) for students in both English and Chinese classrooms. Additionally, research has demonstrated that perceptions of teacher clarity positively predict

student perceptions of emotional support and emotion work in their courses, which then predict the different achievement emotions that students experience in their classes, including enjoyment, hope, anxiety, boredom, and hopelessness (Mazer et al., 2014; Titsworth et al., 2013).

As decades of research demonstrate, instructor clarity is one of the most influential teaching behaviors for learning, student emotions, and student behaviors. As the control-value theory of achievement emotions suggests, high-quality instruction should influence students' emotions because they determine students' control and value appraisals regarding academic activities and the outcomes associated with their courses (Pekrun et al., 2007). Students at all levels (Knoster et al., 2021; Motett et al., 2008) report that instructor clarity is essential for helping them learn, and instructor clarity encourages behaviors both in and out of class that help them more effectively engage with their course material (Bolkan, 2017b; Titsworth, 2001), which should influence the appraisals they make about control and value, according to CVTAE. Therefore, when assessing students' educational and emotional experiences in their courses using this theory, teacher clarity is essential to consider when exploring the different achievement emotions that students feel related to their academics.

Content Relevance

Relevance Strategies

In addition to instructor clarity, content relevance is another rhetorical teaching behavior that received much study in instructional communication. Content relevance is defined as students’ perception that course content meets personal needs, personal goals, and career goals (Keller, 1983). Keller (1987a) started the research on relevance strategies with his Attention-Relevance-Content-Satisfaction (ARCS) model to assess how teachers can encourage students to

stay motivated in their courses. The first step of this process is to catch and maintain students' attention by stimulating their desire to learn (Keller, 1987a). Once instructors have caught students' attention, they must establish relevance by informing students why they should care about course material (Keller, 1987a). To do this, Keller argues that instructors should explain how course material can relate to future activities, such as future careers and interests outside class (Keller, 1987a). Additionally, instructors should demonstrate how the material can benefit them in the current moment and relate the material to students by using examples in class that students are already familiar with to help them apply content to their existing knowledge (Keller, 1987a). Finally, instructors can demonstrate content relevance by giving students opportunities and activities to demonstrate their knowledge and modeling enthusiasm for the content themselves (Keller, 1987a). Following the demonstration of course relevance, instructors should instill confidence in their students by encouraging them that they have control over their learning (Keller, 1987a). Finally, the last stage of this framework is satisfaction, which enables instructors to reinforce achievement with rewards (Keller, 1987a).

Using the ARCS model as a framework, Keller (1987b) provided a variety of strategies for instructors to utilize to enhance content relevance in their classes. These strategies are broken up into three main categories. The first is familiarity strategies, used when instructors want to connect the course content and students' personal experiences (Keller, 1987b). Instructors may employ this strategy by connecting course content to events that have occurred in their lives or the lives of their students. Additionally, instructors may use goal orientation strategies, which help the instructor connect the course content back to students' goals (Keller, 1987b). Instructors may do this by connecting course content and students' future careers. Finally, instructors may employ motive-matching strategies, using pedagogical techniques that students perceive as

relevant (Keller, 1987b). These three types of relevance strategies opened the door for future scholars in instructional communication and other areas of inquiry to assess how instructors can make their course content relevant to their student's needs and goals.

Following Keller's (1983, 1978b) work on relevance strategies, instructional communication scholars identified communication-related relevance strategies. For example, Frymier and Shulman (1995) created the earliest measure of content relevance in instructional communication. This unidimensional measure assesses communicative elements of content relevance by asking participants questions about instructors' use of examples, explanations, and activities to make the content relevant to student needs and goals (Frymier & Shulman, 1995). After this early measure of content relevance was published, Muddiman & Frymier (2009) conducted a qualitative study to assess how students perceive that instructors use relevance strategies in their classrooms. After asking students to write about the ways teachers make content relevant for them, they identified five major themes. The first of these is *outside course relevance.* When instructors use this strategy, they use examples based on student interests and goals outside their courses to draw parallels to the course content (Muddiman & Frymier, 2009). For example, an instructor may use a popular TV show video clip to help students connect to the course content. The second strategy identified was *methods and activities relevance.* When instructors utilize this strategy, they use activities and methods other than just examples to help students see how the course content is relevant to their goals (Muddiman & Frymier, 2009). For example, instructors may utilize small group activities in their lectures to help students make connections to the content themselves. The third strategy identified in this study is *inside course relevance*. When instructors utilize this strategy, they can relate content to students' needs inside that specific course (Muddiman & Frymier, 2009). For example, instructors can connect the

course content back to course learning objectives and provide study help to use this strategy. The fourth strategy identified was *teaching style relevance*. When instructors utilize this strategy, they use elements of their teaching style to make the students feel the content is relevant to course goals (Muddiman & Frymier, 2009). For example, instructors who demonstrate enthusiasm for the material and utilize nonverbal cues such as vocal variety use this relevance strategy. Finally, the last strategy identified was *no relevance strategies*, which occurs when instructors do not use any strategies to connect course content back to student goals (Muddiman & Frymier, 2009).

After identifying these relevance strategies, later work testing content relevance assessed the frequency and effectiveness of these five strategies. For example, Knoster and Myers (2020) aimed to replicate these findings and determine college student perceptions of the frequency of use of these five strategies and the effectiveness of each strategy. Not only did data demonstrate replication of the four relevance behaviors, but they also found that instructors most frequently employ the inside course relevance strategy followed by teaching style relevance, outside course relevance, and methods and activities relevance (Knoster & Myers, 2020). Additionally, students report that inside course relevance is perceived as the most effective relevance strategy, followed by teaching style relevance, outside course relevance, and methods and activities relevance (Knoster & Myers, 2020). This research can provide instructors with tangible pedagogical skills that can help them effectively relate their course content to students' needs and goals, both in and outside the classroom. Research exploring content relevance has not only identified implications for teaching but also discovered the benefits content relevance has on learning.

Benefits of Content Relevance for Students

Educational and instructional communication literature has widely documented the effects of relevance on student learning outcomes. Early research first aimed to classify relevance as a person-centered behavior to answer the fundamental question of how content becomes relevant (Scheffler, 1969). One classification of relevance as person-centered is the idea of self-relevance, which refers to the meaningful personal connections that students make with course content (Alexander, 2018). Personal relevance can also occur when content confirms or is consistent with identities that students may ascribe to (Priniski et al., 2018). The benefits of self-relevance are well documented. For example, when students make personal connections to the course content, they are more likely to internalize the material (Vansteenkiste et al., 2018). Beyond answering this early question, early work in this area also explored assessments of student perceptions of relevance. Keller (1983) discovered that students' perceptions of content relevance are determined by the value they place on the material they are learning. He then identified three types of value students put on their learning: personal-learning, instrumental, and cultural significance. Personal-learning value refers to students' belief that the course material fulfills a personal need or desire. Instrumental value refers to students' belief that course material helps them meet a specific objective. Lastly, cultural value refers to students' beliefs that the material is relevant to broader social and cultural environments (Keller, 1983).

Recent research on relevance in education has focused on value judgments as a critical component in perceptions of relevance. For example, reappraisals of task value can be a beneficial tool for students to use to help them see the importance of course content in their everyday lives (Acee et al., 2018). Value reappraisals are successful because they can lead to positive attitude changes toward the importance of course material (Acee et al., 2018), demonstrating the importance that changes in the judgments of values can have for students

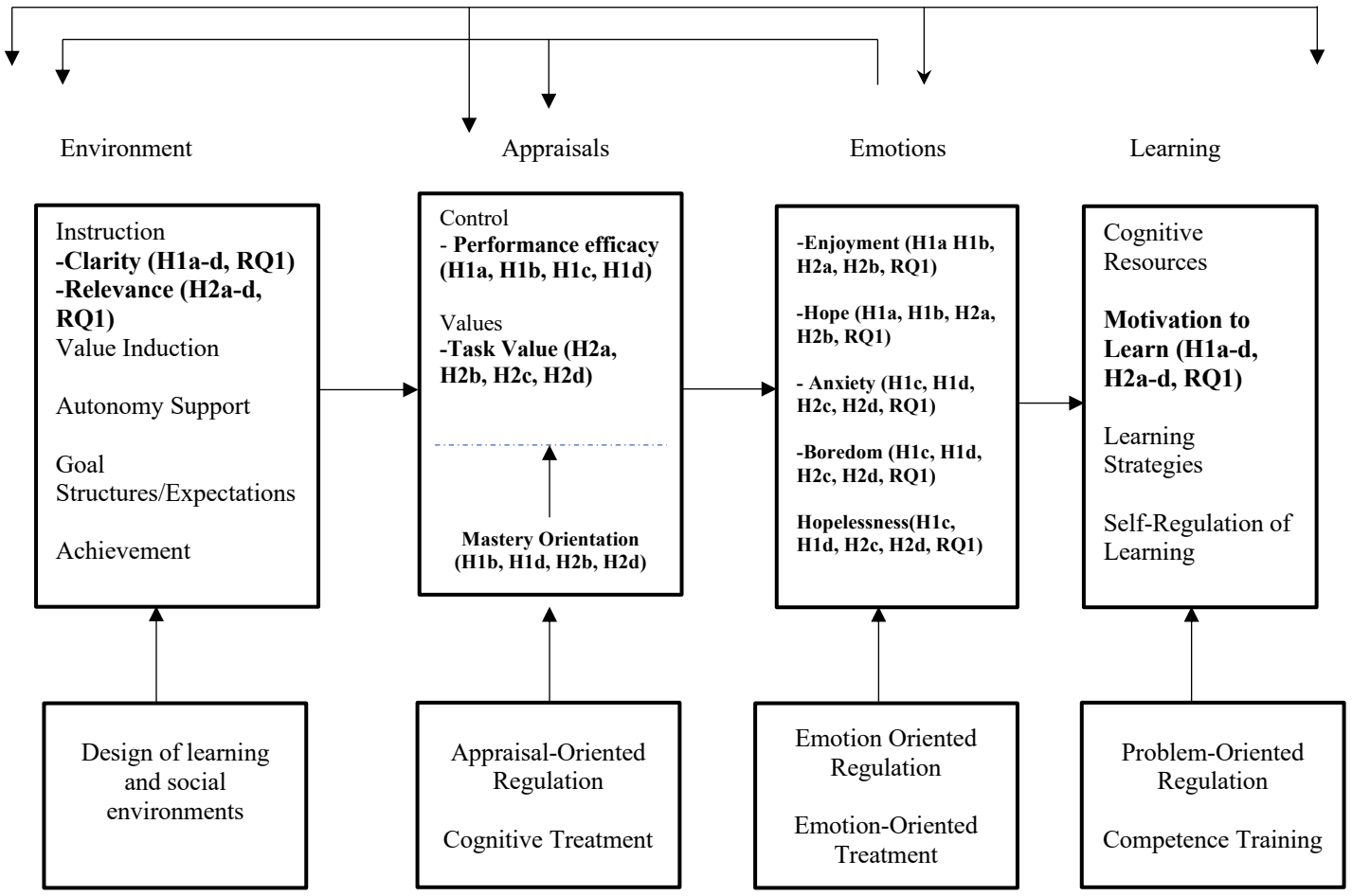
taking courses. Research has also identified strategies instructors can employ to encourage students to value the material they are learning in their classes. For example, Gaspard et al. (2015) found that interventions explaining the value of mathematics education encouraged students to be more motivated in those courses. This research has indicated that students' perceptions of value determine content relevance.

Educational and instructional communication scholars have extended this research beyond student perceptions of relevance and also identified the benefits of content relevance in traditional learning outcomes. For example, content relevance is positively associated with state motivation to learn (Frymier & Shulman, 1995; Frymier et al., 1996; Weaver & Cotrell, 1998). Autonomous motivation and volitional learning are also fostered because students internalize material when they can make a personal connection to that material (Vansteenkiste et al., 2018). Content relevance is also positively associated with affect for both courses and instructors (Frymier et al., 1996). The benefits of making content relevance span all levels of education, as content relevance and teacher clarity have the strongest positive associations with affective learning of math and science at the high school level (Mottet et al., 2008).

Along with high school students, medical students also rank content relevance as a fundamental teaching behavior that aids their learning (Knoster et al., 2021). Additionally, relevant assignments in introductory courses can not only increase student motivation in these classes but also helps students perceive these introductory courses more positively (Fedesco et al., 2017). Content relevance also serves as a hold behavior for student interest, encouraging higher levels of autonomous motivation in college courses (Bolkan & Griffin, 2018). Along with testing these relationships using survey data, instructional communication scholars have also relied on experimental methods to assess the importance of content relevance. For example,

Figure 2

Conceptual Model of the Control Value Theory of Achievement Emotions with Study Variables



Note. This model was adapted from Pekrun's (2006) article outlining the control-value theory of achievement emotions.

Knoster and Goodboy (2021) conducted two live-lecture experiments to examine the effects of content relevance on student learning outcomes. The results of these studies indicated that when compared to standard or irrelevant lecture conditions, affect for content, instructors, perceptions of task value, and situational interest increased when instructors made the content relevant (Knoster & Goodboy, 2021). Additionally, this study found that relevant instruction caused an

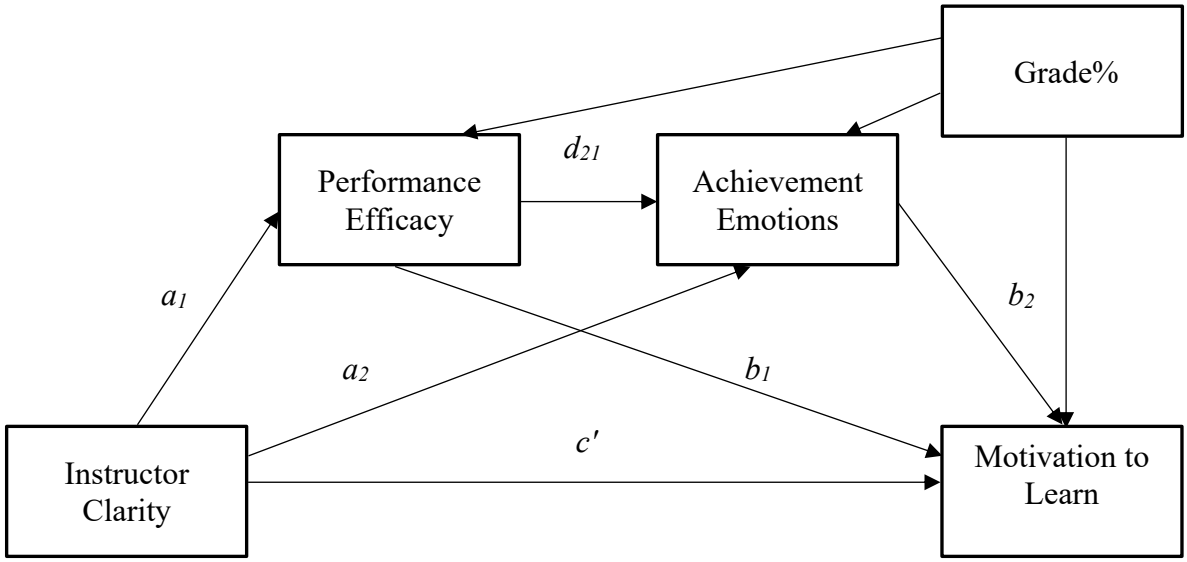
increase in affect for the instructors, which increased grades on a recall quiz (Knoster & Goodboy, 2021).

Along with these benefits associated with traditional learning outcomes, content relevance also affects other teacher behaviors, such as teacher credibility and perceptions of instructor self-disclosure. For example, when instructors make content relevant to students, they perceive their instructor to be more trustworthy, competent, and have goodwill (Schrodt, 2013). Kromka and Goodboy (2021) also tested the effects of relevant self-disclosure on affective and cognitive learning using a live lecture experiment and found that when an instructor's self-disclosure is relevant to the course material, students are more likely to enroll in a course with that instructor again in the future and score higher on tests of recall, demonstrating the benefits of content relevance for cognitive learning (Kromka & Goodboy, 2021). Content relevance is also crucial for the success of different pedagogical techniques, such as instructor storytelling (Kromka et al., 2020), and encourages students to use course material outside of class (Webster et al., 2011). As research throughout the decades has demonstrated, making content relevant to students' needs, experiences, and goals has essential benefits for students learning and educational outcomes. The propositions of CVTAE argue that the quality of instruction is a crucial determinant of the appraisals students make about their experiences (Pekrun et al., 2007), and content relevance reflects another rhetorical communication behavior that promotes learning through effective instructional messaging, and as a result, should influence the achievement emotions that students experience through appraisals of control and value.

Theoretical Rationale

Figure 3

Conceptual Serial Multiple Mediator Model with the Effect of Instructor Clarity on Motivation to Learn Mediated by Performance Efficacy and Achievement Emotions



Note. Achievement emotions included enjoyment, hope, anxiety, hopelessness, and boredom.

Hypothesis 1: Clarity, Control Appraisals, Achievement Emotions, and Motivation

The control-value theory of achievement emotions argues that factors related to the instructional environment play a role in the achievement emotions experienced by students by directly impacting the cognitive appraisals of control and value (Pekrun, 2006). According to the theory, environmental factors that are influential to appraisals of control and value include both the quality of instruction provided to students and the design of the learning environment (Pekrun et al., 2007). As such, instructors' communication behaviors should be essential to creating instructional environments that influence these appraisals, mainly when they use rhetorical communication behaviors focused on developing high-quality instructional messages that promote student learning and affect (Motett et al., 2006). Of these rhetorical communication

behaviors, instructor clarity has proven to be crucial for student achievement because instructor clarity helps students more effectively organize and engage with course material (Bolkan et al., 2016; Bolkan, 2017b; Titsworth, 2001; 2004). Instructor clarity, then, could be an essential determinant of the appraisals students experience because the implementation of well-structured and engaging content within the learning environment enhances students' feelings of competency and perceived control, according to CTVAE (Pekrun et al., 2007).

Moreover, CVTAE argues that appraisals related to control over achievement-related activities and outcomes are one of the main predictors of the emotions that student experience (Pekrun, 2006). These control appraisals can include student perceptions of academic self-concept or evaluations of student self-efficacy for learning and performance. Broadly, self-efficacy is defined as judgments about one's abilities to learn or to perform certain behaviors (Bandura, 1977). In educational contexts, self-efficacy is commonly operationalized as self-efficacy for learning and performance, which refers to students' judgments of their ability to complete and perform well on academic tasks (Pintrich et al., 1991). When students make judgments of their self-efficacy, they consider several factors, including their perceptions of their abilities and the difficulty of the tasks they must complete (Schunk, 1984). For students, self-efficacy judgments are essential for determining their motivation and academic aspirations, ultimately influencing their academic accomplishments (Bandura, 1993). The benefits of self-efficacy on academic achievement have been well documented in research. For example, self-efficacy is a positive predictor of academic performance for high school students (Dogan, 2015) and is positively associated with higher grades for university students (Choi, 2005). Beyond these direct relationships with academic performance, self-efficacy evaluations have other benefits for students, including increased student motivation (Schunk, 1991) and strategic study

behaviors (Prat-Sala & Redford, 2010). Additionally, self-efficacy is positively associated with persistence in educational settings as a result of increases in motivation (Liao et al., 2014).

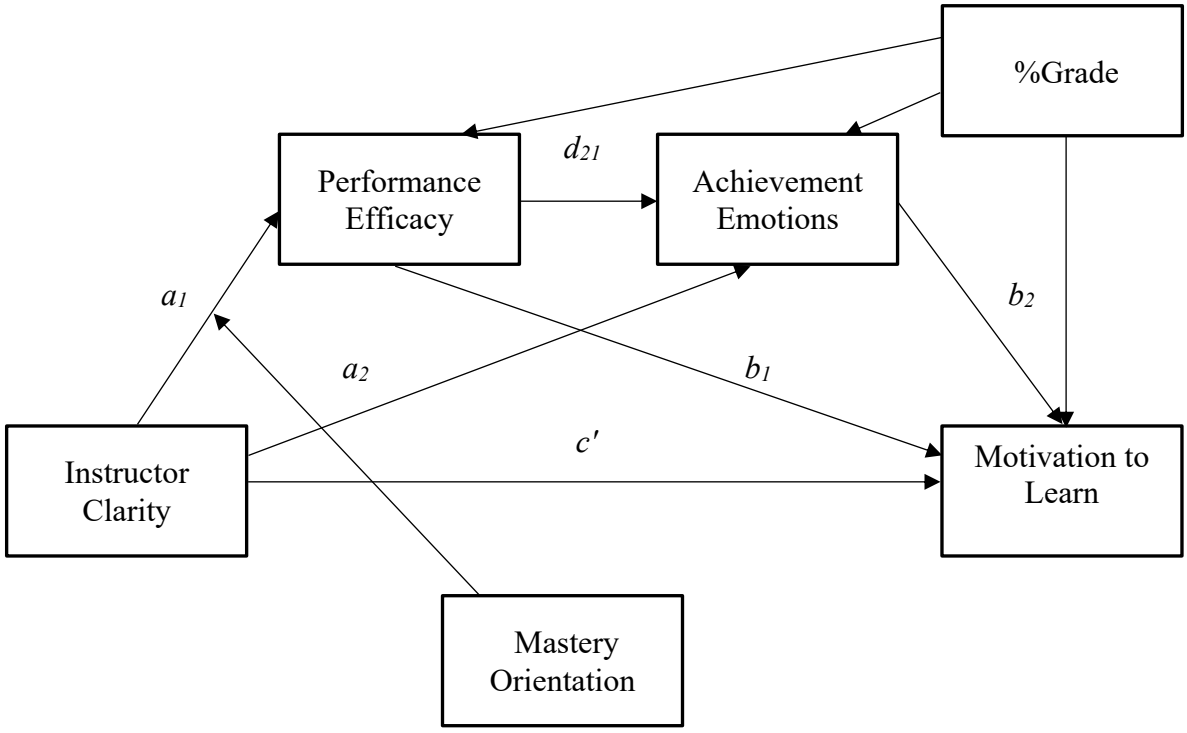
Importantly, consistent with the predictions of the control-value theory, self-efficacy beliefs have been associated with students' achievement emotions. For example, enjoyment and hope have the strongest positive associations with appraisals of control, while anxiety, boredom, and hopelessness have stronger negative associations with control (Pekrun et al., 2011). Additionally, students' beliefs about their abilities positively predict their enjoyment (Forsblom et al., 2022) and hope (Shao et al., 2020). Conversely, when students feel more efficacious and in control of their abilities to perform well in their classes, they experience fewer negative emotions, including boredom (Bieg et al., 2013; Respondek, 2017), anxiety (Held & Hasher, 2022; Roos et al., 2021) and hopelessness (Burić & Sorić, 2012). As evidenced by this research, student perceptions of self-efficacy represent a vital control appraisal that is influential to the types of emotions they experience in academic settings, which is consistent with the assumptions of the control-value theory (Pekrun, 2006).

Research has identified the benefits of quality instruction on student appraisals and emotions. For example, Sanchez-Rosas and Esquivel (2016) found that high-quality instruction is a positive predictor of self-efficacy, which leads to a decline in boredom in university courses. Moreover, instructional communication has already shown the indirect effects of instructor clarity on the positive achievement emotions of enjoyment and hope (Titsworth et al., 2013) and the negative feelings of boredom, anxiety, and hopelessness (Mazer et al., 2014) through students' perceptions of emotional support and emotion work in their college classes. Well-organized and clear lectures encourage students to take more detailed notes (Titsworth, 2001; 2004) and organize information more effectively when instructors use signaling behaviors

to guide the lecture (Bolkan, 2017b). Additionally, clear instruction motivates students to process the content they are learning deeply (Bolkan et al., 2016) and more thoroughly because of reductions in the cognitive load they experience in their courses (Bolkan, 2016). As a result of this high-quality instruction allowing students to organize and process course material effectively, they should feel confident about their abilities to do well in their classes (Sanchez-Rosas & Esquivel, 2016) because they are doing things to help them be successful, such as studying more effectively (Prat-Sala & Redford, 2010), and feel empowered because they understand the material (Finn & Schrodt, 2012) which in turn should influence the types of achievement emotions they feel. As a result, clear instruction helps students to feel more efficacious in their abilities to perform well in their classes because clear and well-structured lectures "likely benefit students' competencies and interests, thus positively affecting their appraisals and emotions." (Pekrun et al., 2007, p. 31), according to CVTAE. Because students are positively appraising their perceptions of control as a result of the clear instruction, they will enjoy course-related activities and feel hopeful that they will be successful in their classes because positive appraisals of control promote positive achievement emotions. As a result of these positive emotions, students will be more motivated to learn in these courses, according to the predictions of CVTAE (Pekrun, 2006). Conversely, when instruction is not clear and well-structured, students will not develop individual competencies related to course material and, as a result, feel less capable of performing well in their courses (Pekrun et al., 2007). Because students negatively appraise their perceptions of control, they will experience boredom related to course-related activities and anxiety and hopelessness related to failing their classes because negative appraisals cause negative achievement emotions. As a result of these negative emotions, students feel less motivated to learn in their courses (Pekrun, 2006).

Figure 4

Conceptual Conditional Process Model with the Effect of Instructor Clarity on Motivation to Learn Mediated by Performance Efficacy and Achievement Emotions Moderated by Mastery Orientation



Note. Achievement emotions included enjoyment, hope, anxiety, hopelessness, and boredom.

Additionally, instructional communication scholars have argued that student characteristics and instructor behaviors should be tested together, as teacher and student behaviors often interact in the classroom (Goodboy, 2017). According to CVTAE, mastery orientation is an important individual determinant of student appraisals because it encourages students to focus on learning-related goals to help them master the material, thus influencing their perceptions of control and value (Pekrun, 2006; Pekrun & Maier, 2009) by encouraging them to consider factors related to their perceptions of control and value, or situational factors

that can help them achieve their learning-related goals (Dweck & Leggett, 1998). Mastery-oriented students want to learn material for the sake of learning, with the goal of personal development and acquiring new knowledge or skills (Ames, 1984; Dweck, 1986). Because these students enjoy learning and are focused on personal development, they benefit students in academic domains. Mastery-oriented students, for example, spend more time on academic tasks (Fisher & Ford, 1998) and are more interested in the course material (Harackiewicz et al., 2000). Mastery goals also stimulate deep learning of course material (Cook & Artino Jr., 2016) and are positively related to academic achievement (Linnenbrick-Garcia et al., 2008). Additionally, mastery orientation has demonstrated moderating effects in instructional communication, as Goodboy et al. (2022) found that mastery-oriented students' affect for course content and emotional interest were more strongly impacted by instructor misbehaviors. When instructors are clear and students process content more deeply (Bolkan et al., 2016), mastery-oriented students will remain committed to learning the course material because they will be able to see how they can acquire new knowledge for their personal growth (Ames, 1992; Dweck, 1986; Elliot, 1999). When mastery-oriented students are committed to learning-related outcomes (Pekrun, 2006) and committed to processing course content even more deeply to aid in personal growth and development (Cook & Artino Jr., 2016), they will feel even more efficacious in their classes because they have developed personal competencies to help them succeed (Pekrun et al., 2007). These positive control appraisals have occurred because these types of students have considered how the instructors' behavior can help them achieve the learning-related goal that they have focused their attention on, will cause mastery-oriented students to experience enjoyment and hope in their classes and, ultimately, more motivation to learn because positive emotions promote motivation (Dweck & Leggett, 1998; Pekrun, 2006; Pekrun & Maier, 2009).

Conversely, when instructors are less clear, mastery-oriented students will struggle to feel efficacious because they are not developing personal skills, which is the core goal for these students (Ames, 1992; Dweck, 1986, Elliot, 1999). Additionally, they will not be committed to deep learning and processing course material due to unclear instruction (Bolkan et al., 2016; Cook & Artino Jr., 2016). As a result, mastery-oriented students will have a hard time focusing their attention on learning-related cognition as a result of the instructors' behavior, according to CVTAE (Pekrun, 2006; Pekrun et al., 2007), and such, feel less control over their ability to learn the material. As a result of the negative appraisals of control, they will feel more anxiety, boredom, and hopelessness in their classes, resulting in less motivation to learn the material (Pekrun, 2006). Based on this body of research, the first hypothesis is advanced:

H1a: Instructor clarity will predict student motivation to learn through positive appraisals of performance efficacy and, in turn, enjoyment, and hope.

H1b: The serial indirect effect of instructor clarity on motivation to learn through performance efficacy and positive emotions will be stronger for mastery-oriented students.

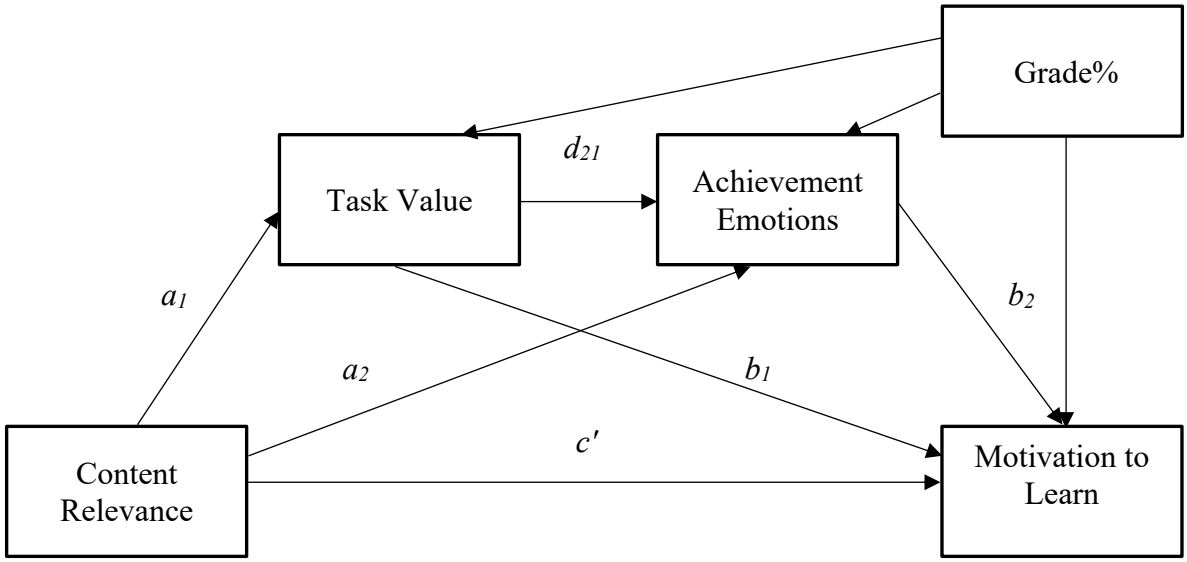
H1c: Instructor clarity will predict student motivation to learn through negative appraisals of performance efficacy and, in turn, anxiety, boredom, and hopelessness.

H1d: The serial indirect effect of instructor clarity on motivation to learn through performance efficacy and negative emotions will be stronger for mastery-oriented students.

Hypothesis 2: Content Relevance, Value Appraisals, Achievement Emotions, and Motivation

Figure 5

Conceptual Serial Mediation Model with the Effect of Content Relevance on Motivation to Learn Mediated by Task Value and Achievement Emotions



Note. Achievement emotions included enjoyment, hope, anxiety, hopelessness, and boredom.

Along with control appraisals, CVTAE also argues that appraisals of subjective value are essential determinants of achievement emotions and that these appraisals of value are influenced by quality instruction in the learning environment (Pekrun, 2006). According to the theory, these value appraisals are based on students' judgments of the value associated with course-related activities and outcomes (Pekrun, 2006). The subjective value will be operationalized here as task value, which broadly refers to the incentive to engage with and participate in course-related activities (Wigfield & Eccles, 1992). Task value consists of four significant components related to value judgments of course activities, including attainment value (i.e., how the task relates to individual identity), intrinsic value (i.e., how the task relates to personal enjoyment), utility value (i.e., how much course content relates to goals), and cost (i.e., perceptions of the task versus

competing tasks; Wigfield & Eccles, 2001). Perceptions of task value have several educational benefits for students, including increased class participation (Vanslambrouck et al., 2018) and increases in both interest (Harackiewicz & Hulleman, 2010) and academic performance in college classes (Hulleman et al., 2008). As this research suggests, perceptions of task value play an important role in student achievement and other essential learning outcomes.

Beyond the benefits of task value for achievement and other academic outcomes, perceptions of task value are essential determinants of the specific achievement emotions that students experience, as stated in CVTAE (Pekrun, 2006). For example, when students perceive there is a value associated with academic tasks and outcomes, they will experience more positively valenced emotions, such as hope when they expect to be successful in their courses (Berweger et al., 2022) and enjoyment of class-related activities (Artino et al., 2010). Conversely, when students do not think their course-related tasks or outcomes have any value to them, they will experience higher levels of negatively valenced emotions, including boredom with class-related activities (Bieg et al., 2013; Putwain et al., 2018), anxiety over the semester (Held & Hascher, 2022; Perry, 2001) and hopelessness (Peixoto et al., 2017), which both occur when students anticipate failure as the central outcome of course-related activities. These results, coupled with the predictions of the control-value theory, and the strong correlations associated with value appraisals for these five emotions in particular (Pekrun et al., 2011), demonstrate that the amount of value that students place on academic tasks and outcomes is a crucial element to determining the types of achievement emotions that students experience as part of their academic lives.

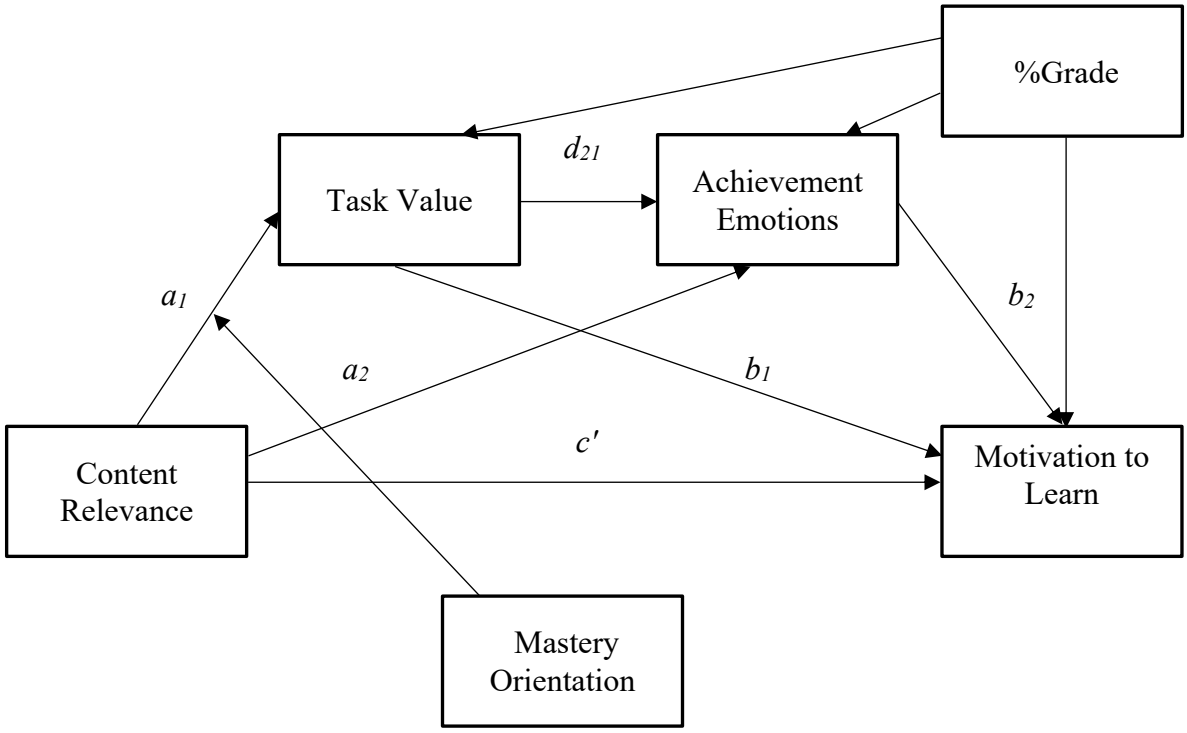
CVTAE argues that effective shaping of the educational environment can impact achievement-related emotions by influencing students' appraisals of subjective value (Pekrun et

al., 2007). The instructor could create the learning environment through rhetorical communication behaviors, such as content relevance, to promote high-quality instruction and effective instructional messaging (Mottet et al., 2006). Students' perceptions of content relevance are crucial for creating value judgments about course material, including how the material they learn has value for achieving specific goals related to their courses or future careers (Keller, 1983). More specifically, when instructors make the course content relevant to students' goals, they will be better able to see the value of that material in everyday life (Acee et al., 2018), internalize what they learn in their courses (Vansteenkiste et al., 2018) and they will participate more in those courses (Vanslambrouck et al., 2018), which should help students effectively visualize the ways that what they learn in class can help them successfully attain their goals. Moreover, Knoster and Goodboy (2021) found in their live lecture experiment that perceptions of students' task value increased when instructors made the content relevant to student goals, demonstrating the students' judgments about engaging with the course material are more positive when they view that material as critical to achieving their goals.

CVTAE asserts that students' perceptions of value are related to how important academic activities and outcomes (i.e., success and failure) are to them and that the design of the learning environment plays an essential role in students' judgments of this subjective value (Pekrun, 2006). According to CVTAE, then, when instructors take the time to make course content relevant by "matching student tasks to student needs" (Pekrun et al., 2007, p. 31), they can encourage students to value the learning material (Pekrun et al., 2007) because students will believe that engaging with course material is important to helping them achieve their personal goals (Keller, 1983). As a result of these positive appraisals of value, students will enjoy their course-related activities and feel hopeful they will succeed because positive value appraisals

Figure 6

Conceptual Conditional Process Model with the Effect of Content Relevance on Motivation to Learn Mediated by Task Value and Achievement Emotions Moderated by Mastery Orientation



Note. Achievement emotions included enjoyment, hope, anxiety, hopelessness, and boredom.

promote positive achievement emotions (Pekrun, 2006) and, as a result, feel more motivated to learn that material. Conversely, when course content or tasks are not relevant and, therefore, do not match students' needs (Pekrun et al., 2007), students will not see the value in engaging with course material because they cannot see how the course content can help them achieve their goals (Keller, 1983). When students experience these negative value appraisals, it will cause them to feel bored with academic tasks and anxious or hopeless because they do not believe they will succeed. This will occur because negative appraisals lead to negative achievement emotions,

according to the assumptions of CVTAE (Pekrun, 2006). As a result of those negative emotions, students will be less motivated to learn in their courses.

Mastery orientation will again be an individual difference that influences student cognition by encouraging a focus on learning-related outcomes (Pekrun, 2006). Importantly, mastery orientation is consistently positively associated with interest in the course material (Harackiewicz et al., 1997; Harackiewicz et al., 2001; Harackiewicz et al., 2008). As such, when instructors make content relevant to student goals, mastery-oriented students will see the value in what they are doing because they will be more interested in seeing how the material can help their personal development (Ames, 1992) and remain interested in that course material (Harackiewicz et al., 2001). According to CVTAE, be able to focus their attention on learning-related outcomes (Pekrun, 2006) because these students remain interested in the material and see its value for their personal development, they should experience positive emotions and, ultimately, more motivation to learn (Pekrun, 2006). Conversely, when instructors do not make content relevant to student needs, mastery-oriented students, in particular, may struggle to see the importance of course material for their personal development and growth because they may lose interest in it (Harackiewicz et al., 2001). As a result, according to CVTAE, this will result in lower evaluations of task value because they will be unable to focus their attention on learning-related cognitions related to the subjective value of the material, causing them to experience more negative emotions and, ultimately, less motivation to learn (Pekrun, 2006; Pekrun & Maier, 2009). Based on this research, a second hypothesis is advanced:

H2a: Content relevance will predict motivation to learn through positive appraisals of task value, which will predict enjoyment and hope.

H2b: The serial indirect effect of content relevance on motivation to learn through task value and positive emotions will be stronger for mastery-oriented students.

H2c: Content relevance will predict motivation to learn through negative appraisals of task value, which will predict boredom, anxiety, and hopelessness.

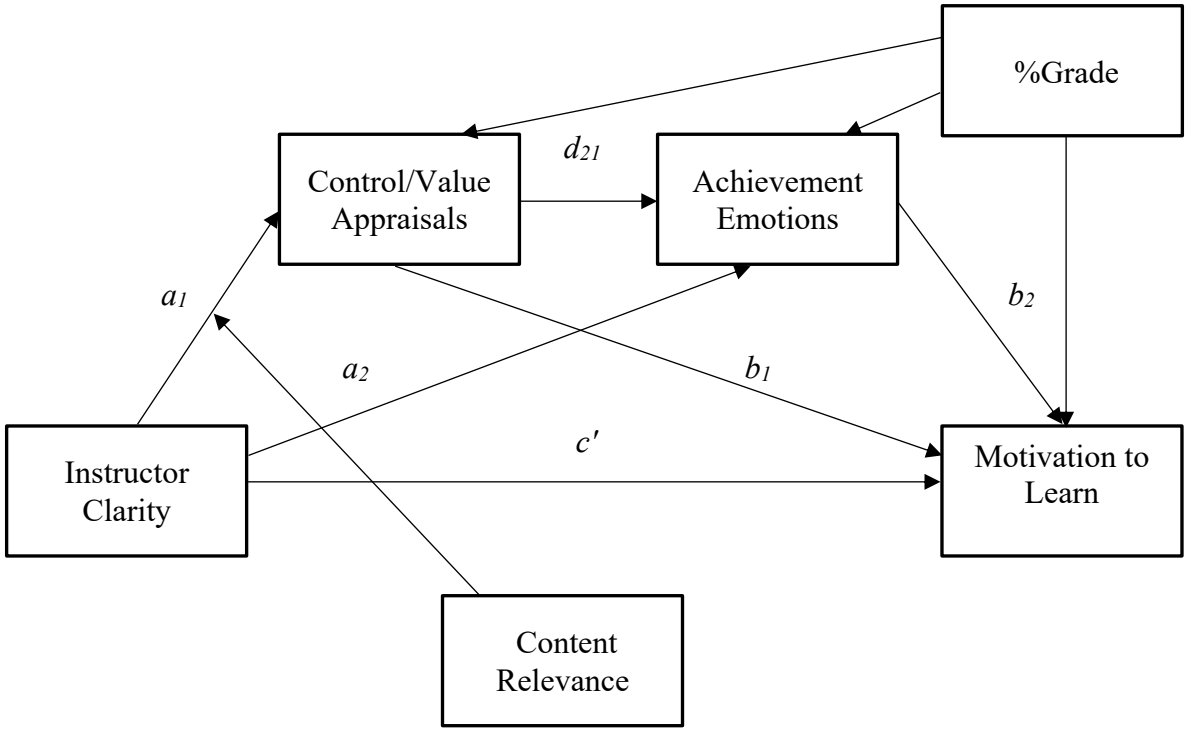
H2d: The serial indirect effect of content relevance on motivation to learn through task value and negative motions will be stronger for mastery-oriented students.

Research Question 1

Finally, the effects of instructor clarity on achievement emotions through appraisals of performance efficacy and task value may also depend on how relevant course instruction is to students' goals (i.e., an instructor clarity x relevance interaction). While the benefits of clear instruction have been well documented in instructional communication research, it is possible that the effects of teacher clarity on students' appraisals of control and value could be enhanced when instructors use content relevance to promote effective instruction. CVTAE argues that the educational environment influences students' achievement emotions by directly influencing their control and value appraisals (Pekrun, 2006). More specifically, quality instruction, mainly when well-structured and engaging instruction, can encourage appraisals of controllability and value related to academic tasks and outcomes because students feel more competent (Pekrun et al., 2007). Instructional communication research has demonstrated that when instructors are clear and lectures are well-structured, students benefit because they enact behaviors that help improve their competence, such as deeply processing course material, taking more organized notes, and feeling empowered in their learning (Bolkan et., 2016; Finn & Schrodt, 2012; Titsworth, 2004).

Figure 7

Conceptual Conditional Process Model with the Effect of Instructor Clarity on Motivation to Learn Mediated by Control and Value Appraisals and Achievement Emotions Moderated by Content Relevance



Note. Appraisals tested included performance efficacy and task value. Emotions tested included enjoyment, hope, anxiety, hopelessness, and boredom.

As a result, clarity will positively influence students' appraisals and, in turn, their emotions and motivation, according to CVTAE (Pekrun et al., 2007). The theory also suggests that matching lecture material or academic tasks to students' needs promotes positive appraisals (Pekrun et al., 2007). Instructors can work to do this by ensuring the course content is relevant to students' needs. When content is relevant to their needs, students create personal connections with course material because they judge how it can be valuable to them personally and as a way to meet their

future goals (Keller, 1983). Content relevance helps students see the value of engaging with course material (Knoster & Goodboy, 2021) and could also improve their understanding of that material, according to CVTAE (Pekrun et al., 2007). As a result, as the relevance of course content increases, the benefits of clear, well-structured instruction on student appraisals of performance efficacy and task value might be enhanced because students are not only understanding the material by developing their competence, which could help them feel more efficacious in their classes and see the value in their learning, but they are also making personal connections to course material and activities because they match their specific needs, consistent with assumptions of CVTAE (Pekrun et al., 2007). As a result of these enhanced positive appraisals, students will experience more enjoyment of course-related activities and feel even more hopeful that they can succeed in their classes. As a result, they will have even more motivation to learn (Pekrun, 2000; Pekrun, 2006).

In addition to enhancing the benefits of clear instruction on positive emotions when content is relevant, content relevance could buffer students from the detrimental effects of lower-clarity instruction. CVTAE argues that matching content to students' needs directly influences students' appraisals by promoting individual competence and inducing value surrounding academics (Pekrun et al., 2007). When course content is relevant to students' needs, they can better see how they can use what they learn in their everyday lives (Acee et al., 2018) and see the value of engaging with their academic tasks (Knoster & Goodboy, 2021). When course content is relevant to (i.e., matches) students' needs, CVTAE argues that students will still perceive some controllability over their learning and value associated with academic tasks (Pekrun et al., 2007). Matching content to students' needs still provides students with opportunities for success by allowing students to exercise responsibility and be actively involved in their learning (Keller,

1987b). According to CTVAE (Pekrun, 2006), because students are still engaged with the material when it matches their needs, they might still develop some competence in that material, which could compensate for average levels of clarity in the instruction which, on its own, would hinder students abilities to develop that competence (Pekrun et al., 2007). As content relevance increases, students may still feel some control over their academics and value what they are learning, which might occur despite average or low clarity in the instruction. As a result of potential buffering effects, students may experience less boredom, anxiety, and hopelessness related to their academic tasks and outcomes and, ultimately, fewer declines in their motivation to learn (Pekrun, 2000; Pekrun, 2006). Based on this body of research, one research question is advanced:

> **RQ1:** How will the serial indirect effect of content relevance on motivation to learn through performance efficacy, task value, and achievement emotions be impacted by content relevance?

Summary

This chapter reviewed the central tenets of the control-value theory of achievement emotions and current research on five achievement emotions, including enjoyment, hope, boredom, hopelessness, and anxiety. The chapter also reviewed the scholarship on the benefits of instructor clarity and relevance strategies for students. Hypothesis one predicted that instructor clarity would positively predict students' feelings of enjoyment and hope through increases in their appraisals of self-efficacy for learning and performance and that clarity would negatively predict anxiety, hopelessness, and boredom through declines in their perceptions of self-efficacy. Hypothesis two predicted that content relevance would positively predict enjoyment and hope through increases in task value and would negatively predict anxiety, boredom, and hopelessness

through declines in student perceptions of task value. Finally, one research question inquired about how the effects of instructor clarity on student achievement emotions through appraisals of both performance efficacy and task value might differ when course content is relevant to students' goals.

CHAPTER II

Methodology

Participants

Participants for this project were undergraduate students, and data was collected from three universities in the Mid-Atlantic, Southeast, and Western United States. To be eligible to participate in the study, participants must have been 18 years or older and enrolled in at least one course at the university. That course could be in any department within the university. The sample consisted of 299 undergraduate students (108 men, 188 women, one other, and two who chose not to disclose) who reported on 123 different courses, including communication, biology, criminology, foreign language, math, and history, among others. Participants included 108 first-year students, 62 sophomores, 63 juniors, 63 seniors, and three who did not disclose their grade level. The average age of the sample was 21.8 years old (SD= 4.068), with an average GPA of 3.38 (SD= .527). The majority of the sample reported their race as White/Caucasian (n= 187), followed by African-American (n= 16), Asian (n= 37), Latino (n= 38), Pacific Islander (n= 1), mixed race (n= 14), and other (n= 6).

Participants for this project were recruited using convenience sampling procedures. After obtaining approval from West Virginia University's Institutional Review Board (IRB), paper and virtual announcements were posted on the Department of Communication Studies' research boards and WVU's weekly Survey Tuesday email (See Appendix B). The researcher completed in-person recruitment in communication studies courses using an IRB-approved recruitment script (See Appendix A). Additionally, the researcher utilized network sampling procedures to find participants. Each announcement included information about the study's purpose, the criteria for participation, researcher contact information, and a link to participate in the Qualtrics

online survey in line with the department's IRB-approved recruiting procedures. Participants in this study received minimal extra credit in their communication courses for their participation.

Procedure

Data collection occurred from week six through week twelve of the spring semester. The first page of the survey included an IRB-approved cover letter that participants were to read before they completed the survey, which outlined the study's goals and their rights as participants (See Appendix C). The first part of the survey asked students to report the name and number of the first class they attend during the week. This was done to obtain variability in the types of courses students report on. They reported on this class for the study's duration. Additionally, they were asked to report their grade as a percentage, whether their class was required for their major, and whether or not they had taken a previous class with the instructor.

The next portion of the survey contained the instruments for measuring the study variables, including the structure items from the clarity indicators scale (CIS; Bolkan, 2017a), the content relevance scale (Frymier & Shulman, 1995), the subscales of self-efficacy for learning and performance and task value from the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich et al., 1991), the Achievement Emotions Questionnaire-Short Form (Bieleke et al., 2021) to measure students enjoyment, hope, anxiety, boredom, and hopelessness, motivation to learn (Goldman et al., 2017), and their mastery orientation (Harackiewicz et al., 2000). After completing the survey instruments, participants reported demographic information for the last portion of the primary survey (See Appendix D). After students completed the primary survey, they were directed to a separate survey to enter their information if they were seeking extra credit and be thanked for participating in the project. To maintain student confidentiality, students' answers on this extra credit survey were not connected to their answers on the primary survey.

Instrumentation

Scale reliability was tested using the SPSS Omega Macro (Hayes & Coutts, 2020), specifically with Hancock and An's (2020) closed-form Omega with 95% confidence intervals from 5,000 bootstrap samples. Coefficient omega was estimated over Cronbach's alpha as the test of scale reliability because it provides a test that is more closely aligned with the definition of reliability posed in classical test theory and, as a result, provides a more precise assessment of the reliability for the measures (Goodboy & Martin, 2020; Hayes & Coutts, 2020).

Clarity

The structure subscale from Bolkan's (2017) Clarity Indicators Scale (CIS) measured instructors' clarity behaviors. Of the subscales, this one was selected due to organizational clarity's benefits for students (Titsworth, 2004) and CVTAE's assumption that well-structured instruction enhances student perceptions of control (Pekrun et al., 2007). This subscale consisted of four items measured on a seven-point Likert scale. Responses on this measure will range from (1) *strongly agree* to (7) *strongly disagree*. Sample items from this measure include "My teacher's lectures are well organized" and "My teacher makes class material easier to learn by teaching us one step at a time." Composite reliability (ω) for this measure was .946, CI [.928, .961], M= 2.316, SD= 1.262). All items for this measure were reverse-coded.

Relevance

Frymier and Shulman's (1995) content relevance scale was used to assess content relevance in this dissertation (Appendix F). This measure consists of 12 items that will be measured on a five-point Likert-type scale. Responses will range from (1) *never* to (5) *very often*. Sample items from this measure include "Uses examples to make the content relevant to

me" and "Uses own experiences to introduce or demonstrate a concept." Composite reliability (ω) for this measure was .944, CI [.929, .955], M= 3.955, SD= .855).

Self-Efficacy for Learning and Performance

The self-efficacy for learning and performance subscale from the Motivated Strategies for Learning Questionnaire (MSLQ) was to operationalize students' control appraisals (Appendix G). This measure consisted of eight items that assess students' judgments of their ability to perform well in their courses. Items on this measure were measured on a 7-point Likert-type scale, with responses ranging from (1) *not at all true of me* to (7) *very true of me.* Sample items from this measure include "I am confident I can understand the most complex material presented by the instructor" and "I am certain I can master the skills being taught in this class." Composite reliability (ω) for this measure was .950, CI [.936, .961], M= 5.405, SD= 1.277).

Task Value

The Motivated Strategies for Learning Questionnaire (MSLQ) task value subscale operationalized students' value appraisals (Appendix H). This measure contained six items to assess students' value judgments on their coursework. Items were measured on a 7-point Likert-type scale with responses ranging from (1) *not at all true of me* to (7) *very true of me.* Sample items from this measure include "I think the course material in this course is useful for me to learn" and "Understanding the subject matter of this course is very important to me." Composite reliability (ω) for this measure was .942, CI [.927, .954], (M= 5.422, SD= 1.444)

The Achievement Emotions Questionnaire-Short Form

To measure class-related achievement emotions (i.e., enjoyment, hope, anxiety, boredom, hopelessness), Bieleke et al.'s (2021) short form of the achievement emotions questionnaire was used (Appendix I). This study included 20 items from the measure, four for each achievement

emotion. Responses were measured on a five-point Likert scale, ranging from (1) *strongly disagree* to (5) *strongly agree.* A sample item for enjoyment is "I enjoy being in this class." A sample item for hope is "I am confident when I go to class." A sample item for anxiety is "Even before class, I worry whether I will be able to understand the material." A sample item for boredom is "I get bored." A sample item for hopelessness is "I have lost all hope in understanding this class." Composite reliability (ω) was: .930, CI [.915, .943], M= 3.612, SD= 1.111 for enjoyment, .886, CI [.827, .896], M= 3.787, SD= .889 for hope, .887, CI [.848, .901], M= 2.293, SD= 1.129 for anxiety, .923, CI [.895, .945], M= 1.832 SD= 1.003 for hopelessness, and .936, CI [.917, .951], M= 2.979, SD= 1.216 for boredom.

Motivation to Learn

To measure motivation to learn, Goldman et al.'s (2017) Intrinsic Motivation to Learn Scale was used (Appendix J). This measure consisted of eight items measured on a **7-**point Likert-type scale. Responses ranged from strongly disagree (1) and strongly agree (7). Sample items from this measure include "Learning new concepts in this class is fulfilling to me". Composite reliability (ω) for this measure was .895, CI [.870, .923], M=5.224, SD=1.185).

Mastery Orientation

To measure mastery orientation, Harackiewicz et al.'s (2000) items for mastery goal orientation were used (Appendix K). This measure consisted of six items measured on a 7-point Likert Type scale. Responses ranged from "not at all true of me" (1) and very true of me (7). Sample items from this measure included "The most important thing for me in this course is trying to understand the content as thoroughly as possible" and "I like it best when something I learn makes me want to find out more." Composite reliability (ω) for this measure was .912, CI [.890, .930], M=5.531, SD=1.229).

Data Analysis

Hypotheses 1a, 1c, 2a, and 2c were tested using serial multiple mediator models. Serial mediation occurs when multiple mediators create a causal chain, which must have a specified direction in which the events occur (Hayes, 2022). Baron and Kenny (1986) note that a variable is considered a mediator when a third variable is a mechanism that causes the relationship between the independent and dependent variables. In other words, the use of a serial multiple mediation model allows for a test of the causal sequence of instructor behaviors (i.e., instructor clarity and content relevance) on students' motivation to learn indirectly through student appraisals of control and value (i.e., self-efficacy for learning and performance and task value) and student achievement emotions as proposed in the control-value theory of achievement emotions (Pekrun, 2006). This type of mediation model satisfies the propositions according to the theory and allows for the estimation of the processes that validate CVTAE (Preacher & Hayes, 2004).

When interpreting serial mediation analysis, researchers estimate multiple types of effects. First, the *total effect* refers to the relationship between the independent variable (X) and the dependent variable (Y). Additionally, the *direct effect* refers to the effects of the independent variable on the dependent variable when statistically controlling for the mediator. However, most importantly, researchers evaluate the *indirect effect,* which estimates the influence of the independent variable on the dependent variable caused by the mediators (Hayes, 2022). The indirect effects of serial mediation are assessed by examining the relationships between the independent variable (X) on the dependent variable (Y) through only the first mediator (M_1), only the second mediator (M_2), and the effect of both mediators, which combine to create a total

indirect effect (Hayes, 2022). Hayes' (2022) PROCESS Macro version 4.1 for SPSS Version 28 was used to estimate these serial mediation models (Model 6). In PROCESS, the indirect effect was tested using 95% percentile confidence intervals with 10,000 bootstrap samples, and the effect size was reported using the completely standardized indirect effect (Hayes, 2022). In these serial mediation models, students' grades reported as a percentage were used as a covariate in the analysis on each of the paths.

Hypotheses 1b, 1d, 2b, 2d, and the research question were tested using conditional process analysis (i.e., moderated mediation). According to Hayes and Rockwall (2021), conditional process analysis is used to "examine the extent to which the mechanism(s) to which the mechanism(s) by which the effect operates depends on or varies across situation, context, stimulus, or individual differences." (p. 20). These hypotheses and research questions are concerned with *first-stage moderated mediation,* which refers to situations where the relationship between the independent variable (X) and the mediator (M) is dependent upon a moderator (W). The conditional process analysis was conducted using Hayes's (2022) PROCESS Macro version 4.1 for SPSS version 28 (Model 83). In the analysis, mastery orientation served as the first-stage moderator for testing the hypotheses, while content relevance served as the moderator for the *a* path (i.e., instructor clarity to the appraisals of control and value) when testing the research question. Students' grades as a percentage was included as a covariate in these analyses on each path. The conditional effects of content relevance on students' achievement, emotions, and motivation were assessed using the index of moderated mediation, which serves as the formal statistical test for moderated mediation (Hayes, 2015). Hayes (2015) states that the bootstrap confidence interval should not include zero to determine if there is evidence for moderated mediation. When the confidence interval excludes zero, there is

evidence that the indirect effects are moderated. If the confidence interval for the index of moderation mediation does not include zero, it is essential to probe the moderation further to examine the conditional indirect effects. To do this, the pick-a-point procedure is used. This procedure allows researchers to see the conditional indirect effects at three levels of the moderator (specifically the 16^{th}, 50^{th}, and 84^{th} percentiles) and evaluate the bootstrap confidence intervals at each level. Hayes (2022) notes that when a confidence interval does not include zero, there is evidence of mediation at these levels of the moderator.

Summary

This chapter provided an overview of the methodological procedures for completing this dissertation. First, this chapter outlined the requirements for eligibility to participate in this study and the researcher's recruitment procedures. This chapter also provided the procedures that students followed to participate in the study and the methods for compensating students with minimal extra credit for their participation. Additionally, this chapter summarized the measures used to operationalize the study's variables. Finally, this chapter outlined the data analysis procedures that the researcher used to test the study hypotheses and evaluate the research questions.

CHAPTER III

Results

Intercorrelations for the study's variables can be found in Table 1. This table includes means, standard deviations, and coefficient omega reliabilities from 5,000 bootstrap samples for each study measure. For all analyses, each achievement emotion was tested individually. All analyses were run using 10,000 bootstrap samples and confidence intervals, and students' grade as a percentage was entered into the analyses as a covariate predicting each path.

Hypothesis Testing

Hypothesis 1

Hypothesis 1 predicted that instructor clarity would lead to positive appraisals of performance efficacy, leading to increases in enjoyment and hope, ultimately resulting in increased motivation to learn. This hypothesis was tested using Hayes' (2022) PROCESS Macro version 4.1 for SPSS (Model 6), with enjoyment and hope as serial mediators. As can be seen in Table 2, when instructors were clear, students experienced increases in performance efficacy (a_1 =.221), which in turn, positively predicted enjoyment (d_{21}= .327), which made students more motivated to learn (b_2=.768). The bootstrap confidence interval for the serial indirect effect did not include zero ($a_1d_{21}b_2$ = .055, CI [.026, .091]). There was no evidence that clarity directly influenced motivation to learn when controlling for performance efficacy and enjoyment (c' = -.053, p=.144), nor was there evidence for a simple indirect effect for clarity on motivation through performance efficacy (a_1b_2= -.000, CI [-.036, .035]). There was evidence, however, for a simple indirect effect of clarity on motivation to learn through enjoyment (a_2b_2= .082, CI [.039, .136]).

Table 1. Intercorrelations, Means, Standard Deviations, and Reliability Estimates for All Study Variables

Variable	*M*	*SD*	*ω*	1	2	3	4	5	6	7	8	9	10
1. Instructor Clarity	2.316	1.262	.946	—									
2. Content Relevance	3.955	.855	.944	.449**	—								
3. Performance Efficacy	5.405	1.277	.950	.291**	.439**	—							
4. Task Value	5.422	1.444	.942	.371**	.543**	.453**	—						
5. Enjoyment	3.612	1.111	.930	.513**	.632**	.464**	.732	—					
6. Hope	3.787	.889	.886	.371**	.570**	.640**	.529**	.730**	—				
7. Anxiety	2.293	1.129	.887	-.191**	-.165**	-.349**	-.089	-.175**	-376**.	—			
8. Boredom	2.979	1.216	.936	-.500**	-.520**	-.362**	-.559**	-.701**	-535**.	.349**	—		
9. Hopelessness	1.832	1.003	.923	-.331**	-.225**	-.427**	-.227**	-.321**	.446**	.570**	.472**	—	
10. Motivation to Learn	5.224	1.185	.895	.317**	.476**	.368**	.702**	.705**	.583**	-.198**	-.625**·	-.322**	—
11.Mastery Orientation	5.531	1.229	.912	.240**	.439**	.435**	.798**	716**	.567**	-.074	.-.505**	-.214**	.709**

** $p < .001$

Table 2. Serial Multiple Mediator Model Predicting Motivation with Clarity and Positive Emotions

Antecedent	Consequent								
	M_1 (Performance Efficacy)			M_2 (Enjoyment)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*p*
Clarity (X)	.221	.044	<.001	.288	.034	<.001	- .053	.036	.144
Performance Efficacy (M_1)	——	——	——	.327	.044	<.001	.047	.046	.309
Enjoyment (M_2)	——	——	——	——	——	——	.767	.058	<.001
Grade % (*U*)	.008	.003	.006	.000	.002	.867	-.003	.002	.165
Constant	3.458	.351	<.001	2.458	.317	<.001	2.756	.284	<.001
	R^2 = .117 *F* (2, 272)=17.924, *p*<.001			R^2 = .511, *F*(3, 271)=62.256, *p*<.001			R^2 = .520, *F*(4, 270)= 70.789, *p*<.001		
	M_1 (Performance Efficacy)			M_2 (Hope)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*p*
Clarity (X)	.220	.044	<.001	.121	.025	<.001	.089	.039	.025
Performance Efficacy (M_1)	——	——	——	.444	.032	<.001	-.006	.064	.992
Hope (M_2)	——	——	——	——	——	——	.678	.093	<.001
Grade % (*U*)	.008	.003	.006	-.001	.003	.998	.000	.003	.998
Constant	3.464	.351	<.001	1.018	.217	<.001	2.866	.400	<.001
	R^2 = .115, *F*(2, 271)=17.681, *p*<.001			R^2 = .507, *F*(3, 270)=92.633, *p*<.001			R^2 = .332, *F*(4, 269)= 33.420, *p*<.001		

The results also revealed that when instructors were clear, students experienced positive appraisals of performance efficacy (a_1 = .220), which in turn positively predicted hope (d_{21}=.444), ultimately leading to increased motivation to learn (b_2= .678). Again, the bootstrap confidence interval for the serial indirect effect ($a_1d_{21}b_2$ = .066 CI [-.109, -.031]) did not include zero. Additionally, there is evidence that clarity directly influenced motivation to learn when controlling for performance efficacy and hope (c' = .089, p= .025). There were also significant simple indirect effects of clarity on motivation to learn through hope (a_2b_2= .082, CI [.039, .136]). However, there was no evidence of a simple indirect effect of clarity on motivation to learn through performance efficacy (a_1b_2= -.000, CI [-.036, .035].

Table 3. OLS path coefficients: First Stage for Clarity Moderated by Mastery Orientation

	Coefficient								
	M_1 (Performance Efficacy)			M_2 (Enjoyment)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*p*
Clarity (X)	-.167	.189	.375	.288	.034	<.001	- .053	.036	.144
Mastery Orientation (W)	.114	.108	.525	—	—	—	—	—	—
M_1 (Performance Efficacy)	—	—	—	.327	.044	<.001	.047	.046	.309
M_2 (Enjoyment)	—	—	—	—	—	—	.768	.058	<.001
Clarity X MO	.056	.033	.092	—	—	—	—	—	—
Grade % (*U*)	.007	.003	.017	.000	.002	.867	-.003	.002	.165
Constant	3.401	1.026	.001	.155	.297	.601	2.756	.284	<.001
	R^2 = .267, F(4, 270)=24.537, p<.001			R^2 = .408, F(3, 271)=62.256, p<.001			R^2 = .512, F(4, 270)= 70.789, p<.001		
	M_1 (Performance Efficacy)			M_2 (Hope)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Clarity (X)	-.176	.189	.354	.121	.025	<.001	.089	.040	.025
Mastery Orientation (W)	.110	.180	.540	—	—	—	—	—	—
M_1 (Performance Efficacy)	—	—	—	.444	.032	<.001	-.001	.064	.992
M_2 (Hope)	—	—	—	—	—	—	.678	.093	<.001
Clarity X MO	.057	.033	.086	—	—	—	—	—	—
Grade % (*U*)	.006	.003	.019	-.004	.002	.019	.000	.002	.998
Constant	3.345	1.027	.001	1.018	.217	<.001	2.158	.345	<.001
	R^2 = .267, F(4, 269)=24.537, p<.001			R^2 = .507, F(3, 270)=92.633, p<.001			R^2 = .332, F(4, 269)= 33.421, p<.001		

Hypothesis 1b predicted that these mediated effects would be stronger for students with a mastery orientation. Thus, this hypothesis was concerned with moderated serial mediation. Moderated mediation was assessed using the index of moderated mediation (Hayes, 2015), and enjoyment and hope were serial mediators. The index of moderated mediation revealed no evidence of a conditional process (index of moderated mediation = .014, bootstrap CI: -.013, .036) with enjoyment in the model as a mediator. The index of moderated mediation also revealed no evidence of a conditional process (index of moderated mediation = .017 bootstrap CI:-.014, .047) with hope as a mediator. The conditional indirect effects were not probed further

due to the lack of evidence for moderated mediation. The results of this analysis can be found in Table 3.

Hypothesis 1c predicted that declines in instructor clarity would lead to negative appraisals of performance efficacy, leading to feelings of anxiety, boredom, and hopelessness, ultimately leading to declines in motivation to learn. As presented in Table 4, when instructors were clear, students experienced positive appraisals of performance efficacy (a_1=.202). These positive appraisals then negatively predicted boredom (d_{21}= -.274), ultimately negatively impacting motivation (b_2= -.564). The bootstrap confidence interval for the serial indirect effect ($a_1d_{21}b_2$ = .032 CI [.012, .055]) did not include zero, revealing evidence for serial mediation. There is no evidence that clarity directly impacted motivation to learn when controlling for performance efficacy and boredom (c' = -.020, p= .615). The results also revealed evidence of simple indirect effects of clarity on motivation to learn through performance efficacy (a_1b_2= .030, CI [.005, .064]. There is also evidence of simple indirect effects of clarity on motivation through boredom (a_2b_2= .189, CI [.012, .055]).

The serial indirect effect did not provide evidence of serial mediation for anxiety because the bootstrap confidence interval included zero ($a_1d_{21}b_2$ = .003, CI [-.005, .013]). The results also revealed no evidence of a simple indirect effect of clarity on motivation through anxiety (a_2b_2= .003, CI [-.008, .015]). However, there was evidence of a simple indirect effect for clarity on motivation through performance efficacy (a_1b_2= .062, CI [.027, .106]). There was also evidence for a direct effect of clarity on motivation when controlling for performance efficacy and anxiety (c' = .164, p < .000). Finally, the serial indirect effect did not provide evidence of serial mediation for hopelessness because the bootstrap confidence interval included zero ($a_1d_{21}b_2$ = .010, CI [-.002, .029]). There was also no evidence of a simple indirect effect of clarity on

Table 4. Serial Multiple Mediator Model Predicting Motivation with Clarity and Negative Emotions

Antecedent	Consequent								
	M_1 (Performance Efficacy)			M_2 (Anxiety)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Clarity (X)	.219	.044	<.001	-.069	.041	.095	-.164	.439	<.001
Performance Efficacy (M_1)	——	——	——	-.313	.054	<.001	.238	.057	<.001
Anxiety (M_2)	——	——	——	——	——	——	-.041	.061	.499
Grade % (*U*)	.008	.003	.006	.006	.003	.036			
Constant	3.471	.351	<.001	3.879	.365	<.001	4.363	.041	<.001
	R^2 = .115, F(2, 271)=17.546, p<.001			R^2 = .146, F(3, 270)=15.400, p<.001			R^2 = .194, F(4. 269)= 16.240, p<.001		
	M_1 (Performance Efficacy)			M_2 (Hopelessness)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Clarity (X)	.220	.044	<.001	-.119	.032	<.001	.152	.042	<.001
Performance Efficacy (M_1)	——	——	——	-.360	.042	<.001	.252	.061	<.001
Hopelessness (M_2)	——	——	——	——	——	——	-.128	.077	.099
Grade %(*U*)	.001	.002	.006	.001	.002	.510	-.002	.003	.361
Constant	3.449	.351	<.001	4.313	.286	<.001	4.646	.467	<.001
	R^2 = .116, F(2, 271)=17.799, p<.001			R^2 = .298, F(3, 270)=38.142, p<.001			R^2 = .203, F(4, 269)= 17.136, p<.001		
	M_1 (Performance Efficacy)			M_2 (Boredom)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Clarity (X)	.202	.044	<.001	.335	.039	<.001	-.020	.040	.615
Performance Efficacy (M_1)	——	——	——	-.274	.052	<.001	.151	.049	.002
Boredom (M_2)	——	——	——	——	——	——	-.564	.055	<.001
Grade % (*U*)	.008	.003	.006	.002	.002	.327	-.001	.002	.574
Constant	3.596	.349	<.001	3.487	.369	<.001	6.310	.466	<.001
	R^2 = .105, F(2, 269)=17.770, p<.001			R^2 = .339, F(3, 268)=45.848., p<.001			R^2 = .419, F(4, 267)= 48.192 p<.001		

motivation through hopelessness (a_2b_2= .015, CI [-.004, .036]). There was, however, evidence of a simple indirect effect of clarity on motivation through performance efficacy (a_1b_2= .055, CI [.020, .100]). There was also evidence of a direct effect of clarity on motivation when controlling for performance efficacy and hopelessness (c' = .152, p <. 000).

Hypothesis 1d predicted that these mediated effects would be more substantial for those with a mastery orientation. The index of moderated mediation revealed no evidence of moderated mediation (index of moderated mediation = -.0007, bootstrap CI: -.0045, .0023) with anxiety in the model. The index of moderated mediation again revealed no evidence of moderated mediation with hope as a serial mediator (index of moderated mediation = -.0026, bootstrap CI: -.0115, .0024) with hopelessness or with boredom as serial mediators (index of moderated mediation = -.0012, bootstrap CI: -.0266, .0039). The results of this conditional process analysis can be found in Table 5.

Hypothesis 2

Hypothesis 2a predicted that content relevance would positively predict motivation to learn through positive appraisals in task value, leading to enjoyment and hope and increased motivation to learn. As demonstrated in Table 6, content relevance led to positive appraisals of task value (a_1=.850), which led to enjoyment (d_{21}= .390), which ultimately caused students to be more motivated to learn (b_2= .538). The bootstrap confidence interval for the serial indirect effects did not contain zero ($a_1d_{21}b_2$= .179, CI [.111, .266]), demonstrating evidence of serial mediation. Additionally, there is evidence for simple indirect effects of relevance on motivation to learn through task value (a_1b_2= .217, CI [.118, .333] and relevance on motivation to learn through enjoyment when controlling for task value (a_2b_2= .260, CI [.163, .387]). There is no evidence that relevance directly impacts motivation to learn when controlling for task value and enjoyment (c' = -.032, p= .655). The results also show that content relevance led to positive appraisals of task value (a_1= .850), which in turn led students to feel hope (d_{21}= .401), ultimately resulting in more motivation to learn (b_2= .403). Again, the bootstrap confidence interval for the serial indirect effect did not include zero, ($a_1d_{21}b_2$= .058, CI [.025, .097]), demonstrating

Table 5. OLS path coefficients: First Stage for Clarity Moderated by Mastery Orientation

Antecedent	Consequent								
	M_1 (Performance Efficacy)			M_2 (Anxiety)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*P*	Coeff.	*SE*	*P*
Clarity (X)	-.163	.189	.389	.069	.041	.095	.164	.041	<.001
Mastery Orientation (W)	.118	.180	.513	___	___	___	___	___	___
Performance Efficacy *(M_1)*	___	___	___	-.313	.054	<.001	.283	.057	<.001
Anxiety (M_2)	___	___	___	___	___	___	-.041	.061	.499
Clarity x MO	.055	.033	.099	___	___	___	___	___	___
Grade % (*U)*	.006	.003	.018	-.313	.054	<.001			
Constant	3.388	1.027	.001	3.879	.365	<.001	3.049	.435	<.001
	R^2 = .264, F(4, 269)=24.096, p<.001			R^2 = .146, F(3, 270)=15.399, p<.001			R^2 = .194, F(4. 269)= 16.240, p<.001		
	M_1 (Performance Efficacy)			M_2 (Hopelessness)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*P*	Coeff.	*SE*	*P*
Clarity (X)	-.168	.189	.374	-.119	.032	<.001	.152	.042	<.001
Mastery Orientation (W)	.114	.180	.527	___	___	___	___	___	___
Performance Efficacy (M_1)	___	___	___	-.360	.042	<.001	.252	.061	<.001
Hopelessness *(M_2)*	___	___	___	___	___	___	-.128	.077	.099
Clarity X MO	.056	.033	.092	___	___	___	___	___	___
Grade % (*U)*	.006	.003	.017	.001	.002	.510	-.002	.002	.361
Constant	3.404	1.028	.001	4.313	.286	<.001	3.430	.490	<.001
	R^2 = .226, F(4, 269)=24.416, p<.001			R^2 = .298, F(3, 270)=38.142, p<.001			R^2 = .203, F(4, 297)= 17.136, p<.001		
	M_1 (Performance Efficacy)			M_2 (Boredom)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Clarity (X)	-.275	.189	.147	-.335	.039	<.001	-.020	.039	.615
Mastery Orientation (W)	.015	.180	.935	___	___	___	___	___	___
Performance Efficacy (M_1)	___	___	___	-.274	.052	<.001	.151	.049	.002
Boredom *(M_2)*	___	___	___	___	___	___	-.564	.055	<.001
Clarity x MO	.072	.033	.029	___	___	___	___	___	___
Grade % (*U)*	.007	.003	.018	.002	.002	.327	-.001	.002	.574
Constant	4.058	1.031	<.001	6.169	.350	<.001	6.310	.466	<.001
	R^2 = .258, F(4, 267)=25.255, p<.001			R^2 = .339, F(3, 268)=45.848, p<.001			R^2 = .419, F(4, 267)= 48.192 p<.001		

Table 6. Serial Multiple Mediator Model Predicting Motivation with Relevance and Positive Emotions

Antecedent	Consequent								
	M_1 (Task Value)			M_2 (Enjoyment)			Y (Motivation to Learn)		
	Coeff	*SE*	*P*	Coeff	*SE*	*p*	Coeff.	*SE*	*p*
Relevance (X)	.850	.088	<.001	.483	.058	<.001	-.032	.072	.655
Task Value (M_1)	——	——	——	.390	.034	<.001	.255	.047	<.001
Enjoyment (M_2)	——	——	——	——	——	——	.538	.068	<.001
Grade (*U*)	.005	.003	.131	.004	.002	.029	-.003	.002	.170
Constant	1.694	.448	<.001	-.776	.261	.003	2.251	.297	<.001
	R^2 = .260 F(2, 274)=48.111, p<.001			R^2 = .599, F(3, 273)=135.941, p<.001			R^2 = .552, F(4, 272)= 83.773, p<.001		
	M_1 (Task Value)			M_2 (Hope)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*p*
Relevance (X)	.850	.448	<.001	.445	.024	<.001	.045	.074	.544
Task Value(M_1)	——	——	——	.169	.034	<.001	.401	.064	<.001
Hope *(M_2)*	——	——	——	——	——	——	.402	.070	<.001
Grade (*U*)	.005	.003	.135	.001	.002	.659	-.001	.002	.662
Constant	1.694	.301	<.001	1.036	.262	<.001	2.866	.400	<.001
	R^2 = .260 F(2, 273)=48.000, p<001			R^2 = .347 F(3, 272)=54.177, p<.001			R^2 = .512, F(4, 271)= 71.034, p<.001		

evidence for serial mediation. The results also show evidence of simple indirect effects of relevance on motivation to learn through task value (a_1b_2= .341, CI [.222, .487] and on relevance on motivation to learn through hope (a_2b_2= .179, CI [.104, .280]), but do not provide evidence of a direct effect of relevance on motivation to learn when controlling for task value and hope (c' = .045, p= .544).

Hypothesis 2b predicted that the mediated effects would be stronger for students with a mastery orientation. The results revealed no evidence of moderated mediation (index of moderated mediation = .006, bootstrap CI: -.019, .031) when enjoyment was a serial mediator. There was also no evidence of moderated mediation when hope was a serial mediator (index of

Table 7. OLS path coefficients: First Stage for Relevance Moderated by Mastery Orientation

	Coefficient								
	M_1 (Performance Efficacy)			M_2 (Task Value)			Y (Motivation to Learn)		
	Coeff	*SE*	*P*	Coeff	*SE*	*p*	Coeff.	*SE*	*p*
Relevance (X)	.221	.283	.435	.483	.058	<.001	-.032	.072	.655
Mastery Orientation (W)	.672	.192	.001	——	——	——	——	——	——
M_1 (Task Value)	——	——	——	.390	.034	<.001	.255	.046	<.001
M_2 (Enjoyment)	——	——	——	——	——	——	.538	.068	<.001
Rel x MO	.029	.577	.846	——	——	——	——	——	—
Grade % (*U*)	.000	.002	.846	.004	.002	.029	-.003	.068	.170
Constant	.1992	1.048	.849	-.776	.261	.003	2.252	.297	.002
	R^2 = .614, F(4, 272)=108.335, p<.001			R^2 = .599, F(3, 273)=135.942, p<.001			R^2 = .552, F(4, 272)= 83.773, p<.001		
	M_1 (Task Value)			M_2 (Hope)			Y (Motivation to Learn)		
	Coeff	*SE*	*P*	Coeff	*SE*	*p*	Coeff.	*SE*	*p*
Relevance (X)	.212	.283	.454	-.121	.025	<.001	.045	.074	.544
Mastery Orientation (W)	.668	.192	.001	——	——	——	——	——	——
M_1 (Task Value)	——	——	——	.444	.032	<.001	.401	.041	<.001
M_2 (Hope)	——	——	——	——	——	——	.402	.070	<.001
Rel x MO	.030	.050	.543	——	——	——	——	——	—
Grade % (*U*)	.000	.002	.868	.001	.002	.659	-.001	.002	.662
Constant	.227	1.048	.829	1.053	.262	<.001	1.411	.313	.001
	R^2 = .616, F(4, 271)=108.707, p<.001			R^2 = .374, F(3, 272)=54.177, p<.001			R^2 = .512, F(4, 271)= 71.034, p<.001		

moderated mediation = .002, bootstrap CI: -.004, .011). The results of this conditional process analysis can be found in Table 7.

Hypothesis 2c predicted that decreases in instructor relevance would lead to negative appraisals of task value, leading to feelings of anxiety, boredom, and hopelessness, ultimately leading to declines in motivation to learn. As demonstrated in Table 8, when instructors make content more relevant, students positively appraise task value (a_1= .857), which led to decreases in boredom (d_{21}= -.307), ultimately leading to less motivation to learn (b_2= -.350). The bootstrap confidence interval for the serial indirect effect did not contain zero ($a_1d_{21}b_2$= .058, CI [.025,

Table 8. Serial Multiple Mediator Model Predicting Motivation with Relevance and Negative Emotions

Antecedent	Consequent								
	M_1 (Task Value)			M_2 (Anxiety)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*p*
Relevance (X)	.845	.089	<.001	-.194	.093	.095	.201	.072	.005
Task Value(M_1)	——	——	——	-.012	.055	.820	.238	.042	<.001
Anxiety (M_2)	——	——	——	——	——	——	-.130	.047	.005
Grade % (*U*)	.005	.003	.136	.002	.003	.447	-.000	.002	.846
Constant	1.715	.450	<.001	2.938	.418	<.001	2.227	.350	<.001
	R^2 = .256, F(2, 272)=46.831, p<.001			R^2 = .382, F(3, 271)=2.359, p<.001			R^2 = .461, F(4, 270)= 57.740, p=<.001		
	M_1 (Task Value)			M_2 (Hopelessness)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*p*
Relevance (X)	.854	.044	<.001	-.122	.080	.128	.207	.070	.004
Task Value (M_1)	——	——	——	-.019	.047	.022	.444	.042	<.001
Hopelessness (M_2)	——	——	——	——	——	——	-.188	.053	.001
Grade % (*U*)	.005	.003	.134	-.002	.002	.379	-.001	.002	.617
Constant	1.677	.448	<.001	3.085	.360	<.001	2.409	.358	<.001
	R^2 = .262, F(2, 273)=48.468, p<.001			R^2 = .056, F(3, 272)=5.429, p<.001			R^2 = .472, F(4, 271)=60.589, p<.001		
	M_1 (Task Value)			M_2 (Boredom)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*p*
Relevance (X)	.857	.088	<.001	-.462	.810	<.001	.056	.070	.430
Task Value (M_1)	——	——	——	-.307	.048	<.001	.362	.042	<.001
Boredom (M_2)	——	——	——	——	——	——	-.350	.050	<.001
Grade % (*U*)	.005	.003	.127	-.002	.003	.519	.002	.003	.579
Constant	1.656	.452	<.001	6.653	.365	<.001	4.196	.450	<.001
	R^2 = .262, F(2, 271)=48.093, p<.001			R^2 = .358, F(3, 270)=50.216., p<.001			R^2 = .532, F(4, 269)= 76.426, p<.001		

.097]), providing evidence for serial mediation. There is also evidence of simple indirect effects of relevance on motivation to learn through task value (a_1b_2= .310, CI [.063, .197]) and relevance on motivation to learn indirectly through boredom (a_2b_2= .161 CI [.091, .257]), but no evidence of a direct effect of relevance on motivation when controlling for both task value and boredom (c' = .056, p= .430).

Table 9. OLS path coefficients: First Stage for Relevance Moderated by Mastery Orientation

Antecedent	Consequent								
	M_1 (Task Value)			M_2 (Anxiety)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*p*
Relevance (X)	.220	.284	.438	-.194	.093	.037	.201	.072	.005
Mastery Orientation (W)	.672	.193	<.001	——	——	——	——	——	——
Task Value(M_1)	——	——	——	-.012	.055	.820	.238	.042	<.001
Anxiety (M_2)	——	——	——	——	——	——	-.130	.047	.005
Rel x MO	.029	.050	.567	——	——	——	——	——	——
Grade % (U)	.000	.002	.849	.002	.003	.447	-.000	.002	.846
Constant	.200	1.054	.849	2.938	.418	<.001	2.227	.350	<.001
	R^2 = .611, F(4, 270)=106.340, p<.001			R^2 = .026, F(3, 271)=2.359, p<.001			R^2 = .461, F(4, 270)= 57.740, p<.001		
	M_1 (Task Value)			M_2 (Hopelessness)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*p*
Relevance (X)	.282	.281	.316	-.122	.080	.128	.207	.070	.004
Mastery Orientation (W)	.716	.192	<.001	——	——		——	——	——
Task Value (M_1)	——	——	——	-.019	.047	.022	.444	.042	<.001
Hopelessness (M_2)	——	——	——	——	——	——	-.188	.053	<.001
Rel x MO	.019	.049	.70	——	——	——	——	——	——
Grade % (U)	.001	.002	.816	-.002	.002	.379	-.001	.002	.617
Constant	-.098	1.047	.926	3.085	.360	<.001	2.409	.358	.<001
	R^2 = .623, F(4, 269)=111.480, p<.001			R^2 = .056, F(3, 272)=5.429, p=.001			R^2 = .472, F(4, 271)=60.589, p<.001		
	M_1 (Task Value)			M_2 (Boredom)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Relevance (X)	.282	.281	.316	-.462	.810	<.001	.056	.070	.430
Mastery Orientation (W)	.716	.192	<.001	——	——	——	——	——	——
Task Value (M_1)	——	——	——	-.307	.048	<.001	.362	.042	<.001
Boredom (M_2)	——	——	——	——	——	——	-.350	.050	<.001
Rel x MO	.019	.049	.700	——	——	——	——	——	——
Grade % (U)	.001	.002	.816	-.002	.002	.519	-.001	.002	.515
Constant	-.098	1.047	.926	6.653	.365	<.001	4.196	.450	<.001
	R^2 = .262, F(2, 271)=48.093, p<.001			R^2 = .358, F(3, 270)=50.216, p<.001			R^2 = .532, F(4, 269)= 76.426, p<.001		

Table 10. OLS path coefficients: First Stage Moderated by Relevance for Enjoyment

	Coefficient								
	M_1 (Performance Efficacy)			M_2 (Enjoyment)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff	*SE*	*P*
Clarity (X)	.186	.174	.284	.284	.034	<.001	- .052	.036	.157
Relevance (W)	.682	.226	.003	——	——	——	——	——	——
M_1 (Performance Efficacy)	——	——	——	.334	.044	<.001	.044	.047	.344
M_2 (Enjoyment)	——	——	——	——	——	——	.775	.059	<.001
Clarity x Rel	-.026	.042	.531	——	——	——	——	——	—
Grade % (*U*)	.009	.003	.002	.001	.002	.299	-.003	.002	.164
Constant	1.511	.875	.085	.110	.301	<.001	2.736	.289	<.001
	R^2 = .216, F(4, 266)=18.299, p<.001			R^2 = .408, F(3, 276)=61.311, p<.001			R^2 = .514, F(4, 266)= 70.427, p<.001		
	M_1 (Task Value)			M_2 (Enjoyment)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff	*SE*	*P*
Clarity (X)	.059	.187	.753	.203	.029	<.001	- .051	.034	.142
Relevance (W)	.652	.174	.008	——	——	——	——	——	——
M_1 (Task Value)	——	——	——	.453	.033	<.001	.250	.047	<.001
M_2 (Enjoyment)	——	——	——	——	——	——	.572	.066	<.001
Clarity x Rel	.023	.046	.607	——	——	——	——	——	—
Grade % (*U*)				.002	.002	.222	-.003	.002	.191
Constant	1.650	.948	.083	-.226	.242	.3500	2.319	.264	<.001
	R^2 = .302 F(4, 269)=29.153, p<.001			R^2 = .579, F(3, 270)=123.522, p<.001			R^2 = .557, F(4, 269)= 84.644, p<.001		

The serial indirect effects for anxiety did not provide evidence for serial mediation ($a_1d_{21}b_2$= .001, CI [-.134, .014]). However, there was evidence of simple indirect effects of relevance on motivation through task value (a_1b_2= .391, CI [.268, 542]) and relevance on motivation to learn through anxiety (a_2b_2 = .025, CI [.001, 060]). There was also evidence of a direct effect on relevance on motivation to learn when controlling for task value and anxiety (c' =. 201, p= .005). Finally, the serial indirect provided no evidence of serial mediation for hopelessness ($a_1d_{21}b_2$= .017, CI [-.000, .037). There was also no evidence of a simple indirect effect of relevance on motivation through hopelessness (a_2b_2= .023, CI [-.007, .066]. However, there was evidence of a simple indirect effect of relevance on motivation through task value [a_1b_2= .379, CI [.258, .528].

Table 11. OLS path coefficients: First Stage Moderated by Relevance for Hope

	Coefficient								
	M_1 (Performance Efficacy)			M_2 (Hope)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Clarity (X)	.182	.174	.297	.121	.025	<.001	.089	.040	.026
Relevance (W)	.680	.226	.003	——	——	——	——	——	——
M_1 (Performance Efficacy)	——	——	——	.452	.032	<.001	.000	.066	.940
M_2 (Hope)	——	——	——	——	——	——	.677	.095	<.001
Clarity x Rel	-.026	.042	.543	——	——	——	——	——	—
Grade % (*U*)	.009	.003	.002	-.003	.002	.028	.000	.002	.993
Constant	1.527	.876	.082	.950	.220	<.001	2.862	.404	.000
	R^2 = .216, F(4, 265)=18.204, p<001			R^2 = .512, F(3, 266)=93.253, p<.001			R^2 = .330, F(4, 265)= 32.675, p<.001		
	M_1 (Task Value)			M_2 (Hope)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Clarity (X)	.055	.188	.769	.137	.031	<.001	.011	.035	.760
Relevance (W)	.651	.245	.008	——	——	——	——	——	——
M_1 (Task Value)	——	——	——	.245	.034	<.001	.408	.041	<.001
M_2 (Hope)	——	——	——	——	——	——	.416	.067	<.001
Clarity x Rel	.024	.046	.599	——	——	——	——	——	—
Grade % (*U*)	.004	.003	.205	-.000	.002	.810	-.001	.002	.608
Constant	1.662	.949	.081	1.702	.253	<.001	1.456	.299	<.001
	R^2 = .302, F(4, 268)=29.051, p<.001			R^2 = .291, F(3, 269)= 36.759, p<.001			R^2 = .512, F(4, 268)= 70.252, p<001		

The results provide evidence of a direct effect of relevance on motivation when controlling for task value and boredom (c' = .626, p < .001).

Hypothesis 2d predicted that these results would be stronger for mastery-oriented students. The index of moderated mediation revealed no evidence of a conditional process (index of moderated mediation = .000, bootstrap CI: -.001, .001) when anxiety was a serial mediator. The index of moderated mediation revealed no evidence of moderated mediation (index of moderated mediation= .006, bootstrap CI: -.0019, .0037) when hopelessness or boredom (index of moderated mediation = .002, bootstrap CI: -.0014, .0152) were serial mediators. The results of this conditional process analysis can be found in Table 9.

Table 12. OLS path coefficients: First Stage Moderated by Relevance for Anxiety

	Coefficient								
	M_1 (Performance Efficacy)			M_2 (Anxiety)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*P*	Coeff.	*SE*	*P*
Clarity (X)	.190	.174	.274	-.075	.042	.075	.164	.042	<.001
Relevance (W)	.686	.226	.003	—	—	—	—	—	—
M_1 (Performance Efficacy)	—	—	—	-.316	.055	<.001	.289	.058	<.001
M_2 (Anxiety)	—	—	—	—	—	—	-.040	.062	.514
Clarity x Rel	-.028	.042	.511	—	—	—	—	—	—
Grade % (*U*)	.009	.042	.002	.006	.003	.040	-.002	.003	.415
Constant	1.506	.875	.086	3.944	.370	<.001	2.994	.445	<.001
	R^2 = .213, F(4, 265)=17.997, p<.001			R^2 = .149, F(3, 266)=15.526, p<.001			R^2 = .195, F(4, 265)= 15.526, p<.001		
	M_1 (Task Value)			M_2 (Anxiety)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Clarity (X)	.061	.188	.746	-.140	.045	.002	.044	.036	.223
Relevance (W)	.654	.245	.008	—	—	—	—	—	—
M_1 (Task Value)	—	—	—	-.006	.051	.909	.507	.040	<.001
M_2 (Anxiety)	—	—	—	—	—	—	-.140	.048	.004
Clarity x Rel	.023	.046	.618	—	—	—	—	—	—
Grade % (*U*)	.004	.003	.207	-.001	.002	.674	-.001	.002	.674
Constant	1.647	.949	.084	2.843	.374	<.001	2.597	.324	<.001
	R^2 = .301, F(4, 268)=28.843, p<.001			R^2 = .042, F(3, 269), 3.979 p=.008			R^2 = .451, F(4, 268)= 55.033, p<.001		

Research Question 1

Research question one inquired about the potential interaction effects of clarity and relevance on control and value appraisals. Thus, this research question was concerned with moderated mediation. To test this research question, content relevance moderated the a_1 path (i.e., clarity to the control and value appraisals). The indices of moderated mediation revealed no evidence of conditional effects for performance efficacy (index of moderated mediation= -.007, bootstrap CI: -.039, .019; index of moderated mediation= -.008, bootstrap CI: -.045, .024; index of moderated

Table 13. OLS path coefficients: First Stage Moderated by Relevance for Hopelessness

	Coefficient								
	M_1 (Performance Efficacy)			M_2 (Hopelessness)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Clarity (X)	.178	.174	.309	-.125	.033	<.001	.151	.043	.001
Relevance (W)	.678	.226	.003	——	——	——	——	——	——
M_1 (Performance Efficacy)	——	——	——	-.357	.043	<.001	.256	.061	<.001
M_2 (Hopelessness)	——	——	——	——	——	——	-.134	.078	.088
Clarity x Rel	-.025	.042	.558	——	——	——	——	——	—
Grade % (*U*)	.009	.003	.002	.002	.002	.429	-.002	.002	.414
Constant	1.535	.877	.081	4.307	.291	<.001	3.400	.500	<.001
	R^2 = .216, F(4, 265)=18.282, p<.001			R^2 = .297, F(3, 266)=37.455, p<.001			R^2 = .204, F(4, 265)= 17.015, p<.001		
	M_1 (Task Value)			M_2 (Hopelessness)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Clarity (X)	.043	.189	.819	-.176	.038	<.001	.029	.037	.437
Relevance (W)	.644	.245	.009	——	——	——	——	——	——
M_1 (Task Value)	——	——	——	-.078	.042	.064	.493	.040	<.001
M_2 (Hopelessness)	——	——	——	——	——	——	-.203	.058	<.001
Clarity x Rel	.027	.046	.562	——	——	——	——	——	—
Grade % (*U*)	.004	.003	.201	-.002	.002	.491	-.002	.002	.479
Constant	1.694	.949	.075	3.325	.309	<.001	2.865	.350	<.001
	R^2 = .304, F(4, 269)=29.262, p<.001			R^2 = .125, F(3, 269)=12.858, p<.001			R^2 = .460, F(4, 268)= 56.957, p<001		

mediation= -.000, bootstrap CI: -.004, .002; index of moderated mediation= -.001, bootstrap CI: -.009, .004; index of moderated mediation= -.002, bootstrap CI: -.021, .014) or task value (index of moderated mediation= .006, bootstrap CI: .-040, .038; index of moderated mediation= .002, bootstrap CI: -.016 .016; index of moderated mediation= .000, bootstrap CI: -.001, .001; index of moderated mediation= .000, bootstrap CI: -.003, .003; index of moderated mediation= .002, bootstrap CI: -.022, .020). The results of these conditional process analyses can be found in Tables 10-14.

Table 14. OLS path coefficients: First Stage Moderated by Relevance for Boredom

	Coefficient								
	M_1 (Performance Efficacy)			M_2 (Boredom)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Clarity (X)	.131	.172	.449	-.333	.039	<.001	-.019	.040	.664
Relevance (W)	.615	.224	.006	——	——	——	——	——	——
M_1 (Performance Efficacy)	——	——	——	-.283	.052	<.001	.151	.050	.003
M_2 (Boredom)	——	——	——	——	——	——	-.565	.056	<.001
Clarity x Rel	-.016	.042	.705	——	——	——	——	——	—
Grade % (*U*)	.009	.042	.002	.002	.002	.410	-.001	.002	.572
Constant	1.871	.872	.033	6.252	.356	<.001	6.302	.478	<.001
	R^2 = .203, F(4, 263)=16.729, p<.001			R^2 = .340, F(3, 264)=45.341, p<.001			R^2 = .418, F(4, 263)= 47.265, p<.001		
	M_1 (Task Value)			M_2 (Boredom)			Y (Motivation to Learn)		
	Coeff	*SE*	*p*	Coeff	*SE*	*p*	Coeff.	*SE*	*P*
Clarity (X)	.088	.189	.642	-.275	.039	<.001	- .052	.036	.151
Relevance (W)	.684	.246	.006	——	——	——	——	——	——
M_1 (Task Value)	——	——	——	-.338	.043	<.001	.377	.041	<.001
M_2 (Boredom)	——	——	——	——	——	——	-.401	.052	<.001
Clarity x Rel	.018	.046	.695	——	——	——	——	——	—
Grade % (*U*)	.004	.003	.199	.000	.002	.861	-.001	.002	.544
Constant	1.479	.956	.123	6.369	.318	<.001	4.779	.429	<.001
	R^2 = .307, F(4, 266)=29.444, p<.001			R^2 = .402, F(3, 267)=59.900, p<.001			R^2 = .538, F(4, 266)= 77.391, p<.001		

Summary

This chapter summarized the results of this dissertation. It provided some evidence for the pathways of Pekrun's (2006) control value theory of achievement emotions, specifically regarding positive achievement emotions and boredom. First, the results reveal that when an instructor's lecture is organized, there will be an increased motivation to learn because students will feel more efficacious in their ability to perform well in their courses, promoting enjoyment and hope. Results also revealed that they experienced decreased motivation to learn through their

appraisals of control, value, and boredom. The results also show that when instructors make content relevant to students, they experience more motivation through positive appraisals of task value, promoting enjoyment and hope, and declines in motivation through their appraisals of value and boredom. The results also reveal that clarity and relevance influenced motivation to learn through appraisals of performance efficacy, task value, and boredom. Additionally, these emotions indirectly predicted motivation, regardless of the control and value appraisals. Anxiety and hopelessness yielded no significant findings in the serial processes related to CVTAE, nor did anxiety or hopelessness influence motivation on their own. In addition, mastery orientation did not moderate the indirect effect on instructors' behaviors, control and value appraisals, student achievement emotions, and motivation to learn. Finally, the results reveal no evidence that content relevance moderated the serial mediation processes proposed by CTVAE.

CHAPTER IV

Discussion

There were two goals for this dissertation. The first goal was to test Pekrun's (2006) control-value theory of achievement emotions in an instructional communication context. To achieve this goal, a survey was used to assess instructors' clarity, content relevance, students' appraisals (i.e., performance efficacy and task value), achievement emotions, and student motivation to learn. Using clarity and relevance as traditional instructional communication variables, the dissertation tested proposed pathways of CVTAE. Results provided evidence that the proposed pathways of CVTAE can be specified within an instructional communication framework. Results revealed that when instructors were clear and made the content relevant to students' goals, they were more intrinsically motivated to learn through their appraisals and positive achievement emotions (i.e., enjoyment and hope). Additionally, when instructors were clear and made the content relevant to their students, they experienced decreased intrinsic motivation to learn through their appraisals of control, value, and their subsequent feelings of boredom. Not only were there serial indirect effects, but the results also revealed simple indirect effects of clarity and relevance on motivation to learn through enjoyment, hope, and boredom. The second goal of this dissertation was to explore potential variables that moderate the relationship between instruction and control and value appraisals. This idea was based on the theory's assumption that specific student and instructional traits could influence control and value appraisals. The results, however, demonstrated no evidence that mastery orientation or content relevance moderated the pathways between clear and relevant instruction and appraisals of control and value. This chapter discusses the findings in relation to CVTAE, explores the

implications the results provide for teaching and learning, and provides limitations and future directions for research using CVTAE in instructional communication scholarship.

Hypotheses 1 and 2

The study's results revealed that clear and relevant instruction encouraged motivation to learn through positive appraisals of performance efficacy and task value, which helped students feel enjoyment and hope. These results are consistent with the theory's premise that positive appraisals of control and value help students to feel more positive achievement emotions (Pekrun, 2006) and CVTAE's assumption that high-quality instruction in the classroom can encourage positive appraisals of control and value (Pekrun et al., 2007). The theory's classification of these emotions can explain these results. According to CVTAE, enjoyment and hope are both classified as positive, activating achievement emotions (Pekrun, 2006; Pekrun & Linnenbrick-Garica, 2012), which promote action for completing activities or meeting course-related outcomes (Pekrun & Linnenbrick-Garcia, 2012). This finding could be explained through previous research that has broadly demonstrated that when students experience positive emotions in their classes, these emotions can help broaden students' thoughts about their activities, help them be more creative, and challenge themselves in their thinking because they have more cognitive resources to help them (Fredrickson, 1998; Fredrickson, 2001). Positive emotions can also help students self-regulate and problem-solve when they attend their classes and complete course-related activities (Pekrun et al., 2002b), which could positively impact student characteristics, such as motivation to learn. While both positive emotions were important determinants of student motivation in the serial pathways proposed in CVTAE, the theory asserts that individual experiences of enjoyment and hope have different effects on educational outcomes for undergraduate students (Pekrun et al., 2002b).

Enjoyment

According to CVTAE, enjoyment is classified as a high-arousal emotion that students feel when they have control over completing academic activities or if they believe that what they are learning is important for completing course activities (Camacho-Morales et al., 2019). When students felt confident that their actions could help them succeed because instructors were clear and well-organized, they enjoyed what they were learning. According to CVTAE, this could have happened because students were developing the personal competencies needed to feel in control over their ability to perform well on course activities or assignments (Pekrun et al., 2007). This finding is consistent with previous research that demonstrates that when students have a strong sense of control over their academics, they typically experience more positive achievement emotions, such as enjoyment (Götz et al., 2010). Enjoyment for students is caused by confidence in their own abilities related to academics, including completing coursework successfully (Liu et al., 2018; Westphal et al., 2018). According to CVTAE, these perceptions of confidence could occur partly due to the personal competencies they have developed because of the clear instruction (Pekrun et al., 2007). Instructors can encourage students to develop these personal competencies by giving students the information that they need to complete course activities in an organized way (Pekrun et al., 2007; Titsworth & Mazer, 2016), which helps them understand the material more effectively (Finn & Schrodt, 2012).

In addition, when instructors made the content relevant to student's goals and interests, they decided that the material was essential for them to learn and experienced enjoyment, consistent with previous research that positive assessments of task value help students experience enjoyment in their classes (Artino et al., 2010; Pekrun et al., 2011) and that content relevance positively predicts task value (Knoster & Goodboy, 2021). This could have occurred because

CVTAE argues that instructors matched the content with students' needs and interests by ensuring the content was relevant, encouraging positive assessments of the subjective value of learning course material, and completing course-related activities (Pekrun et al., 2007). Instructors match students' needs by employing different strategies to help demonstrate that course content is relevant to student goals. For example, Keller (1987b) notes that instructors can make content familiar to students by connecting it to their personal experiences or can use goal-directed techniques to help students see how they can use the course content in the future. Muddiman and Frymier (2009) also explain that using various examples and activities embedded within class lectures can promote content relevance because students can see how the content can help them meet a specific goal or is related to their interests outside of class. When instructors take the time to implement these relevance strategies in their classes, students could be better able to see how the content and activities could help them achieve their personal goals. This could happen because the content matched their needs and interests, which encouraged positive assessments of task value (Knoster & Goodboy, 2021) because they determined that the material was important for them to learn. This, then, led to enjoyment, consistent with the assumptions of CVTAE (Pekrun, 2006).

Enjoyment of class-related activities positively promoted motivation to learn due to the positive appraisals of control and value brought on by clear and relevant instruction. This result is consistent with CVTAE's predictions that positive, activating emotions specifically encourage motivation to learn (Pekrun, 2006). An explanation for this finding could be that enjoyment in the classroom helps students develop problem-solving skills (Camacho-Morales et al., 2019) and helps students be more flexible in the types of strategies they use to complete their course-related activities (Ahmed et al., 2013). Enjoyment also encourages students to expand their knowledge

and ideas related to the course material (Izard, 2007) and makes students more adaptable to challenges that may arise as they complete course activities (Simonton & Garn, 2020). When students enjoyed their course activities, they were more motivated to learn the material because they had the resources to think more critically and broadly about the course. This gave them more cognitive options to help them complete activities through different learning strategies. Students may also be more motivated because they can face challenges as they arise while completing in-class activities or course assignments because they genuinely like what they are doing. As such, when instructors were clear and provided relevant instruction to promote positive appraisals of control and value, according to CVTAE, students enjoyed their classes more and were more motivated to learn the material.

The results also reveal that clarity and relevance indirectly influenced motivation to learn through enjoyment alone, without the appraisals of control and value. This finding can be explained because instructor clarity and relevant instruction positively influence students' affective experiences in their classes (Motett et al., 2008; Sidelinger & McCroskey, 1997), and positive instructional behaviors that support student learning directly predict enjoyment (Kunter et al., 2013). As such, students may enjoy their classes more when instructors are clear and take the time to make the content relevant to student's needs because they could feel like teachers are supporting them. This could occur because these types of instructional messages help promote student learning (Mottet et al., 2006), so students may be less concerned with their perceptions of control or the value of the material. When instructors are clear, they take the time to develop lectures that are easy to follow and understand, but also take the time to answer student questions and give the students time to process the course material within the lecture setting (Bolkan et al., 2015). When instructors do this, they could promote enjoyment directly in the classroom by

encouraging students to reflect on the material and help them develop their problem-solving skills (Fredrickson, 2001). Clear instructors also encourage students to talk directly to them when they have an issue or question about course material or activities (Myers & Knox, 2001), which could aid in their perceptions of emotional support from the teachers because they feel like their instructor cares about them and their learning (Lazarides & Buchholz, 2019; Titsworth et al., 2013). When instructors take care to be clear, students could feel like the instructors are doing all they can to help them complete course-related activities; both through their lectures and out-of-class communication, and they may enjoy what they are doing more as a direct result of their instructor's behavior, rather than their appraisals of control and value. Due to this positive emotion, students may be more motivated to learn (Pekrun, 2006).

In the case of relevance, when instructors make the content relevant to student's interests and goals, they can help students be more creative and flexible in their thinking by bringing in examples from outside of class (Muddiman & Frymier, 2009). For example, if an instructor brings in a pop culture example to reinforce a course concept, students may be able to think of other examples from pop culture that also match the concept. When this happens, students are thinking creatively about the course material because they are considering ways that the material connects to the world around them, which could promote enjoyment. Instructors can also promote content relevance through in-class activities that are interesting, engaging, and encourage creative thinking about the course material (Muddiman & Frymier, 2009), which could further promote student enjoyment. As a result, they are more motivated to learn the material because this positive, activating emotion promotes motivation (Pekrun, 2006). The results of this project demonstrate that when instructors utilize these positive rhetorical instructional communication behaviors, students will be more motivated to learn the material

because they enjoy what they are learning because students have more cognitive resources to help them more effectively complete their course-related activities.

Hope

While enjoyment is considered an activity-focused emotion, hope is a prospective, outcome-focused emotion, and this classification can help explain the results related to hope's role in these serial processes. Outcome-focused emotions direct students' attention toward academic outcomes (i.e., success or failure; Pekrun & Linnenbrick-Garcia, 2012), and prospective outcome emotions are felt when students expect future success or failure (Pekrun et al., 2007). When students experience hope, they feel like they can be successful in the class in the future. When instructors are clear and give students the tools to develop personal competencies in the course. As a result, they are encouraged to feel as though they have control over their success; they feel hope because they believe they will be successful in the class (Pekrun et al., 2007). Additionally, when instructors take the time to make content relevant to student goals and interests to help reinforce the course content and students experience positive appraisals of value, they feel hope because they can see why the content was worth learning by considering how course material can help them achieve their goals related to being successful in the course (Berweger et al., 2022). These positive assessments of task value may have happened because positive psychologists often classify hope as goal-directed emotion (Yotsidi et al., 2018), which, when felt, encourages students to help them find multiple pathways to stay on track for achieving their goals (Snyder, 2002; Yotsidi et al., 2018). As a result of the hope students experienced from their general expectations for success, they were more motivated to learn the material, consistent with CVTAE's assumption that positive, activating emotions promote motivation (Pekrun, 2006).

Much like enjoyment, students' hope on its own indirectly influenced their motivation to learn when instructors were clear and relevant in their instruction, regardless of the appraisals of control and value. As an achievement emotion, hope can be experienced despite any uncertainty that students may feel about their perceptions of control related to success (Pekrun & Stephens, 2010a). This characteristic of hope may explain this finding because students can still hope they can be successful in their classes, even if they may feel uncertainty about their level of control because of their instructor's behaviors. CVTAE asserts that high-quality instruction can help students develop the competencies needed to be successful in their classes (Pekrun et al., 2007). When instructors take the time to create well-structured lectures that are easy to follow and make sure the content that they provide aligns with student interests and goals by providing a variety of examples or connecting material back to other elements of the course (Muddiman & Frymier, 2009), they help them develop competency directly through their behaviors. These specific instructor behaviors could make students feel hopeful because they perceive that their instructor is helping them by giving them the tools they need to succeed and achieve their goals through the instruction. As a result, when students expect success due to the instructor's positive teaching behaviors, they will be more motivated to learn the course material because hope is a goal-directed emotion (Yotsidi, 2018), regardless of the cognitive appraisals of control and value. Overall, the results of this study speak to the importance of promoting positive emotions for students in undergraduate classrooms through the behaviors instructors enact within the class to help students not only like what they are learning in class but by also helping them feel as though they can have success in any academic pursuits they have.

Boredom

Not only is CVTAE concerned with the benefits of positively valenced achievement emotions, but CVATE also asserts that negative emotions lead to adverse academic outcomes (Pekrun, 2006). In particular, deactivating achievement emotions, such as boredom, are particularly detrimental to motivation to learn (Pekrun et al., 2007) because deactivating emotions are categorized as emotions that promote avoidance behaviors related to completing activities and meeting academic goals (Pekrun & Linnenbrick-Garcia, 2012). According to CVTAE, boredom occurs when appraisals of control are low, more specifically when students feel overly challenged by the course material or course-related activities (Acee et al., 2010; Pekrun, 2006), which encourages students to avoid completing activities because they think they are too difficult. When instructors are clear and take the time to create well-structured, organized lectures that are easy to follow, students feel more confident they can do well in their classes because they are developing the competency needed to complete those activities, according to CVTAE (Pekrun et al., 2007). These positive appraisals could happen because clear instruction helps students feel as though they understand the material being taught and feel empowered to learn it (Finn & Schrodt, 2012). As a result, they may not feel the course material is too challenging for them, helping them feel confident that they will succeed because they understand the course material. This confidence should then help them effectively complete course-related activities. When students have positive appraisals of control, they should experience less boredom because they are being sufficiently challenged by their course-related activities (Acee et al., 2010). On the other hand, if instructors are not clear, students potentially feel less confident in their ability to be successful because they are not being given the tools needed to complete course activities efficiently because they are struggling to follow the lecture or understand the material, they feel boredom because activities might be too difficult for them (Acee et al., 2010),

and because boredom inhibits problem-solving strategies that can help students complete activities (Bailey et al., 2014), so they may avoid completing course activities as a result.

Where value appraisals are concerned, the theory asserts that boredom occurs when students perceive a lack of incentive value related to their classroom activities (Pekrun, 2006). When students experience boredom in their classes, it can be caused by a lack of stimulation in their classes and, importantly, when students do not believe that the material or classroom activities have personal value to them (Daschmann et al., 2014; Pekrun & Stephens, 2010a). When instructors made the course content relevant by ensuring that the content met students' specific goals and aligned with their interests, students could have perceived that there was incentive value to what they were doing because the content "matched" their specific needs and interests (Pekrun et al., 2007) and, as such, experienced positive appraisals of task value because they decide that the course activities and material are worth learning or completing because it could help them achieve a goal or because it was personally interesting to them. Since these students felt the material was important for them to learn, they experienced less boredom. When students experience boredom because activities or course material is too challenging due to a lack of clear instruction or they did not find the material relevant or important for achieving their goals, they are less motivated to learn that course material, consistent with CVTAE's assertion that deactivating emotions hinder student motivation because they promote avoidance of class activities (Pekrun, 2006; Pekrun & Linnenbrick-Garcia, 2012), and encourage them to succumb to distractions to cope with the boredom, such as daydreaming, texting, or using other forms of social media in class (Sharp et al., 2016).

Boredom also indirectly impacted motivation to learn through instructor clarity and content relevance, regardless of students' perceptions of control and value. This finding speaks to

the importance of boredom in the classroom, as over half of students experience boredom at some point in their university-level classes (Mann & Robertson, 2009), and demonstrates that perhaps the affective experience of boredom is more impactful than the cognitive appraisals of control or value. Recall that boredom can be felt by students because they feel overly challenged by the course material (Acee et al., 2010) or a lack of stimulation in the class (Daschmann et al., 2014), which encourages students to avoid completing course-related activities (Pekrun & Linnenbrick-Garcia, 2012). When instructors are organized in their lectures, and students feel appropriately challenged by the material, they may be more motivated to learn the material because they experience less boredom simply because they feel as though the instructor is giving them the tools to complete activities and because the material appropriately challenges them and are less concerned with their feelings of control. As previously noted, boredom can occur specifically due to instructors' behavior in the classroom, specifically when they are monotonous or repetitive in their teaching style or when they feel as though the instructor is not providing content that is not interesting to them (Daschmann et al., 2014; Goetz & Hall, 2014). When instructors make content relevant to students, they specifically work to address this concern by doing things such as providing a variety of examples and using different types of in-class activities to ensure that what students are learning is exciting and can help students achieve whatever goals they have set for the course (Muddiman & Frymier, 2009). Instructors can also promote content relevance through their teaching style by showing enthusiasm for the material to their students (Muddiman & Frymier, 2009). When instructors demonstrate this enthusiasm, they can address the concern of monotonous lectures and reduce student boredom because they are genuinely excited about what they are teaching, which could indicate to students that the course material is interesting and relevant to the goals they hope to achieve for their course-related

activities, consistent with previous findings that a lack of teacher interest in course material predicts boredom (Goetz & Hall, 2014). Boredom broadly concerns evaluations of value inherently as part of the experience (Daschmann et al., 2014), so students may consider the material's relevance and importance directly when deciding if they are bored in class. Hence, task value may be less important than the emotional experience of boredom in undergraduate classes.

Contrary to CVTAE's predictions, anxiety and hopelessness did not serve as mediators, nor did they influence motivation through the instructor's clarity or content relevance. An explanation for these findings may be found in the theory's specific conceptualization and description of achievement-related anxiety. CVTAE argues that anxiety's role in these serial processes is more complicated than other achievement emotions (Pekrun, 2006). Unlike many other negatively valanced achievement emotions, anxiety is an activating emotion that encourages students to take action when they feel it (Pekrun & Linnenbrick-Garcia, 2012). According to the theory, when anxiety is felt by students when they are focused on failure due to a perceived lack of control over their academic outcomes, which then encourages them to take action to help them achieve success (Pekrun, 2006). Notably, the theory also asserts that anxiety has complicated effects on motivation. For example, research exploring anxiety as an achievement emotion has revealed that this emotion can have ambivalent effects on motivation because anxiety should reduce some forms of motivation, but at the same time, can promote motivation for students to take some form of action to help them deal with the negative feeling anxiety causes (Pekrun et al., 2002a; Pekrun et al., 2004). The more ambivalent and complex nature of this emotion may have been having more complicated effects on the pathways than boredom, for example, which has much more straightforward negative impacts on motivational processes (Pekrun et al., 2002; Pekrun, 2006), which could explain these insignificant findings.

CVTAE's predictions also provide a potential explanation for the lack of significant findings for hopelessness. Hopelessness is a negatively valanced, deactivating emotion (Pekrun & Linnenbrick-Garcia, 2012). Importantly, students feel hopeless when they believe a negative outcome will be the outcome of their classes, whether that is a lack of success or certainty that they will fail (Pekrun, 2006). As a result of this certainty that failure will be the outcome of their academics, students will feel that there is nothing they can do to change their fate (Au et al., 2010; Pekrun, 2006). This is different from its counterpart, hope, which can exist despite uncertainty related to the outcomes of their academic pursuits or their feelings of control over the outcome (Pekrun & Stephens, 2010a). Perhaps, then, students felt it was still possible for them to succeed in the courses they reported on. A lack of certainty over the outcomes of their academic pursuits may explain this finding because students still may have felt they had some control over their academic outcomes due to instructors' positive teaching behaviors (Pekrun et al., 2007). Students could also have felt the material was still worth learning because they believed they could succeed in the class because of their instructors' teaching behaviors (Pekrun et al., 2007). Due to this perception that students may still have a chance to succeed, they may not have felt hopeless, explaining these non-significant findings.

These hypotheses also predicted that the relationship between instructional communication behaviors and control and value appraisals would be stronger for mastery-oriented students; however, the results reveal that mastery orientation did not significantly moderate this pathway. A potential explanation for this finding could be that clear and relevant instruction benefits all types of students by encouraging positive appraisals of control and value. In CVTAE, achievement goals are broadly conceptualized by how competence is defined for each type of student (Pastor et al., 2007). For mastery-oriented students, competence is defined

by their ability to learn the material to aid their personal development. In contrast, students with a performance orientation define competence through their ability to do well in classes by outperforming their peers (Elliott, 1999). CVTAE assumes that goal orientation broadly determines where students focus their attention when it comes to appraisals of control and value and states explicitly that mastery-oriented students focus their attention on learning-related outcomes while performance-oriented students focus on performance-related outcomes, such as grades (Hall et al., 2016; Pekrun, 2006). High-quality instruction helps students develop personal competencies that help them feel in control of their learning and place subjective value on the course material (Pekrun et al., 2007). As a result, clarity and relevance, which are rhetorical behaviors that promote learning (Mottett et al., 2006), could help students develop the competence they need to meet their goals, regardless of how they individually define competence. This explanation would be consistent with research demonstrating that students respond to the instructional environment differently based on their specific achievement-related goals (Tapiola & Niemivirta, 2010).

Research Question 1

Research question one inquired whether or not the relationships between clarity and control and value appraisals would depend on how relevant the course content is. The results revealed no evidence for moderation of the path between clarity and the appraisals of control and value. There are two possible explanations concerning this finding. First, clear instruction is all students need to feel confident in their abilities to succeed in their classes or to determine whether or not the material is important for students to learn, according to the propositions of the theory. CVTAE asserts that quality instruction is a distal factor that can influence student appraisals by helping them develop personal competency that should help them feel more in

control of their abilities (Pekrun et al., 2007). When instructors are clear, it encourages students to act in ways that help them develop these personal competencies that should help them be successful, such as taking good notes (Titsworth, 2004), deeply paying attention to and processing the course material (Bolkan et al., 2016), and more effective listening to lectures (Chesebro, 2003). CVTAE also asserts that developing personal competencies from high-quality instruction can encourage positive perceptions of value for students (Pekrun et al., 2007). As a result, clear instruction could help students develop personal competencies on its own, even if the content is not relevant. Decades of research studying instructor clarity highlight its importance for students' affective learning experiences (Titsworth et al., 2015), and the results of this project support this notion.

A second possible explanation for this finding could be that content relevance is simply an extension of instructor clarity. This idea could be supported by the modest correlation between clarity and relevance (r= .449). When instructors make content relevant to their students, they use specific strategies to help relate the content to students' interests and goals, often by utilizing relevant examples from outside of class or connecting concepts back to other things they have learned within the class to help reinforce course material (Muddiman & Frymier, 2009). This idea directly ties back to instructor clarity, which helps students select, remember, and determine what is important information related to the course material (Bolkan et al., 2017; Titsworth & Mazer, 2016). This specific type of clarity is conceptualized as explanatory clarity, which refers to how instructors bring substance to the structure of their lectures (Titsworth & Mazer, 2016). This type of clarity has the specific goal of helping students acquire both procedural (i.e., knowledge about performing certain tasks or processes) and conceptual knowledge (i.e., knowledge related to situations where course information might be

applicable; Titsworth & Mazer, 2016) and remember information. Explanatory clarity is often implemented by instructors using examples to make both forms of knowledge available to students (Titsworth & Mazer, 2016). As such, content relevance may function as a form of explanatory clarity. When students have these relevant examples that they connect with to go back to while they learn the course material because the instructor used explanatory clarity, they can still develop the personal competencies needed to help them have positive appraisals of control and value (Pekrun et al., 2007). For example, students may gain conceptual knowledge by learning how an organizational communication theory can be applied in their careers through examples. They may also gain the procedural knowledge to complete a math equation by seeing multiple examples in class. According to CVTAE, these examples help students develop competency for them to have control over their learning or see how the material has value because it matches their interests and needs (Pekrun et al., 2007). Even though content relevance is important for students, its close connection with explanatory clarity through its focus on helping students both acquire knowledge and remember the course material could explain why there was no evidence of moderation on the path from clarity to appraisals of control and value.

Implications for Teaching and Learning

The results of this dissertation offer several implications for teaching and learning in the college classroom. The most obvious implication is that instructors should prioritize using clear and relevant instruction in their classrooms to promote motivation through positive emotions and cognitions. The results of this project demonstrate initial evidence that well-structured lectures help students feel more in control of their learning through a positive assessment of performance efficacy, leading them to think more positively about course-related outcomes, which makes them more motivated to learn the material. To create well-structured lectures, instructors should

present information logically and utilize signaling behaviors, such as signposts, to signal transitions between concepts and activities. On its own, instructors' clarity could also influence enjoyment, leading to more motivation to learn because they will be better able to understand the course material. Not only can instructor clarity help promote positive emotions, but it could also help reduce student boredom in the classroom. When instructors create well-structured lectures, they can decrease boredom because students may feel appropriately challenged by course lectures and activities and not feel overwhelmed or over-challenged (Acee et al., 2010) because the lectures make sense and are easy for students to follow. Students will also feel more comfortable approaching the instructor for help if they are struggling (Myers & Knox, 2001) if the instructors are clear. Decades of instructional research have demonstrated that clear instruction is incredibly beneficial for students' affective learning experiences (Titsworth et al., 2015), and the results of this project reinforce those findings, particularly as they relate to positive achievement emotions for undergraduate students. As such, instructors should always be mindful of presenting lecture content in a clear and organized way by providing clear preview and review slides at the beginning and end of a lecture to help students better understand the structure of the lecture (Chesebro, 2003), using clear transitions and signposts throughout the lecture to signal a change in the topic so students can more clearly follow along, or nonverbal behaviors like gestures to identify important points within the lecture (Titsworth & Mazer, 2016).

In addition to utilizing well-organized lectures to promote positive cognitions and emotions, teachers should also be concerned with using strategies to make the course content relevant to students' needs or goals for the class. Muddiman and Frymier (2009) provide several strategies instructors can use to promote relevant instruction in the classroom, but based on the

results of this project, the use of inside and outside class relevance could be particularly beneficial for promoting positive achievement emotions in the classroom. When instructors use outside class relevance, they bring in examples from outside the class to reinforce the course material, such as examples from pop culture, current events, or students' interests outside of class. This strategy could be particularly beneficial for promoting enjoyment, both on its own and through appraisals of task value. When instructors bring in out-of-class examples that students connect with, they should be able to see why they are learning the material because it connects to the world beyond the classroom, promoting enjoyment and motivation. Additionally, when content is relevant to students' goals, they like what they are doing more and are more motivated to learn, based on this study's findings. Additionally, when instructors use the inside class relevance strategy, they relate the content to the needs of students inside that particular course by connecting material back to previous topics covered in class or by giving the students the tools they need to do well in the class, such as study tips (Muddiman & Frymier, 2009). This particular strategy could be beneficial for promoting hope in the classroom, both on its own and through appraisals of task value. Explaining how the material can help students within the particular course can promote hope by showing students how they can be successful, making them more motivated to learn the material. Additionally, taking the time to explain how course material can help them within the course itself could promote task value by demonstrating why learning the material should be important to them, which should make them feel hopeful that they can be successful, making them more motivated to learn the material, according to CVTAE (Pekrun, 2006).

While these two strategies may be most helpful in promoting positive emotions, the other strategies, such as using a variety of different lecture activities in class rather than simply relying

on passive PowerPoint notes, could help reduce feelings of boredom for students because it can help keep the content interesting for students because these more passive forms of teaching promote student boredom (Sharp et al., 2016). Regardless of which strategies instructors use to make the content relevant, understanding students' goals is important for creating relevant content to promote positive achievement emotions in the classroom (Weinerman & Kenner, 2016). In order to gain that understanding, instructors could give students a questionnaire at the beginning of the semester where they ask students about their goals for the class and their interests (i.e., hobbies, favorite tv shows, etc.). By doing this, instructors know exactly what students want to achieve in the course and their general interests, and they can use those to inform the course content and the examples they use in class. Instructors can do this at the beginning of the semester and solicit mid-semester feedback to assess whether they are meeting their students' needs. The results of this project reveal that to promote motivation through positive emotions, instructors should take the extra time to ensure that course-related content and activities match students' needs and interests, according to CVTAE (Pekrun et al., 2007).

Limitations and Future Directions

The results of this dissertation can only be viewed in light of the study's limitations. The first limitation of the study has to do with the measurement of clarity. This project only focuses on organizational clarity, or the methods used to organize or structure the information for students (Titsworth & Mazer, 2016). This dimension of clarity was chosen based on the theory's assumption that well-organized lectures help students develop competencies that help them develop positive appraisals of control and value (Pekrun et al., 2007). Providing well-structured lectures, however, is not the only way instructors demonstrate clarity in their classes. There are several other types of clarity, such as explanatory clarity (i.e., expanding upon details), language

clarity (i.e., the use of language or syntax to convey information), and adaptive clarity (i.e., the ways instructors respond to students in the classroom; Titsworth & Mazer, 2016). By focusing only on one type of instructor clarity, this project may not give the complete picture of clarity's role in student appraisals of control and value and, as a result, student achievement emotions and motivation to learn. Future research could address this limitation by manipulating instructor clarity so each element of clarity can work together, giving us a more accurate picture of clarity's role in the pathways proposed by CVTAE.

The second limitation of this study is that it used a cross-sectional design. Cross-sectional studies are utilized to get a sense of the study population's feelings at one moment in time (Wang & Cheng, 2020). While cross-sectional research can give us an idea of students' feelings at a certain point in the semester, students' appraisals, emotions, and behaviors may change over time. Research studying achievement emotions in educational psychology and instructional communication has provided evidence of these temporal changes. For example, Pekrun et al. (2017) demonstrated that positive appraisals of control and value and positive achievement emotions predict achievement over time. Additionally, Goodboy et al. (2021) also found that students' anger most strongly impacts their instructional dissent messages at the beginning of the semester, while hopelessness most strongly impacts these messages at the end. Not only will longitudinal study designs help us understand changes in appraisals and emotions over time, but they can also help scholars to understand the reciprocal linkages proposed in CVTAE (Pekrun et al., 2007). To address this limitation, future research could aim to collect data at multiple time points at the beginning, middle, and end of the semester to examine how these serial processes are impacted as the semester progresses, because cross-sectional data do not provide evidence of these changes or reciprocal links between instruction, appraisals, and achievement emotions.

Relatedly, the third limitation of this project is that we cannot be confident in the causal claims presented, despite the use of mediation analysis, because of the survey method employed to collect data for the project. While surveys are a beneficial tool for collecting data related to students' attitudes and opinions about their classes and instructors' behaviors (Albudaiwi, 2017), the major limitation of survey research is that researchers cannot determine causality (Cook & Cook, 2008). Future research could address this limitation by utilizing experimental designs to help explore the casual claims that CVTAE proposes. Hayes (2021) notes that no research method gives scholars more confidence in the claims of mediation analysis better than experimental design, especially when that experiment is well designed. Therefore, utilizing experimental research designs where instructor clarity and content relevance are manipulated in a live lecture setting, for example, would provide stronger support for the causal assumptions proposed in CVTAE and the results of this project.

The fourth limitation of this study concerns potential participant recall bias. Recall bias occurs when participants in a survey do not remember behavior accurately. Students were given the survey six weeks into the semester to understand their feelings regarding their courses. This time frame was also chosen because students could evaluate their instructor's behaviors more accurately because they had been in the class longer. However, it is possible that it was too early in the semester for students to accurately assess their instructor's behavior for the purposes of the project. Future research could address this limitation by collecting data later in the semester when students have more established thoughts about their instructor's behaviors.

Finally, the fifth limitation of this study concerns the low mean score for hopelessness. The mean score for the hopelessness measure was 1.832 (*SD*= 1.003), suggesting that students in this sample felt hopelessness less often than the other achievement emotions. An explanation for

this low mean score could be that it may have been too early in the semester for students to experience this emotion. Like its counterpart, hope, hopelessness is a prospective outcome-focused emotion concerned with whether success can be attained (Pekrun, 2006). However, hopelessness occurs when students feel that failure will result from their academic pursuits (Pekrun & Linnenbrick-Garcia, 2012). At the point of the semester data was collected, there may not have been enough assignments or assessments for students to feel there was no possibility for success. Future research could address this limitation by collecting data later in the semester to better explore students' perceptions of hopelessness. If data was collected closer to the end of the semester, for example, students might feel more hopeless because they have more certainty that they will fail the course.

The results of this project also provide several avenues for future research beyond just the study's limitations. First, the study's results provided some initial evidence that the predictions of this theory work in an instructional communication context, particularly with rhetorical behaviors (Mottet et al., 2006) and positive, activating achievement emotions. Future research could continue to explore other instructional communication behavior's role in the processes of CVTAE to promote positive instructional outcomes through positive achievement emotions. For example, the initial conceptualization of CVTAE argues that instructor feedback could be one social factor that impacts the appraisals of control and value and later emotions and learning outcomes (Pekrun, 2006), which could provide another area to explore instructors' communication in this context. Feedback orientations, for example, refer to student perceptions of instructional feedback and consist of four dimensions; feedback utility (i.e., student belief that feedback can help them improve their academic performance), feedback sensitivity (i.e., the degree students feel threatened by feedback), feedback retention (i.e., whether or not students

remember the feedback), and feedback confidentiality (i.e., students' perceptions of the context (public vs. private) of the feedback; King et al., 2009). Feedback orientations, specifically retention and utility, are positively related to student self-efficacy, while sensitivity negatively correlates with self-efficacy (King et al., 2009). As such, according to the assumptions of CTVAE, if students perceive that the feedback that they receive is valuable and easily implementable, they should gain a sense of control over their academic outcomes because they feel better able to implement the feedback, leading to positive achievement emotions and positive achievement-related outcomes (Pekrun, 2006). Conversely, if students do not feel like the feedback is helpful or feel threatened by the feedback they receive, they may lose control and experience negative emotions and academic outcomes (Pekrun, 2006).

Another avenue for future research in instructional communication provided by CVTAE is the concept of autonomy-supportive instruction. Taken from self-determination theory (Ryan & Deci, 2000), autonomy-supportive instruction occurs when instructors use behaviors that help students control their learning by providing validation and support rather than controlling the educational environment (Reeve, 2009). Instructors can be autonomy-supportive by providing explanatory rationales for classroom activities, using non-pressuring language in class, recognizing students' negative affect, and taking student input when planning for and teaching classes (Reeve, 2016). Autonomy-supportive instruction has several benefits for students, including more class engagement and time spent on class activities (Jang et al., 2010). Additionally, when the class instruction is autonomy-supportive, students are more likely to participate because of increased motivation (Baker & Goodboy, 2019). CVTAE argues that elements of the environment influence students' control and value appraisals (Pekrun, 2006), so perhaps, when students are exposed to autotomy-supportive instruction, they will experience

more positive achievement emotions because this type of instruction helps students feel more control over their learning, compared to high levels of control from the instructor. Additionally, because autonomy-supportive instruction helps keep students engaged with course material, they may experience positive value appraisals, leading to more positive emotions.

In addition to other instructional behaviors that could influence the serial processes of CVTAE, instructional communication scholars could also continue to explore the role of individual student traits as moderators in these instructional processes. Even though mastery orientation was not a significant moderator in this study, other student characteristics may be more influential in these processes. Conscientiousness, for example, is one of the big five personality traits and refers to a trait where individuals are responsible, disciplined, and well-organized (Chmielewski & Morgan, 2013). Notably, conscientious individuals are also achievement-focused, able to set goals for themselves, and have strong leadership skills (McCrae & Costa Jr., 2008). Previous research has indicated that consciousness has several positive outcomes for students. Conscientiousness strongly predicts academic success (Kertechian, 2018). Conscientious students also spend more time on academic tasks (Brint & Cantwell, 2010), procrastinate less (Johnson & Bloom, 1995), and are more intrinsically motivated (Komarraju et al., 2009). Maybe, then, more conscientious students will not be as strongly affected in their appraisals of control and value when instructors use less clear or relevant instruction because these students generally tend to be more responsible and will strive for academic success regardless of what their instructor is doing and will be less affected by the negative emotions as others who are less conscientious. It is still essential to see which student characteristics impact the pathways related to CVTAE, despite the lack of evidence for these specific traits, because instructor behaviors do not exist independently of student traits (Goodboy, 2017), and future

research may consider which traits, if any, matter for student emotional experiences in undergraduate classes.

Summary

The results of this dissertation revealed that when instructors were clear, students were more intrinsically motivated to learn course material through positive appraisals of performance efficacy and the positive achievement emotions of enjoyment and hope, consistent with the theory's prediction, but also that enjoyment and hope both indirectly influenced motivation on their own. This likely occurred because clear instructors ensured that course-related activities did not overly challenge their students, helping them feel confident in their abilities to perform well because instructors gave them the tools they needed to succeed. This process also reduced boredom because students felt appropriately challenged by their work. Additionally, when instructors took the time to make the content relevant to student needs and goals, students were more motivated intrinsically to learn the material because they perceived that the content had subjective value to helping them complete course activities or achieve their goals, thus promoting enjoyment and hope. From a practical standpoint, the results demonstrate that instructors should take care to create well-organized lectures to encourage student motivation by helping students enjoy their classroom activities, feel hopeful that they can have success from their academic pursuits, and reduce student feelings of boredom in their lectures by ensuring that classroom activities are appropriately challenging and stimulating for them. The results also demonstrate that instructors should take the time to ensure that lecture content is relevant to students' interests and goals to promote enjoyment and hope and reduce student boredom. Ultimately, the results support using the control value theory of achievement emotions in an

instructional communication context to better understand the role of students' emotions in promoting positive academic outcomes in the undergraduate classroom.

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Appendix A: In-Person Recruitment Announcement

Hello Everyone,

Good morning/afternoon. My name is Katherine Armstrong, and I am a Ph.D. candidate in the Department of Communication Studies at West https://doi.org/10.1037/a0019243 https://doi.org/10.1037/a0019243Virginia University. I am currently conducting a research study about how instructors' behaviors affect students' emotions and motivation as part of my dissertation research. If you are a student at West Virginia University, currently enrolled in at least one course, and at least 18 years old, you are eligible to participate in this WVU-IRB-approved study.

This study will take approximately 20 minutes to complete. After taking the survey, you will be able to enter your identifying information for course credit through a separate portal such that your identity is not linked to your survey responses. Be sure to include your full name, instructor name, and course name so that you receive your proper credit. Your participation is entirely voluntary. You may skip any question that you do not wish to answer, and you may discontinue at any time. Your class standing, grades, student work status, or status on an athletic team, if applicable, will not be affected if you decide not to participate or withdraw. The West Virginia University Institutional Review Board's review of this research project is on file with the WVU Office of Human Research Protections.

If you have any questions about this study, please email co-investigator Katherine Armstrong at ka00008@mix.wvu.edu.

Thank you and have a good day!

Appendix B-Printed Bulletin Board/Internet Announcement

Title: Instructor Behaviors, Appraisals, and Student Emotions

Protocol Number: 2301710049

PI: Dr. Alan K. Goodboy

PI Email: agoodboy@mail.wvu.edu

Co-PI: Katherine E. Armstrong

Co-PI Email: ka00008@mix.wvu.edu

Purpose of Study (1 Sentence)
This study examines instructor behaviors' effects on students' emotions.

To be eligible for participation in this study, you must meet the following inclusion criteria:
a) 18 years or older
b) Enrolled in at least one course at WVU

Time Commitment: The questionnaire will take approximately 20 minutes to complete.

Data Collection Location: QUALTRICS LINK

Appendix C -Cover Letter

Dear Participant,

This letter is a request for you to participate in a research project examining students' feelings about their instructors' behavior. This project is being conducted by Katherine E. Armstrong, M.S., in the Department of Communication Studies at WVU, under the supervision of Dr. Alan K. Goodboy, Ph.D.

If you decide to participate, you will be asked to complete an anonymous survey assessing your perceptions of your instructor's behaviors and your emotions about attending classes. Your participation in this project will take approximately 20 minutes to complete. To participate in this study, you must be18 years of age or older and enrolled in at least one course at WVU. You will receive a minimal amount of extra credit to be determined by the instructor of the COMM course to whom the extra credit request is submitted for your participation in the study.

Your involvement is anonymous. You will not be asked any questions that could lead back to your identity as a participant. All data will be reported in the aggregate. Your participation is entirely voluntary. You may skip any question that you do not wish to answer, and you may discontinue at any time. Your class standing, grades, student work status, or status on an athletic team, if applicable, will not be affected if you decide not to participate or withdraw. West Virginia University's Institutional Review Board approval of this project is on file (Protocol number 2301710049). Your email address will be requested so that we can submit it to your course instructor for you to receive extra credit. However, it will be stored separately from any data collected in the study.

If you have any questions about this research project, please feel free to contact me by email at ka00008@mix.wvu.edu. If you have any questions about your rights as a research participant, please contact the WVU Office of Human Research Protection by phone at 304-293-7073 or by email at IRB@mail.wvu.edu.

I hope you will participate in this research project, as it could help us better understand student emotional responses in the classroom. Thank you for your time and consideration.

Sincerely,
Katherine E. Armstrong, M.S.
Alan K. Goodboy, Ph.D.

Appendix D-Demographic Questions

Pre-Survey Questions

1. The following questions on this survey will ask you to describe your experiences in one of your courses this semester. **You will be reporting on this same course throughout the rest of this survey.** Please identify the **course subject and number of your first course of the week**. (Example: CHEM 112, HIST 104, PSYC 101, etc.).

What type of course is this?

- Face-to-Face
- Hybrid
- Online

What is your current grade in this course? Please report this as a percentage.

Is this percentage actual or estimated?

- Actual
- Estimated

Is this class required as part of your major?

- Yes
- No

Have you had a course with this instructor previously?

- Yes
- No

What is your current GPA?

Is this actual or estimated?

- Actual
- Estimated

Post Survey Demographic Question

1. What is your age?

2. What is your gender?

- Man
- Woman
- Transgender Man
- Transgender Woman
- Nonbinary
- Other (Please specify)

3. What is your grade level?
   - First-Year
   - Sophomore
   - Junior
   - Senior

4. What is your race?
   - Asian
   - African-American/Black
   - Latino/a
   - Native American
   - Pacific Islander
   - White/Caucasian
   - Mixed Race
   - Other (Please Specify)

Appendix E

Clarity Indicators Scale (Bolkan, 2017a)
* Indicates a reverse coded item

1	2	3	4	5	6	7
Strongly Agree	Agree	Slightly Agree	Neither Agree nor Disagree	Slightly Disagree	Disagree	Strongly Disagree

1. My teacher's lectures are well organized*
2. Our class lectures are organized into specific, manageable content blocks*
3. My teacher makes class material easier to learn by teaching us one step at a time*
4. It is easy to follow along with the structure of my teacher's lessons*

Appendix F

Content Relevance Scale-(Frymier & Shulman 1995)

0	1	2	3	4
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

My instructor…

1. Uses examples to make the content relevant to me
2. Provides explanations that make the content relevant to me
3. Uses exercises or explanations that demonstrate the importance of the content
4. Explicitly states how the material relates to my career goals or my life in general.
5. Links topics to other areas of content
6. Asks me to apply content to my own interests
7. Give assignments that involve the application of content to my career interests
8. Helps me to understand the importance of the content
9. Uses own experiences to introduce or demonstrate a concept
10. Uses student experiences to introduce or demonstrate a concept
11. Uses discussion to help me understand the relevance of the topic
12. Uses current events when teaching a topic

Appendix G

Self-Efficacy for Learning and Performance Subscale (Pintrich et al., 1991)

1	2	3	4	5	6	7
Not at all True of Me						Very True of Me

1. I believe I will receive an excellent grade in this class
2. I'm certain I can understand the most difficult material presented in readings for this course.
3. I am confident I can understand the basic concepts taught in this course
4. I am confident I can understand the most complex material presented by the instructor in this course.
4. I'm confident I can do an excellent job on the assignments and tests in this course.
6. I expect to do well in this class
7. I am certain I can master the skills being taught in this class
8. Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class.

Appendix H

Task Value Subscale (Pintrich et al., 1991)

1	2	3	4	5	6	7
Not at all True of Me						Very True of Me

1. I think I will be able to use what I learn in this course in other courses.
2. It is important for me to learn the course material in this class.
3. I am very interested in the content area of this course.
4. I think the course material in this class is useful for me to learn.
5. I like the subject matter of this course.
6. Understanding the subject matter of this course is very important to me.

Appendix I

Achievement Emotions Questionnaire Short Form (Bieleke et al., 2021)

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

Enjoyment
1. I enjoy being in class
2. I am looking forward to learning a lot in this class
3. I am motivated to go to class because it's exciting
4. I enjoy participating so much that I get energized

Hope
1. I am confident when I go to class
2. I am full of hope
3. I am confident because I understand the material
4. Being confident that I will understand the material motivates me

Anxiety
1. I feel nervous in class
2. Even before class, I worry whether I will be able to understand the material
3. Because I am so nervous, I would rather skip the class
4. I get tense in class

Boredom
1. I get bored
2. The lecture bores me
3. I think about what else I might be doing rather than sitting in this boring class
4. I get restless because I can't wait for the class to end

Hopelessness
1. I feel hopeless
2. I have lost all hope in understanding the class
3. Because I've given up, I don't have energy to go to class
4. I feel so hopeless my energy is depleted

Appendix J

Motivation To Learn Scale (Goldman et al., 2017)

* Indicates a reverse coded item

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree

1. Learning new concepts in this class is fulfilling to me.
2. Developing my understanding of the content is rewarding to me.
3. Learning new things in this class makes me feel better about myself.
4. I find learning new things in this class to be unfulfilling.*
5. Understanding new concepts in this class is enjoyable to me.
6. It is personally satisfying for me to learn new concepts in this class.
7. I get a sense of fulfillment when I learn new things in this class.
8. I do not enjoy trying to comprehend new ideas in this class.*
9. Learning new things in this class makes me feel like I am growing as a person.
10. I desire to learn new things in this class because it gives me a sense of fulfillment.

Appendix K

Mastery Orientation Items (Harackiewicz et al., 2000)

1	2	3	4	5	6	7
Not at all True of Me						Very True of Me

1. I want to learn as much as possible in this class.
2. In a class like this, I prefer course material that really challenges me so I can learn new things.
3. The most important thing for me in this course is trying to understand the content as thoroughly as possible.
4. Understanding the material is important to me.
5. I like it best when something I learn makes me want to find out more.
6. In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn.