1-1-2010

Re-Engagement as a Process of Everyday Resilience

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Re-Engagement as a Process of Everyday Resilience

by

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A thesis submitted in partial fulfillment of the
requirements for the degree of

Master of Science
in
Psychology

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Portland State University
2010

Abstract

Grounded in previous research on academic engagement and resilience, this study presents a clear conceptualization of re-engagement, defined as students' ability to bounce back from everyday academic challenges and setbacks, as a process of everyday resilience in school, and examines how teacher support can promote it. Data from 1018 third through sixth grade students and their 53 teachers were used to examine the extent to which teacher autonomy support and involvement (individually and in combination) predicted changes from fall to spring of the same school year in students' re-engagement (behavioral and emotional).

Overall, correlational results provided consistent support for study hypotheses. In terms of unique effects, teacher autonomy support (both student- and teacher-reported) was a unique predictor of both behavioral and emotional re-engagement, whereas involvement (both student- and teacher-reported) was a unique predictor for behavioral but not emotional re-engagement. In terms of predicting change over the school year, student perceptions of autonomy support predicted changes in both behavioral and emotional re-engagement, but teacher-reports predicted changes only in behavioral re-engagement; teacher-reported involvement showed the same pattern of effects. When both involvement and autonomy support (student-reported) were used as predictors of changes in re-engagement, both made unique contributions, although teacher-reports did not, due to multi-collinearity.

Students' perceptions of teacher support were more closely related to their re-engagement than was teacher-reported support, and those perceptions acted as

mediators between the teacher-reported support and students' re-engagement, partially mediating the relationship between teacher-reported support and students' behavioral re-engagement, and fully mediating the relationship between teacher-reported autonomy support and emotional re-engagement. The relationships between teacher support and student re-engagement played out similarly for students at all grades and both genders, with the exception that student perceptions of teacher autonomy support were more important predictors of behavioral re-engagement for boys than for girls.

This study has implications for the conceptualization of re-engagement within a larger motivational model, for the importance of considering both teachers' and students' perspectives when studying teacher-student interactions, and for next steps in conceptualizing the construct of re-engagement as potentially encompassing separate behavioral and emotional components.

Acknowledgments

I would like to thank the many people who contributed to this project. My mentor and thesis chair, Ellen Skinner, has been continually supportive and energetic, encouraging me throughout this process and providing invaluable discussions and feedback. Thanks also to the other members of my thesis committee, Thomas Kindermann and Robert Roeser, for their enthusiasm, insightful recommendations, and reminders to enjoy the journey.

I would also like acknowledge my family and friends, who have been immensely patient and supportive throughout these past few years. Particularly, I am grateful to the ongoing developmental seminar group for their willingness to discuss new concepts and issues as they arose. And, a special thank you to my husband, Chris, for his constant encouragement, ideas, and love of adventures.

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Literature Review

Historically, there has been great enthusiasm for studying motivation in learning. Within the last decade, academic engagement versus disaffection has emerged as the subject of considerable research targeting predictors of positive academic outcomes such as academic achievement and retention. Engagement is a dynamic process referring to students' active, attentive, energized, and sustained involvement in learning activities (Skinner, Furrer, Marchand, & Kindermann, 2008; Marks, 2000). It is a multidimensional construct encompassing cognitive, behavioral, and emotional components (Jimerson, Campos, & Greif, 2003). Students who are engaged show consistently high behavioral involvement in learning tasks, are excited and intrinsically interested in the topic at hand, and show positive emotions such as enthusiasm, interest, and curiosity. Disaffection, on the other hand, is more than simply the absence of engagement. It is characterized by students' negative behavioral, emotional, and cognitive states such as passivity, boredom, or apathy (Skinner, Kindermann, Connell, & Wellborn, 2009).

Engagement is important as a motivational state in its own right (Skinner et al., 2009), and is positively related to important outcomes such as achievement (Ullah & Wilson, 2007), retention (Janosz, Archambault, Morizot, & Pagani, 2008), and learning (Appleton, Christenson, & Furlong, 2008). Moreover, studies have also shown that engagement protects students from negative outcomes (e.g., Morrison, Robertson, Laurie, & Kelly, 2002; Finn, 1989), whereas disaffection is a risk factor for them. Engagement is especially important because it is thought to be malleable

(Fredricks, Blumenfeld, & Paris, 2004), unlike the "status" predictors (e.g., race, gender, or socioeconomic status) that are often employed in educational research. Its role as a proximal predictor of key educational outcomes makes it particularly amenable to interventions and thus of strong interest to researchers and educators alike.

Unfortunately, however, levels of engagement show a linear decline from the moment students enter kindergarten, with marked decreases during the transitions to middle and high school (Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006; Gottfried, Fleming, & Gottfried, 2001; Fredricks & Eccles, 2002; Anderman & Maehr, 1994). These declines are especially noticeable for boys and students coming from low socioeconomic status and ethnic minority backgrounds (Finn, 1989; Spencer, 2006; Wigfield, et al., 2006). Engagement is an exciting area of research because studying its antecedents and predictors can help identify potential pathways for curbing these decreases in engagement, and thus positively influencing important educational outcomes.

Conceptualization of Engagement vs. Disaffection

However, this enthusiasm about engagement has led to confusion about the nature of the construct and how to think about its outcomes. Although there is no consensus about how to conceptualize the construct of engagement, a dynamic model of motivational development has been proposed that is helpful in understanding the antecedents and consequences of engagement versus disaffection (e.g., Connell, 1990; Connell & Wellborn, 1991; Skinner & Wellborn, 1994; Skinner et al., 2009). This self-

system model of motivational development (SSMMD) describes the dynamic

processes involved as an individual's support from his or her social context supports or

hinders various self-system processes, which in turn promote ongoing patterns of

action and, ultimately, relevant outcomes. Rooted in Deci & Ryan's (1985) self-

determination theory and other organismic theories of intrinsic motivation, the

SSMMD describes how, for example, a teacher's support (or lack thereof) affects

students' self-perceptions, which in turn affect how engaged they are in school. This

engagement (or, oppositely, disaffection) is a strong predictor of important outcomes

such as achievement and retention. The SSMMD is depicted in Figure 1.1.

The SSMMD assumes that the quality of students' participation in classroom

activities (i.e., their engagement) is a marker of their quality of motivation. This

reflects the extent to which students' underlying motivational needs have been met by

the context and its activities. Specifically, the SSMMD assumes that individuals'

motivational outcomes are optimized when their interactions with their social contexts

fulfill the three innate psychological needs put forth by Deci & Ryan's (1985) self-

determination theory. These include the need for *competence*, which is the need to feel

effective and to have control with respect to one's environment; for *relatedness*, which

is the need to have meaningful connections with significant social partners or groups;

and for *autonomy*, which is the need to be the source of one's own actions.

Students' self-system processes (SSPs) are organized around these needs for

competence, relatedness, and autonomy (Connell, 1990). The SSPs are an individual's

appraisals of self in relation to his or her ongoing experiences. They are the result of a

Figure 1.1. Self-System Model of Motivational Development
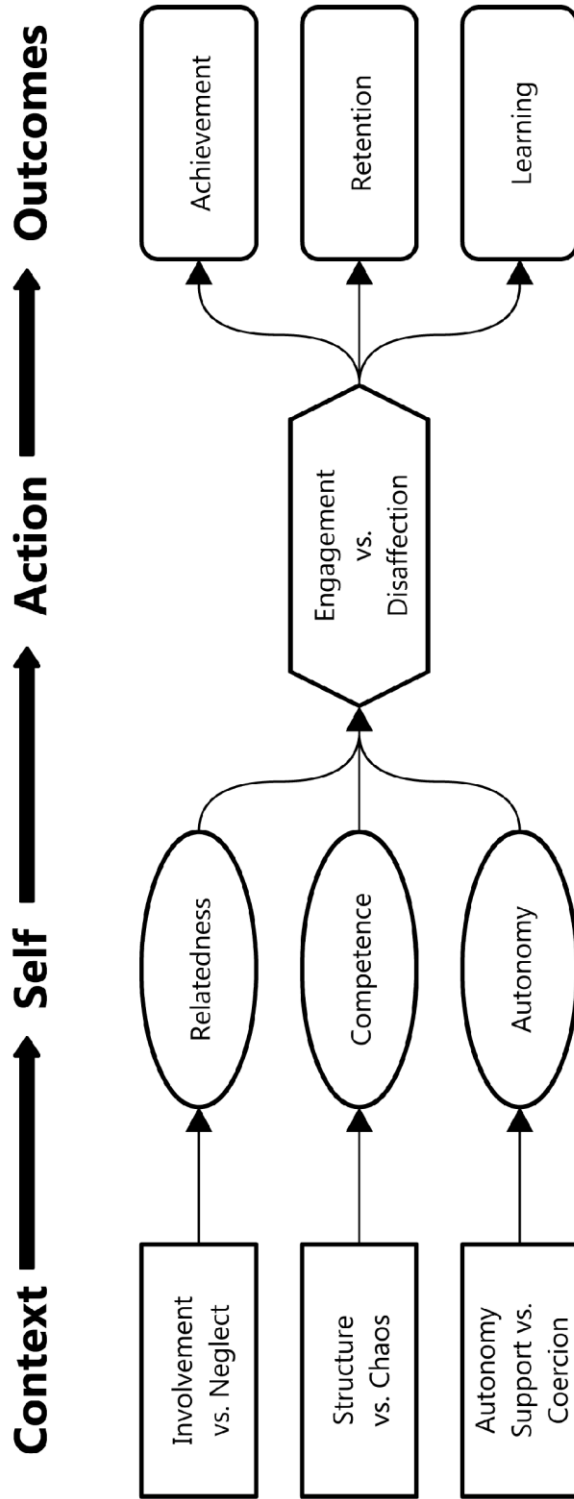
dialectical interaction between the individual's innate psychological needs and his or

her social context. These SSPs are manifest in individuals' perceptions of autonomy,

competence, and relatedness, which explains why constructs such as sense of

belongingness, perceived control, and autonomy are consistently strong predictors of

engagement and achievement (e.g., Roeser & Eccles, 1998; Skinner, Wellborn, &

Connell, 1990; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004).

Students' interactions with social partners (e.g., teachers, parents, peers)

contribute to these needs being fulfilled. These social partners offer motivational

provisions that either facilitate or thwart individuals' need satisfaction, and thus shape

their ongoing engagement and development. Specifically, teachers can support or

undermine a student's needs by providing involvement versus neglect, structure versus

chaos, and autonomy support versus coercion. *Involvement versus neglect* refers to the

interpersonal relationship between the teacher and student. It is often referred to as

warmth or pedagogical caring (e.g., Wentzel, 1997), and is assumed to promote a

student's need for relatedness. *Structure versus chaos* includes provision of contingent

environments and clear explanation of expectations, which is assumed to support a

student's sense of competence. Lastly, *autonomy support versus coercion* refers to the

provision of environments that include shared decision making between the teachers

and students, consist of contexts that provide relevant choices to students, and

minimize external controls (e.g., grades, rewards, punishments) as the main motivating

factors for participating in learning activities. These contextual supports are strong

predictors of both SSPs and engagement (e.g., Skinner & Belmont, 1993; Reeve, Jang,

Carrell, Jeon, & Barch, 2004). Of key interest in this study are the effects of teacher support, but it is important to remember that the influence of interactions with parents and peers cannot be ignored (Wentzel, 1998).

The SSMMD is a general framework that distinguishes context, self, action, and outcomes. It is a useful tool for organizing complex and dynamic constructs such as engagement, particularly for scientists and practitioners attempting to identify tangible and malleable predictors of motivational outcomes. This general model affords researchers the ability to distinguish which factors are truly contained within the construct being studied (i.e., action) versus being an antecedent (i.e., context or self) or consequence (i.e., outcome) of it. It allows room for meaningful integration among multiple conceptualizations of the same constructs, giving them a common model with which to evaluate the processes involved.

From Engagement to Resilience

The construct of engagement, despite its importance in student learning and retention, is not sufficient to describe the range of motivational processes students need to succeed in school. Engagement focuses on students' ongoing active participation in learning activities. However, students daily encounter setbacks and challenges in the course of ordinary school life. Examining the processes involved when students encounter these everyday struggles is essential. Engagement is crucial, but also critical are the moments following obstacles during which a student stays on course or gives up. How students respond to challenges and difficulties in school is the main focus of work in the area of academic resilience.

Though a relatively small proportion of resilience research has focused on the academic domain, it has been studied widely in a more general sense. Resilience refers to a broad, overarching developmental construct depicting how people can stay afloat despite experiencing significant hardship over an extended period of time (see Luthar, 2006; Masten, 2007). It is a "dynamic process encompassing positive adaptation within the context of significant adversity" (Luthar, Cicchetti, and Becker, 2000, p. 543). This positive adaptation can occur in multiple domains (e.g., educational, emotional, and behavioral), and individuals can exhibit resilient behaviors in one domain but not others.

Within the academic domain, most resilience research has focused on students who excel despite chronic or acute environmental adversities such as living in poverty or experiencing traumatic life events (e.g., Wang, Haertal, & Walberg, 1994; Finn & Rock, 1997). Academic resilience involves processes for dealing with failures and setbacks, examining how students continue to engage successfully in school despite adverse or unexpected circumstances. It is important to recognize that work on resilience focuses on a relatively small (but extremely important) group of individuals who have experienced significant adversity but have continued to succeed despite it.

Everyday Resilience

An important extension of academic resilience involves what Martin & Marsh (2008a) refer to as *everyday resilience*. Martin and Marsh (2006; 2008a; 2008b; 2009) propose the importance of studying this construct, which they call academic buoyancy, as a potential pathway to academic (and overall) resilience. Academic buoyancy refers

to "students' ability to successfully deal with academic setbacks and challenges that

are typical of the ordinary course of school life (e.g., poor grades, competing

deadlines, exam pressure, difficult schoolwork)" (Martin & Marsh, 2008a, p. 72). Key

differences between academic resilience and academic buoyancy are presented in

Table 1.1. In general, academic resilience focuses on longer, more severe challenges

experienced by students, whereas academic buoyancy involves ongoing struggles that

are experienced from time to time by all students. For example, academic resilience

would be applicable for a student who was dealing with continual disaffection from

school, whereas academic buoyancy would be relevant to a student experiencing more

average dips in motivation that all students experience occasionally.

Table 1.1

Difference in Focus Between Academic Resilience and Academic Buoyancy

Academic Resilience	**vs.**	**Academic Buoyancy**
Chronic underachievement	vs.	Isolated poor grades and patches of poor performance
Overwhelming feelings of anxiety	vs.	Typical stress levels and daily pressures
Debilitation in the face of chronic failure or anxiety	vs.	Threats to confidence resulting from a poor grade
Clinical types of affect (e.g., anxiety and depression)	vs.	Low-level stress and threats to confidence
Truancy and disaffection from school	vs.	Dips in motivation and engagement
Comprehensive and consistent alienation or opposition to teachers	vs.	Minor conflict with teachers, such as negative feedback on schoolwork

Note. Adapted from Martin & Marsh (2009)

Martin and Marsh (2008a) argue that academic buoyancy is likely a necessary

but not sufficient condition for life resilience that is relevant to all students rather than

only the few who have unfortunately experienced significant adversity. The authors

propose that by focusing on promoting students' ability to deal with everyday

challenges and demands, students will be better prepared to deal with more severe

obstacles if and when they are encountered. Their work has included extensive

discussion of a variety of interpersonal, intrapsychic, and motivational predictors of

academic buoyancy.

Organizing Models of Academic Buoyancy

In order to more fully understand how academic buoyancy functions, it is

helpful to organize its components within the SSMMD framework, specifying which

aspects relate to the students' context, self, action (in this case, differentiating between

ongoing actions and those reflecting buoyancy as demonstrated by Klem & Connell,

2004), or outcomes. A summary of Martin and Marsh's (2008a; 2008b; 2009)

conceptualization of academic buoyancy can be found in Table 1.2, followed by a

summary of their empirical academic buoyancy work to date (Martin & Marsh 2006;

2008a; 2008b; 2009; Parker & Martin, 2009) in Table 1.3. As can be seen, Martin and

Marsh's work includes a consideration of context, self, action, and outcomes.

Action. Buoyancy itself is a pattern of action. That is, it is a set of behaviors

that result in successful navigation of challenging experiences, required when setbacks

obstruct the individuals' normative ongoing actions. Martin & Marsh's (2008a; 2008b;

2009) conceptualization of academic buoyancy identifies several motivated actions

that are important to the construct. These actions are the result of individuals'

interactions with their environment and internal processing, including, for example,

persistence, academic engagement, and enjoyment of school. In addition to these

Table 1.2
Summary of Conceptual Academic Buoyancy Work

	Context	Self	Action		Outcomes
			Ongoing	Buoyancy	
School	Challenging curriculum Clear school mission Strong school leadership School funding School resources Class size Safe and orderly school Opportunities to be actively involved in school Healthy school environment Positive school experiences	Self-efficacy Uncertain control Sense of purpose Educational aspirations Valuing of school Self-esteem Belonging in school Mastery orientation Positive intentions Failure avoidance Belief own efforts can make a difference Motivation	Anxiety Academic engagement Class/workplace participation Enjoyment of school Extra-curricular activity Attendance Planning Task management Persistence Enjoyment of work/school Participation in workplace duties Homework completion Absenteeism Study management Self-handicapping Effective approaches to learning Effort	Everyday resilience Academic buoyancy Workplace buoyancy Academic resilience Coping	Achievement Learning Performance Rankings Scores GPA Marks Skill development
Teachers	Teacher responsiveness Effective teacher feedback Relationship with teachers Caring and supportive teachers Positive expectations for students				
Peers	Informal network of friends Peer commitment to education				
Family	Family support Authoritative and caring parenting				
Community	Connection to pro-social organizations Positive bond with pro-social adult				

Table 1.3
Summary of Empirical Academic Buoyancy Work

	Context	Self	Action		Buoyancy	Outcomes
			Ongoing			
Martin & Marsh (2006)		Self-efficacy Mastery orientation Valuing of school Uncertain control General self-esteem	Persistence Planning Anxiety Class participation Study management Failure avoidance Self-handicapping Enjoyment of school		Academic resilience	
Martin & Marsh (2008a)	Relationship with teachers	Self-efficacy Uncertain control	Anxiety Academic Engagement		Academic Buoyancy	
Martin & Marsh (2008b)		Self-efficacy Valuing of school Mastery orientation Uncertain control Positive intentions	Task management Persistence Planning Anxiety Failure avoidance Enjoyment of work/school Workplace/class participation Participation in extra workplace duties Homework completion Days absent from work/school		Workplace Buoyancy Academic Buoyancy Coping	
Parker & Martin (2009)		Mastery orientation	Self-handicapping Planning Failure avoidance Work-related engagement Absenteeism		Workplace buoyancy	

ongoing actions, several actions are discussed which address the "buoyancy" role directly, serving to bring the individual back to the ongoing motivated actions after encounters with challenges or adversity. Examples of these actions include academic buoyancy itself, but also coping, academic resilience, and workplace buoyancy.

Context. As can be seen in Table 1.2, Martin and Marsh (2008a; 2008b; 2009) outline a number of contextual predictors in their conceptualization of academic buoyancy, spanning multiple settings and social partners. These include, for example, characteristics of the school, teachers, peers, family, and community. School characteristics include items such as funding, class size, safety, and curriculum. Teacher characteristics consist of their relationships with students, offering effective feedback and support, and being responsive to students' needs. Student action can also be influenced by their friendships and peer relations, including their peers' commitment to education. Likewise, family and community support can offer, for example, authoritative and caring parenting and positive connections to pro-social adults and organizations. Each of these contextual supports, if present, can promote academic buoyancy and positive outcomes within the SSMMD model.

Self. Many self-system processes are also referenced in Martin and Marsh's (2008a; 2008b; 2009) conceptualization of academic buoyancy. These processes result from individuals' interactions with the various components of their social contexts, bridging their social interactions and motivated actions. Within academic buoyancy, processes such as self-efficacy, self-esteem, and mastery orientation are considered central.

Outcomes. These motivated actions culminate in a variety of outcomes that are typically of direct interest in educational research, such as student achievement, learning, and performance. These variables are often looked at as outcome variables in their own right, but the SSMMD is helpful in outlining and organizing the processes that promote or impede these outcomes.

Processes of Everyday Resilience

Within their empirical work, summarized in Table 1.3, Martin & Marsh (2006) have identified several underlying processes that predict academic buoyancy. These "5Cs" of academic buoyancy include control, confidence (that is, high self-efficacy), coordination (exhibiting a high level of planning), composure (experiencing low anxiety), and commitment (demonstrating a high level of persistence). These predictors are important because they are malleable factors that can be targeted specifically within classroom practices and interventions.

Of particular interest in this study is the role in academic buoyancy of persistence or commitment, referring to the extent to which a student continues trying when they run into trouble. A key aspect of academic buoyancy includes persevering despite running into obstacles that are ordinary in everyday academic life. It is essential that when something happens to pull a student off path and interferes with his or her progress, the student has the capacity to overcome those setbacks and re-engage with the learning tasks at hand. If it is assumed that it is a student's active engagement in learning tasks that will ultimately result in positive educational outcomes, then it is vitally important to understand that processes involved in students' ability to *re-engage*

with learning when they run into trouble.

Re-engagement and Learned Helplessness

Re-engagement is a process that leads one to try again rather than giving up when challenge or failure is encountered, making persistence of particular interest. Persistence has been identified as one important predictor of academic buoyancy in recent studies (e.g., Martin & Marsh, 2006; 2009), but its importance is neither new nor surprising. For decades, researchers have been studying variation in individuals' responses to failure. Much can be learned from the extensive research conducted in the areas of learned helplessness and mastery about why, when students run into trouble, some try harder and some give up altogether.

Beginning in the late 1960s, Martin Seligman and his colleagues identified, originally in dogs, helpless responses when organisms experience prolonged exposure to non-contingent events (e.g., Maier & Seligman, 1976; Abramson, Seligman, & Teasdale, 1978; Nolen-Hoeksema, Girgus, & Seligman, 1986). These uncontrollable experiences lead individuals to believe that nothing they can do will make a difference to future outcomes, leading them to simply give up entirely. Such situations give rise to motivational, cognitive, and emotional deficits, even in contingent environments, collectively forming a cycle of helpless behavior that can be crippling and difficult to reverse (Nolen-Hoeksema et al., 1986).

Academic domain. A program of research by Carol Dweck and her colleagues applied these ideas to the actions of children in the academic domain. In a classic study, Diener and Dweck (1978) classified fifth- and sixth-grade students as either

mastery-oriented, in which students attributed the failure to lack of effort, or prone to

helplessness, in which students attributed the failure to a lack of ability, based on their

responses to a survey. The researchers then examined the students' reactions while

dealing with an unsolvable puzzle and recorded their verbalizations, attributions, and

patterns of action while dealing with experiences of failure. The helpless children

tended to focus on the causes of the failure, exhibiting passivity and giving up quickly,

blaming themselves and their abilities for their failures. In contrast, the mastery-

oriented children tended to focus on solutions to the problem, persisting with increased

effort and more sophisticated problem-solving strategies. The mastery-oriented versus

helpless response types were central in the researchers' future exploration of the

antecedents and consequences of students' reactions to failure.

     In general, mastery-oriented children enjoy challenges, set high goals for

themselves, exert high effort, and concentrate on the task at hand. When failure is

encountered, they tend to view it as information about how they can improve their

performance in the future rather than viewing the failure as an assault on their personal

abilities. When dealing with obstacles, mastery-oriented children respond with more

determination and persistence, show less distress, and initiate more proactive patterns

of action such as planning, studying, and practicing.

     Helpless-oriented children, on the other hand, often avoid challenge, set less

specific goals for themselves, and are easily distracted. These children tend to do just

enough to get by and experience more self-derogatory thoughts. When dealing with

these setbacks, helpless-oriented children tend to give up quickly, avoid help, ruminate

on their failures, and give excuses for their performance.

The core feature at the heart of this research is understanding these patterns of action, particularly why some students respond to challenge with persistence and determination, whereas others respond with dejection and giving up. Although later research shifted in focus to the antecedents of learned helplessness and mastery, the studies still preserved patterns of action as the core constructs defining learned helplessness and mastery. Several recent studies will be described in order to demonstrate the centrality of these constructs throughout this program of research on learned helplessness.

Subsequent research on learned helplessness. To further examine the categories they had identified, Diener and Dweck (1980) also examined the effects of mastery versus helpless orientations on children's processing of successes. In this work, fourth-, fifth-, and sixth-grade students were observed as they completed a series of successful puzzle solutions followed by a series of unsuccessful attempts. The students were asked to discuss their performance on a task either after a success or after a failure. Students who had previously displayed a mastery-orientation on a questionnaire tended to show improvement or stability in their hypothesis-testing strategies following failure, whereas those who had displayed a helpless orientation showed deterioration in the strategies they used. The mastery-oriented students were also more likely than the helpless-oriented students to accurately report their successes and to be confident in their ability to succeed in the future.

Elliot and Dweck (1988) demonstrated that helpless and mastery-oriented

responses to failure can be directly created by implementing performance and learning goals. Fifth-grade students were told that their current performance level was either low or high, and given instructions for the task emphasizing either learning or performance goals. Students who were given performance goals exhibited attributions and actions resembling those of learned helplessness, whereas students who were given learning goals displayed more adaptive, mastery-oriented explanations for their actions. Specifically, students who had been given performance goals and low perceived ability showed significant deterioration of their problem-solving strategies following failure and attributed their failures to factors that were uncontrollable, whereas the students who had been given learning goals did not tend to experience decreased problem-solving strategies, and did not demonstrate attributions or negative affect after their experiences with failure.

Children's responses to failure have also been shown to be influenced by teachers' praise and criticism. In a sample of kindergarten students, Kamins and Dweck (1999) demonstrated that children's responses to criticism depended on whether it was directed at the child as a whole (trait-related feedback) or at his or her specific strategies or effort (process feedback). Students who received more global, person-based evaluations demonstrated significantly more helpless patterns of reactions, whereas students who received process feedback displayed mastery-oriented patterns, generating alternate strategies and calling for additional effort. Specifically, children who were offered process feedback after a setback demonstrated higher levels of persistence and more positive affect than those who were offered person feedback.

Summary. The learned helpless and mastery behaviors described by Dweck's (1999) research are prototypical examples of what is meant by re-engagement (or lack thereof). These ideas can guide understanding of individual's reactions to failure, providing extensive examples of situations which promote the development of a mastery orientation as opposed to helplessness. Although these theories have gotten more elaborate and developmental over the years, this work has never strayed from the central focus of studying patterns of action in the face of failure, which is the core definition of mastery-oriented and helpless behaviors, and ultimately, re-engagement. The constructs of learned helplessness and mastery are clearly a part of academic buoyancy and re-engagement. Both re-engagement and academic buoyancy involve coping with obstacles and setbacks, with emphasis on the subsequent patterns of action. In Dweck's (1999) work, emphasis is placed on how these mastery versus helpless response patterns are triggered by encounters with obstacles and failures.

Supporting Re-Engagement

In the frameworks that have considered everyday resilience, most have focused on students' self-system processes, such as self-efficacy or uncertain control, as predictors. Considerably less attention has been devoted to studying the contextual elements that influence students' everyday resilience. Additionally, as is the case with the academic buoyancy work (see Table 1.3), the bulk of the contextual consideration has had a tendency to emphasize the importance of teacher involvement and the interpersonal closeness between the teacher and student.

Teacher Involvement vs. Neglect

The positive effects of teacher involvement on student motivation and academic engagement are well-documented. Pianta (2006) reviews the impact of student-teacher relationships on an array of outcomes, stressing the dynamic and reciprocal nature of these relationships and the fact that they are embedded in many other systems (e.g., families, peer groups), thus having wide ranging influences. For example, student-teacher relationships have been demonstrated to be related to academic competence, trajectories toward academic success or failure, peer relationships, parent-child relationships, social and emotional adjustment, and patterns of disruptive behavior. They have also been shown to be a protective factor, such that students who are at risk for referrals to special education programs or grade retention but were not held back or referred indicated experiencing better relationships with their teachers (Pianta, Steinberg, & Rollins, 1995). The student-teacher relationship was particularly important to students' self-esteem in middle school, and especially salient for students who experience low levels of parental support.

Teacher-student relationships have been demonstrated to be especially critical for students' motivation. Using the model on which the SSMMD is based, Deci and Ryan (1985) stress the importance of relationships as part of the foundation for motivation and success in school, citing the need for relatedness as essential for promoting optimal motivational states. Likewise, Wigfield and his colleagues (2006) described the numerous motivational influences that can result from a student's experience of a caring, supportive relationship with his or her teacher, including

engagement, development of positive self-perceptions and values, high self-esteem, persistence on learning tasks, and a sense of belongingness at school.

Emphasizing the importance of pedagogical caring, Wentzel (2009) demonstrated the effects of students' perceptions of caring teacher relationships on their social and academic outcomes. She described effective teachers as those that "develop relationships with students that are emotionally close, safe, and trusting, that provide access to instrumental help, and that foster a more general ethos of community and caring in classrooms" (p. 301). These relationships are demonstrated to be important for the development of positive peer relationships and prosocial behaviors, as well as to motivational constructs such as perceived control, self-esteem, self-regulatory skills, mastery orientations, interest, self-efficacy, and perceived autonomy. Clearly, this relationship is crucial for the development of student motivation and engagement.

For example, Skinner and Belmont (1993) found teacher involvement (i.e., attunement, dedication of resources, affection, and dependability) to be central to students' behavioral and emotional engagement. Students who experienced more teacher involvement at the beginning of the school year tended to become more enthusiastic about the material being learned and to more actively participate in the learning tasks as the year progressed. Additionally, the level of student engagement had reciprocal effects on the teacher behaviors, such that students who were more engaged to begin with also elicited additional teacher involvement as compared with less engaged peers.

Andrew Martin and his colleagues (2007) also demonstrated the importance of students' relationships with their teachers. Using a sample of 3450 Australian high school students (ages 12-18), they demonstrated that both student-teacher and parent-child relationships have significant connections to student outcomes such as academic motivation, engagement, general self-esteem, and academic self-concept. Additionally, the teacher effects were stronger than the parent effects, especially for outcomes in the academic domain.

Martin & Marsh (2008a) have also examined teacher involvement in relation to academic buoyancy. Their work identified teacher-student relationships as one of the key factors in creating a school community that is supportive of a student's capacity to bounce back from everyday struggles and setbacks. With a sample of Australian high school students and their teachers, they demonstrated that teacher-student relationships (in addition to student engagement, self-efficacy, and anxiety) significantly predicted changes in students' academic buoyancy over time. Students who reported higher levels of relationship with their teachers also reported higher levels of capacity to deal with everyday struggles and adversity.

Without questioning the importance of warmth, however, it is also necessary to consider the influence of other complementary contextual influences assumed to be essential within the SSMMD, such as autonomy support. This is particularly important because the provision of autonomy support is likely an essential element in the provision of the type of interpersonal relationship that supports students' motivation and engagement (Reeve, 2006).

Autonomy Support vs. Coercion

In research on the role of teachers on student motivation, an important influence that has been receiving increasing attention is autonomy support. Autonomy support is "the interpersonal behavior one person provides to involve and nurture another person's internally locused, volitional intentions to act, such as when a teacher supports a student's psychological needs (e.g., autonomy, competence, relatedness), interests, preferences, and values" (Reeve & Jang, 2006, p. 210). Autonomy supportive environments, as opposed to controlling or coercive environments, help to nurture individuals' inner endorsement of their activities, allowing them to make choices and decisions, appreciating their ideas and opinions, and providing relevant rationale for activities. Reeve and his colleagues (2004) asserted that autonomy support encompasses relying on informational and noncontrolling language and acknowledging and accepting students' expressions of negative affect, promoting value in uninteresting activities by nurturing inner motivational resources.

The ways in which teachers interact with students can support or undermine students' self-determination and intrinsic motivation. A function of autonomy support, then, is to provide a context in which the students feel they can be the origins of their own behavior, acting on their own true desires, either because they are intrinsically motivated or because they have internalized the importance of the academic activities, thus increasing engagement. In contrast, contexts that are pressured or controlling will undermine enjoyment of activities, even if they were originally intrinsically motivating. These coercive contexts can result in opposition or frustration, as well as a

lack of effort and drained energy (Deci & Ryan, 2000).

The effects of teacher autonomy support versus coercion have been studied in individuals of varying ages and with a number of different methods. Table 1.4 summarizes a subset of empirical studies that consider the effects of teacher autonomy support in the academic domain. Autonomy support has demonstrated a generally positive impact on student outcomes such as motivation, engagement, learning, and persistence. These relationships hold true using a variety of methodologies (e.g., self-report questionnaires, observations, and experimental designs) and for students as young as first grade (e.g., Koestner, Ryan, Bernieri, & Holt, 1984) on into college and adulthood (e.g., Black & Deci, 2000; Reeve & Jang, 2006).

Effects of Autonomy Support on Re-Engagement. A subset of these studies included among their dependent variables constructs related to re-engagement versus giving up. For example, an experimental study by Koestner and his colleagues (1984) demonstrated the causal effects of teachers' controlling versus informational styles on intrinsic motivation and creativity. Forty-four first- and second-grade students participated in a painting activity which was assumed to be intrinsically interesting to the children. The participants were randomly assigned to groups with varying amounts of teacher controllingness. The first group received *informational limits*, with an explanation of a few rules about painting in an autonomy supportive manner (i.e., explaining why it was important for the child not to make a mess). The second group received *controlling limits*, simply stating the rules firmly without explanation of their relevance. Finally, the third group served as a control group that received no additional

Table 1.4
Summary of Autonomy Support Studies

Study	Definition of Autonomy Support	Measurement	Sample	IV	DV	Benefit of Autonomy Support
Benware & Deci (1984)	"intrinsic motivation is based in the need to be effectively self-determining and to have a meaningful impact on one's environment." (p. 756)	Students were given an article on brain functioning to read at home (control group versus experimental – tested on versus need to teach to classmate), then completed questionnaire 2 weeks later on motivations and attitudes, and an exam on the materials	N = 43 College	Learning in order to teach versus learning to be examined	Intrinsic motivation (*interest in the learning material, enjoyment of experiment, additional time willing to participate in the experiment*), Active/passive (*manipulation check*), Learning (*rote, conceptual*)	Increased conceptual understanding
Black & Deci (2000)	"The concept of autonomy support means that an individual in a position of authority (e.g., an instructor) takes the other's (e.g., a student's) perspective, acknowledges the other's feelings, and provides the other with pertinent information and opportunities for choice, while minimizing the use of pressures and demands." (p. 742)	Completed questionnaires at two time points (e.g., Learning Climate Questionnaire: "my group leader listens to how I would like to do things")	N = 137 College	Group leader autonomy support	Autonomous reasons, controlled reasons, perceived competence, interest and enjoyment, state anxiety, grade-orientation, ability (*GPA, SATs, used as controls*), performance (*exams, course grade*)	Increased autonomous self-regulation, perceived competence, interest/enjoyment, decreased anxiety

Table 1.4
Summary of Autonomy Support Studies (Continued)

Study	Definition of Autonomy Support	Measurement	Sample	IV	DV	Benefit of Autonomy Support
Boggiano (1998)	Opposite of controlling, leads to more intrinsically motivated actions	**Session 1**: IAR, CAES, perceptions of AS (DeCharms Classroom climate questionnaire), motivational orientation, perceptions of competence, and attributions **Session 2** (1 month later): visual discrimination task, tracking hypothesis-testing strategies **Session 3** (1 year later): IAR, motivational orientation, competence	Times 1 & 2: N = 137 5th grade Time 3: N = 58 6th grade	Classroom climate (origin versus pawn orientation of their teacher and classroom environment),	extrinsic vs. intrinsic learning orientation, motivational orientation, perceived competence, Intellectual achievement responsibility scale, children's ability-effort scale, school climate (autonomy-support)	Perceptions of AS predicted motivational orientation, attributional style, perceptions of competence Motivational orientation predicted achievement behavior (performance after failure, achievement scores)
Boggiano, Flink, Shields, Seelbach, & Barrett (1993)	Self-determination: "the assumption that one is responsible for the initiation and regulation of activities... self-determined behaviors involve a true sense of choice, a sense of feeling free in doing what one has chosen to do." (p. 321)	Students were exposed to *non-controlling* [control task regulation by offering choice (option to practice problems on own before beginning)] versus *controlling* [practice in front of teacher] scripts, then assessed subsequent performance, mood, and perceptions	N = 83 College	controlling vs. non-controlling directives	Affect, analytic reasoning, rote generalization, performance, perception of and enjoyment of task, perceptions and enjoyment of teacher	Better analytic reasoning/academic performance

Table 1.4
Summary of Autonomy Support Studies (Continued)

Study	Definition of Autonomy Support	Measurement	Sample	IV	DV	Benefit of Autonomy Support
Deci, Sheinman, Schwartz, & Ryan (1981)	"...if teachers are more oriented toward supporting autonomy, they are likely to reward and communicate in less controlling ways that will not undermine children's intrinsic motivation." (p. 643)	Developed Questionnaires containing 16 vignettes describing typical problems encountered in school, with four ways to deal with the situation (highly controlling, moderately controlling, moderately autonomous, highly autonomous); then correlated with students' perceptions of teachers & actual motivation and competence	N = 610 4th - 6th grade	autonomy supportive versus controlling teaching style	Intrinsic motivation, perceived competence	Greater perceived competence, Intrinsic motivation
Grolnick & Ryan (1987)	"...a set to learn can also be provided in a manner that affords autonomy or self-determination and where pressure and external contingencies are nonsalient. This type of directive is more likely to foster a perceived internal locus of causality. We refer to it as autonomy affording or noncontrolling." (p. 890)	**Session 1**: Read text, rated interest/enjoyment & feelings of pressure. Experimental induction [*controlling-directed, noncontrolling-directed,* or *nondirected.* Read second passage, rated reactions, recall, essay, vocabulary test **Session 2** (8 days later): Completed SRQ and recall	N = 91 5th grade	Learning condition (controlling directed, noncontrolling directed, or nondirected)	Reading interest, reading pressure, test interest, test pressure, rote recall, conceptual learning, interest/willingness, rote-recall change, vocabulary (to check for differences)	Greater conceptual learning, maintenance of material learned

Table 1.4
Summary of Autonomy Support Studies (Continued)

Study	Definition of Autonomy Support	Measurement	Sample	IV	DV	Benefit of Autonomy Support
Koestner, Ryan, Bernieri, & Holt (1984)	Autonomy support is about the functional significance of events: As opposed to controlling events, "informational events are defined as those that provide effectance-relevant information within the context of experienced autonomy or choice." (p. 234)	Engaged in an intrinsically interesting painting activity under limit-setting conditions [*Informational limits*: instructions about ways to paint neatly, etc; *Controlling-limits*: Rules about painting neatly; or *No limits*], then left alone for a 'free-choice' period	N = 20 1st-2nd grade	Informational-limits vs. controlling-limits vs. no limits	Intrinsic motivation (*time chose to paint, enjoyment*), creativity & technical goodness (*meaning, detail, creativity, use of paints, novel idea, effort, complexity, organization, neatness, planning, symmetry*)	Enhanced creativity & intrinsic motivation
Reeve & Jang (2006)	"the interpersonal behavior one person provides to involve and nurture another person's internally-located, volitional intentions to act, such as when a teacher supports a student's psychological needs (e.g., autonomy, competence, relatedness), interests, preferences, and values...overall, autonomy support revolves around finding ways to nurture, support, and increase students' inner endorsement of their classroom activity." (p. 210)	Observed teachers; Teacher behaviors coded [*autonomy supportive*: e.g., time listening, ask what student wants, allow student to work in own way, provide rationales, praise as informational feedback, offer encouragements *Controlling*: e.g., time teacher talking, time holding learning materials, exhibit solutions/answers, utter directives, should/ought to statements, praise as contingent reward, criticizing the student]	N = 72 pairs of teachers	Teachers' instructional behaviors (autonomy supportive versus controlling)	Students' perceived autonomy (perceived locus of causality, volition, perceived choice over one's actions); Students' outcomes (interest-enjoyment, engagement, performance)	Autonomy-supportive instructional behaviors were correlated with perceived autonomy Perceived autonomy was significantly correlated with interest/enjoyment, engagement, performance

Table 1.4
Summary of Autonomy Support Studies (Continued)

Study	Definition of Autonomy Support	Measurement	Sample	IV	DV	Benefit of Autonomy Support
Reeve, Jang, Carrell, Jeon, & Barch (2004)	"Autonomy-supportive teachers facilitate, whereas controlling teachers interfere with, the congruence between students' self-determined inner motives and their classroom activity.... identifying and nurturing students' needs, interests, and preferences and by creating classroom opportunities for students to have these internal motives guide their learning and activity." (p. 148)	Experiment with delayed-treatment control: 1-hr autonomy support training [taught SDT, types of motivation, motivating styles, 4 autonomy supportive strategies *(nurture motivational resources; rely on informational, noncontrolling language; promote value in uninteresting activities; acknowledge and accept students' expressions of negative affect)*]. 3 observations of teachers in 10 weeks.	N = 20 HS teachers (average 24 students per class)	Teachers' autonomy-supportive behavior	Student engagement: [active task involvement during instruction (*attention, effort, verbal participation, persistence, positive emotion*), influence attempts (*teacher and student, verbal or non verbal –tallies*)]	Increased student engagement

Table 1.4
Summary of Autonomy Support Studies (Continued)

Study	Definition of Autonomy Support	Measurement	Sample	IV	DV	Benefit of Autonomy Support
Reeve, Nix, & Hamm (2003)	Autonomy: "an inner endorsement of one's actions (origin, personal causation, internal locus), an experience during that action of high flexibility and low pressure (psychological freedom), and a sense that one's actions are truly chosen (perceived choice)." (p. 376)	Observed teachers (one taught autonomy supportive or controlling teaching style) Coded for 7 behaviors [listened, gave solutions (-), held instructional materials (-), spoke directives (-), asked questions about what student wanted, was responsive to student-initiated questions, offered perspective-taking statements), 2 impressions (supported intrinsic motivation, supported internalization)	N = 60 pairs of teachers	Teacher's autonomy-supportive behavior	Student's self-determination (perceived locus of causality, volition, and perceived choice), student's intrinsic motivation (self-reported level of interest in and enjoyment of the puzzle)	Higher intrinsic motivation
Ryan & Grolnick, (1986)	Autonomy/self-determination: "a primary tendency or striving to be a causal agent with respect to one's behavior, or to have an internal locus of causality." (p. 550)	**Study 1:** Students completed the DeCharms Classroom climate questionnaire (origins vs. pawns) and wrote a story about TAT picture, coded for autonomy afforded by teacher **Study 2:** Students completed questionnaires at 2 time points	Study 1: N = 140 4th - 6th grade Study 2: N=578 4th - 6th grade	Classroom climate (origin versus pawn orientation of their teacher and classroom environment), Teacher autonomy	General self-worth, cognitive perceived competence, mastery motivation, internal control (general), powerful others control (general), powerful others control (cognitive), unknown control (general), unknown control (cognitive)	Higher mastery motivation, perceived self-worth, cognitive competence, internal control; Lower perceived control by unknown sources or powerful others

Table 1.4
Summary of Autonomy Support Studies (Continued)

Study	Definition of Autonomy Support	Measurement	Sample	IV	DV	Benefit of Autonomy Support
Vallerand, Fortier, & Guay (1997)	"providing students with autonomy support implies allowing them to make certain choices and decisions about their schooling…conversely, controlling students' behaviors signifies telling them what to do and how to do it, with little respect for their own choices and orientations." (p. 1162)	Students completed questionnaires [3 items: e.g., "I feel that my teachers pressure me to do what they want (reverse coded)]	N = 4537 9th-10th grade	Parent, teacher, school administration autonomy support	educational motivational mediators (perceived school competence, perceived autonomy at school), Academic motivation [intrinsic motivation (to know, to accomplish things, and to experience stimulation), extrinsic motivation (external, introjected, and identified regulation), amotivation, future schooling intentions]	Greater persistence in school (versus dropping out)

instructions. This study found that students who received the informational limits demonstrated significantly more creativity and intrinsic motivation (as measured by the length of time spent painting during a subsequent free play period) than did those who received controlling limits. This study demonstrates the importance of considering the effects of *how* limits are set on intrinsic motivation, rather than simply noting whether the limits themselves are set.

Three studies examined the relationship between teacher autonomy support and motivational outcomes in the academic domain. For example, using student-reported measures, Vallerand and his colleagues (1997) examined the effects of autonomy support provided by teachers, parents, and the school administration on students' self-determined/intrinsic academic motivation and persistence in school via their effects on students' perceived academic competence and autonomy. In their sample of 4,537 ninth- and tenth-grade French-Canadian students, the level of autonomy support experienced significantly predicted students' perceptions of autonomy and competence, which in turn did predict their level of intrinsic motivation. Low levels of self-determined motivation, in turn, led to a higher likelihood of intentions to drop out of school as well as actual dropout.

Ryan and Grolnick (1986) investigated the correlations between students' perceptions of classroom climate (i.e., whether they felt like the "origins" of their behavior, indicating an autonomy supportive climate, versus "pawns," signifying a more control-oriented context) and a variety of self-perceptions (i.e., self-worth, cognitive competence, internal control, mastery motivation, and perceived control).

Using a sample of 140 fourth- through sixth-grade children, this study found that students who perceived their classrooms to be origin-oriented (i.e., autonomy supportive) reported significantly higher mastery motivation, internal control over outcomes, self-esteem, and perceived academic competence.

Similarly, Deci et al. (1981) developed a questionnaire to measure teachers' autonomy supportive versus controlling teaching styles, having them choose how they would respond to a series of vignettes depicting typical problems encountered in school (each response set included a highly controlling, moderately controlling, moderately autonomous, and highly autonomous option). The 68 teachers' autonomy supportive versus controlling teaching styles were then correlated with 610 fourth-through sixth-grade students' perceptions of teachers and self-reported motivation and competence, measured in fall and in spring. At each time point, students whose teachers were more autonomy supportive were more intrinsically motivated and had higher self-esteem than those whose teachers used a more controlling teaching style. However, the authors reported that no relationship was found between the teacher measure and changes in students' intrinsic motivation and self-esteem from fall to spring, which they attributed to the early establishment of teacher-student relationships that remain extremely stable throughout the school year.

The study that looks most clearly at the effects of teacher autonomy support on student re-engagement versus giving up was conducted by Ann Boggiano (1998). Using Diener and Dweck's (1978) set of visual discrimination puzzles with a sample of 137 fifth-grade children, this study tested a model specifying the relationship

between students' perceptions of teacher autonomy support and the students'

motivation and performance after failure. Based on a diathesis-stress model of

achievement processes, this study assumed that teachers' educational strategies

(controlling vs. autonomy-supportive) would impact students' perceptions of teacher

autonomy support, which would influence the students' motivational orientation

(extrinsic vs. intrinsic). The model further asserted that students' motivational

orientation would affect their responses to uncontrollable or stressful events (helpless

vs. mastery-oriented), which have implications for a host of educational and

motivational outcomes (e.g., motivation and performance after failure, achievement

scores, future attributions, perceptions of competence).

Her results indicated that the level of autonomy support provided did predict

students' perceptions of the support and consequently their motivational strategies.

Moreover, students who exhibited intrinsic motivational orientations tended to show

increased persistence to solve the problems (i.e., a mastery rather than helpless

approach), as well as maintaining or increasing the sophistication of the hypothesis-

testing strategies they employed, as opposed to more extrinsically motivated students,

who tended to experience relatively more deterioration of the strategies employed after

failure. Additionally, longitudinal data available for a small portion of the sample

(n=58) demonstrated that the motivational orientation reported in Year 1 (i.e., intrinsic

versus extrinsic, shown to be predicted by the level of autonomy support provided)

significantly predicted students' self-perceptions (e.g., attributions and perceptions of

competence) in Year 2, even after controlling for the levels of these self-perceptions in

Year 1.

Summary and Critique of Research on Effects of Autonomy Support

Taken together, these studies suggest that autonomy support plays an important role in students' motivational outcomes, including their ability to re-engage after experiences of challenge or adversity. Koestner et al.'s (1984) experimental study demonstrated a causal link between teacher autonomy support and students' intrinsic motivation and creativity. Autonomy support was also shown in naturalistic studies to be important in the academic domain (e.g., Vallerand et al., 1997; Deci et al., 1981; Ryan & Grolnick, 1986), related to motivational processes such as intrinsic motivation, mastery motivation, persistence, and perceived competence. Additionally, Boggiano (1998) demonstrated the importance of autonomy support (via its importance to motivation orientation) on changes in students' perceptions of competence and mastery-oriented versus helpless patterns of actions over time.

However, the conclusions that can be drawn from these studies are limited, based on limitations in the studies' design and measurement. Many of the studies focused only on correlational data at one point in time, making causal inferences impossible. This design precludes any evaluation of reciprocal effects or third variables. Additionally, these studies rely heavily on student-reported measures for most constructs involved, and include rather vague definitions of autonomy support. Moreover, although Deci et al. (1981) did have data from two time points, they did not find evidence for a link between teacher autonomy support and changes in student motivation over time. This lack of prediction of changes from fall to spring throws

into question the relationship between autonomy support and motivational processes, as the pattern they found is not consistent with the causal hypothesis.

These issues can be addressed by improving the study design: collecting data from multiple reporters (e.g., student and teacher) at multiple points in time. There is some debate over who is the best reporter of autonomy support, as the teacher can offer a fairly objective account of the actual support provided, but the student can report his or her actual experiences of that support. Having multiple reporters, therefore, can help build convergent validity. Although teacher reports offer a somewhat more objective picture of what is happening in the classroom, it is the students' own experience which is the pathway through which teacher behavior shapes their action.

This study design also allows for the investigation of how the students' re-engagement changes over time, and controlling for the students' re-engagement at time one effectively controls for a great number of possible third variables as well. For example, if gender was a third variable that was affecting both autonomy support and engagement (e.g., perhaps girls receive more autonomy support from teachers than boys, and also tend to be more engaged), by controlling for the students' levels of these variables in fall, you can effectively control for many of the effects of the unmeasured third variable.

Mechanisms of the effects of autonomy support on re-engagement. If one is going to look at the effects of autonomy support, it is essential to conceptualize why and how it might influence students' reactions to failures and setbacks. Experimental

and naturalistic studies have demonstrated the connection between autonomy support and re-engagement, but it is also important to think about why this might be the case. Even though the present study does not look empirically at the mechanisms linking autonomy support and re-engagement, it is conceptually important to consider them in order to develop a deeper understanding of the processes involved. Additionally, these mechanisms can be a guide for future research.

Intuitively, one can understand why the effects of coercive environments might be particularly deleterious when combined with experiences of challenge or struggle. The coercion adds an additional burden to someone who has already been knocked down; if they were feeling defeated, they now have to worry about disappointing or doing "yet another" thing wrong. This subtracts energy from the individual just when he or she needs it most. Additionally, whether the individual resists the coercion or gives in to it, this additional pressure subtracts essential regulatory resources that could be applied somewhere else (Baumeister, Vohs, & Tice, 2007).

Less intuitive is why autonomy support might be especially beneficial for re-engagement. When a child has run into obstacles, many times the impulse is to hurry over to help them, explain how to do whatever they are struggling with the "right" way, and perhaps even do it correctly for them. However, autonomy support is essential in this situation: It is not just about perseverance, but rather, persistence, inspiring flexibility and the exploration of additional strategies. It assists in the development of regulation, allowing the child to learn how to do a task in his or her own way rather than relying on someone else to do it for them. It fosters feelings of

accountability and ownership, which have positive effects on motivation. Most of all, an autonomy supportive environment gives the child a pause: a bit of psychological space, with ample underlying support, in which the child can reorganize himself and figure out what the next best steps are according to his own desires and goals. Autonomy support leads to increases in intrinsic motivation, giving the individual access to additional energy at a crucial moment. Taken together, it is clear that the importance of autonomy support does not diminish the importance of caring relationships or a structured environment, but is important for re-engagement in its own right.

In summary, it seems reasonable to consider that teacher autonomy support may be important to students' ability to bounce back from everyday struggles and challenges over and above the effects of involvement. Although Martin & Marsh (2008a; 2008b; 2009) describe contextual features as being important in their conceptual discussions of academic buoyancy, their empirical work to date has focused on the importance of student-teacher relationships and has not examined the effects of teacher autonomy support per se. However, Deci and Ryan's (1985) self-determination theory emphasized the role of autonomy support in students' motivation, and evidence for this relationship has been found in a number of related areas. Thus, it is warranted to consider autonomy support as complimentary to warmth and important in its own right when exploring the effects of teacher context on students' motivational outcomes such as re-engagement.

The Current Study

This study examines how teacher support can promote students' everyday resilience in the classroom, using a clear conceptualization of re-engagement in the face of difficulties and setbacks as a component of everyday resilience, grounded in previous research on academic engagement and resilience, and incorporating the contributions of learned helplessness and mastery. The core idea is that students are more likely to show re-engagement in the face of obstacles and difficulties when teachers provide a warm and autonomy-supportive environment. However, when teachers are neglectful or coercive, students are more likely to give up when setbacks are encountered.

Academic engagement is an important motivational state, particularly because it is both malleable and related to positive outcomes such as achievement, retention, and learning. Based on Deci and Ryan's (1985) self-determination theory (SDT), the self-system model of motivational development offers a useful framework for organizing dynamic constructs such as engagement, identifying the context, self, action, and outcomes. This model assumes that the quality of a students' motivation is marked by their level of engagement, and the framework can be applied to other similar processes as well, such as resilience. The model is especially helpful in understanding Martin and Marsh's (2009) conceptualization of everyday resilience, which they propose is likely necessary but not sufficient for overall life resilience, applicable to all individuals.

A major component of everyday resilience is persistence, which is especially

important when an individual encounters the challenges and struggles that are typical in daily life. If it is assumed that it is a student's academic engagement that ultimately leads to optimal educational outcomes, then it is essential to better understand the processes involved in students' ability to re-engage when they encounter challenges. Much can be learned about the patterns of action that are typical of students following encounters with obstacles and failures from Dweck's (1999) work on learned helplessness and mastery. The behaviors that are typical of the helpless- and mastery-oriented students are prototypical examples of re-engagement (or lack thereof).

It is essential to consider the importance of teacher context for supporting re-engagement. There has been considerable research on the effects of teacher warmth and involvement on student motivation and engagement, but less is known about other important contextual elements such as autonomy support. Autonomy support may be particularly important to students' ability to persist in the face of difficulty, to try new strategies, and to take advantage of the added motivational energy that, according to SDT, results from self-determined behaviors. A coercive environment, on the other hand, places added strain on the student and drains energy just when it is needed most.

Traditionally, research on student engagement and motivation has focused on correlations between students' self-reported self-system processes or teacher-student relationships and student motivational and achievement outcomes at one point in time, without consideration for the influence of other contextual influences or study designs that allow for causal inferences. In an effort to address these issues, the present study proposes a set of items to measure student re-engagement and will explore the role of

both teacher autonomy support and involvement in predicting changes in student re-engagement over time. Moreover, the study will consider both more objective indicators of teacher behaviors (as reported by teachers) and more subjective indicators of student experience (as reported by students). This research design does allow for causal inference, while at the same time helping to eliminate many of the possible threats from unmeasured third variables via controlling for them implicitly. Based on findings of gender and age differences within its parent construct of engagement, the present study will also examine how the effects of teacher support might differ by grade or by gender, and, based on their more proximal positioning to the outcome variable, whether student perceptions of teacher support might partially mediate the relationship between teacher-reported support and student re-engagement.

Research Questions and Hypotheses

The current study addresses the following hypotheses, which are divided into five sets. The first set of hypotheses focuses on the effects of teacher autonomy support on student re-engagement and giving up. The second set explores the effects of teacher involvement as compared to autonomy support. Third, the study examines whether there are grade or gender differences in these relationships. Fourth, the previous hypotheses are re-tested using student perceptions of teacher support as opposed to teachers' self-report measures. Finally, the fifth set of hypotheses explores whether student perceptions of teacher support partially mediate the effects of the "objective" (teacher-reported) support on re-engagement and giving up. The general conceptual model on which the hypotheses are based is presented in Figure 2.1.

Figure 2.1. Conceptual Model
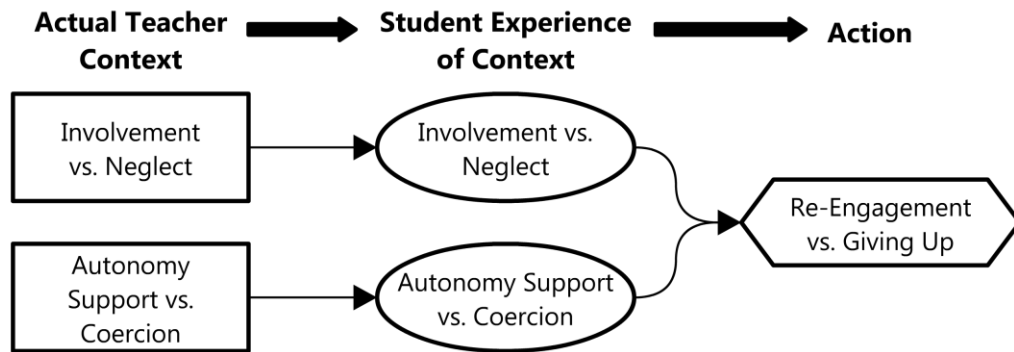
1. When teachers provide autonomy support, are students more likely to re-engage following encounters with academic setbacks? In a similar vein, when teachers show more coercion, are students more likely to give up?

> H1a) Teacher autonomy support (vs. coercion) and student re-engagement (vs. giving up) will show the kind of positive concurrent relationship one would expect if autonomy support were important to students' ability to bounce back following encounters with academic setbacks, both in fall and in spring.

> H1b) Teacher autonomy support (vs. coercion) will predict changes in student re-engagement (vs. giving up) from fall to spring.

2. Is autonomy support important over and above the effects of teacher involvement to student re-engagement versus giving up?

> H2a1) Teacher involvement (vs. neglect) will concurrently predict student re-engagement (vs. giving up) both in fall and in spring.

> H2a2) Teacher involvement (vs. neglect) will predict changes in student re-engagement (vs. giving up) from fall to spring.

H2b1) Teacher autonomy support (vs. coercion) will predict student re-

engagement (vs. giving up) over and above teacher involvement, both in fall

and in spring.

H2b2) Teacher autonomy support (vs. coercion) will predict changes in student re-

engagement (vs. giving up) from fall to spring, over and above involvement.

3. Are there grade and/or gender differences in the relationship between teacher

autonomy support and re-engagement versus giving up?

H3a) Teacher autonomy support (vs. coercion) will be a more important predictor

of re-engagement (vs. giving up) for boys than for girls.

H3b) Teacher autonomy support (vs. coercion) will be a more important predictor

of re-engagement (vs. giving up) for older students than for younger

students.

4. Do these connections hold for student perceptions of teacher autonomy support

versus coercion?

H4.1a) Student perceptions of teacher autonomy support (vs. coercion) will

concurrently predict student re-engagement (vs. giving up) both in fall and in

spring.

H4.1b) Student perceptions of teacher autonomy support (vs. coercion) will predict

changes in student re-engagement (vs. giving up) from fall to spring.

H4.2a1) Student perceptions of teacher involvement (vs. neglect) will concurrently

predict student re-engagement (vs. giving up) both in fall and in spring.

H4.2a2) Student perceptions of teacher involvement (vs. neglect) will predict

changes in student re-engagement (vs. giving up) from fall to spring.

H4.2b1) Student perceptions of teacher autonomy support (vs. coercion) will

predict student re-engagement (vs. giving up) over and above teacher

involvement, both in fall and in spring.

H4.2b2) Student perceptions of teacher autonomy support (vs. coercion) will

predict changes in student re-engagement (vs. giving up) from fall to spring,

over and above involvement.

H4.3a) Student perceptions of teacher autonomy support (vs. coercion) will be

more important predictors of re-engagement (vs. giving up) for boys than for

girls.

H4.3b) Student perceptions of teacher autonomy support (vs. coercion) will be

more important predictors of re-engagement (vs. giving up) for older

students than for younger students.

5. Do student perceptions of teacher context mediate the relationship between teacher

context and student re-engagement versus giving up?

H5a) Student perceptions of teacher autonomy support (vs. coercion) will partially

mediate the relationship between teacher-report of autonomy support (vs.

coercion) and student re-engagement (vs. giving up).

H5b) Student perceptions of teacher involvement (vs. neglect) will partially

mediate the relationship between teacher-report of involvement (vs. neglect)

and student re-engagement (vs. giving up).

Research Design and Method

Data from an existing longitudinal dataset were utilized for this study. As part of a large, district-wide evaluation, elementary and middle school students from a rural-suburban school district in upstate New York were asked to complete surveys about their experiences in school, and their teachers were also asked to complete questionnaires about the students. Each student was evaluated by the teacher who claimed to know him/her best. The data were collected using a cohort-sequential design, with data collected in fall (October) and spring (May) for four consecutive years. For the present study, only data from year three (measurement points 5 and 6) were utilized. For a more detailed description of the study, see Skinner, Zimmer-Gembeck, and Connell (1998).

Participants

Participants were a sample of third through sixth graders (ages 8-12). In year three, 948 students (128 third graders, 329 fourth graders, 155 fifth graders, and 336 sixth graders) participated in the fall data collection, and 896 students (118 third graders, 318 fourth graders, 148 fifth graders, and 312 sixth graders) took part in the spring data collection. Fifty-three teachers also participated in the study. The students were approximately equally divided among males and females, and the majority of the sample was Caucasian, with less than 5% identifying as non-white. Most students were from working class families.

Design and Procedure

All students in the school were invited to participate in the study, with parents being informed about the assessments via a letter sent home from the school. Passive consent procedures were employed, such that only parents who did not want their children to participate needed to send back the consent form indicating their choice. The students were also asked for their assent to participate at the time of the data collection, and they were assured that there was no penalty for not participating, that there were no right or wrong answers, that their grades did not in any way depend on their responses, and that their data would be kept entirely anonymous and confidential, as their names would never be associated with their data.

Questionnaires were administered to students during class time by pairs of trained interviewers. Three 40-minute sessions were conducted. One of the interviewers read the questions aloud to the students while the other interviewer moved around the classroom to answer any questions the students had. The teachers were not present while the students filled out the questionnaires; most used the time to answer their own questionnaires. As no deception was used, a formal debriefing session was not utilized. However, after completion of the questionnaires, participants were again assured of the anonymity of their responses and thanked for contributing their thoughts to "help make schools better places for students." At the end of the study, students attended a presentation of the major findings.

Measures

As part of the larger study, students completed item sets tapping re-engagement, perceptions of teacher autonomy support, and perceptions of teacher involvement. Teachers completed item sets tapping their provision of autonomy support and involvement. All items were presented using a four-point Likert scale ranging from 1 (not at all true) to 4 (very true). All negatively worded items were reverse coded, and items were averaged within constructs to create composite scale scores ranging from 1 to 4, such that higher numbers indicate more of the respective constructs.

The complete scales can be found in Appendix A.

Re-engagement versus giving up (student-report). Students reported on the extent to which they were able to bounce back from everyday struggles and challenges in school, both behaviorally and emotionally. Behavioral re-engagement was measured using 9 items. Example items include "When I do badly on a test, I work harder the next time" and "When I come to a problem that I can't solve right away, I just give up" (reverse coded).

The measure of emotional re-engagement included 11 items, all of which referred to negative emotions such as frustration, anxiety, and distress. Example items include "When something bad happens in school (like doing badly on a test, or having trouble learning something), I feel frustrated" and "When I can't solve a problem or question in class, I feel terrible."

Teacher autonomy support versus coercion (teacher-report). Teacher autonomy support was assessed using 9 items divided among three facets of autonomy support. Teachers reported on the extent to which their interactions with each student were characterized by choice, respect, or control (Skinner & Belmont, 1993). Three items referred to c*hoice,* that is, providing options for students and encouraging them to follow their interests. Example items include "I try to give this student a lot of choices about classroom assignments" and "It's better not to give too many choices to this student" (reverse coded). Three items referred to c*ontrol* or coercive interactions. Example items include "I have to lead this student through his/her schoolwork step by step" and "When it comes to assignments, I'm always having to tell this student what to do." These items were reverse coded when combined with other autonomy support items. Three items tapped r*espect*, that is, listening to students' ideas and opinions and acknowledging their importance. Example items include "I encourage this student to work out problems his or her own way and "I can't afford to let this student decide too many things about schoolwork for him/herself" (reverse coded).

Teacher involvement versus neglect (teacher-report). Teacher involvement was measured using 17 items divided among five facets of involvement. These items assess the amount of interpersonal closeness felt between the student and teacher. Teachers reported on the extent to which their interactions with each student were characterized by knowledge, time spent, affection, dependability, and availability (Skinner & Belmont, 1993). Four items tapped *knowledge*, that is, understanding of the student and his/her situation. Example items include "I know this student well" and

"I don't know very much about what goes on for this student outside of school" (reverse coded). Two items referred to the amount of *time spent*, that is, being present to the student. Example items include "I spend time with this student" and "I talk with this student." Four items measured *affection,* that is, liking and appreciating the student. Example items include "I enjoy the time I spend with this student" and "This student is difficult to like" (reverse coded). Four items tapped *dependability*, that is, being there when the student is in need. Example items are "When this student does not do as well as s/he can, I can make time to help him/her find ways to do better" and "This student needs more than I have time to give him/her" (reverse coded). Lastly, three items referred to availability, or having time to devote to the student. Example items include "I can always find time for this student" and "I don't always have time to follow through with this student" (reverse coded).

  Teacher autonomy support versus coercion (student-report). Student perceptions of teacher autonomy support were assessed using 21 items tapping four facets of autonomy support. Students reported on the extent to which their teachers provided them with choice, choice, control, respect, and relevance. Five items tapped teacher provision of choice, that is, offering the students options and encouraging them to follow their interests. Example items include "My teacher gives me a lot of choices about how I do my schoolwork" and "My teacher doesn't give me many choices when it comes to doing assignments" (reverse coded). Four items referred to *control* or coercive interactions. Example items include "It seems like my teacher is always telling me what to do" and "My teacher makes me do everything his/her way."

These items were reverse coded when combined with other autonomy support items.

Seven items measured *respect*, that is, acknowledging the importance of students'

feelings and ideas. Example items include "My teacher encourages me to do things my

own way" and "My teacher doesn't listen to my opinion" (reverse coded). Six items

tapped *relevance*, that is, offering rationale for learning activities. Example items

include "My teacher encourages me to find out how schoolwork could be useful to

me" and "My teacher never talks about how I can use the things we learn in school"

(reverse coded).

      Teacher involvement versus neglect (student-report). Students also reported on

the extent to which they felt close to their teachers. Teacher involvement was

measured using 18 items covering five facets of teacher involvement. These items

assess the amount of interpersonal closeness felt between the student and teacher.

Students reported on the extent to which their interactions with their teachers were

characterized by time spent, affection, availability, knowledge, and dependability

(Skinner & Belmont, 1993). Two items tapped *time spent*, that is, the extent to which

the teacher is present to the student. Example items are "My teacher spends time with

me" and "My teacher talks with me." Three items referred to *affection*, that is, the

extent to which the teacher likes and appreciates the student. Example items include

"My teacher likes me" and "My teacher doesn't seem to enjoy having me in her class"

(reverse coded). Three items measured *availability,* that is, the teacher's ability to

devote time to the student. Example items include "My teacher is always there for me"

and "My teacher never seems to be around for me" (reverse coded). Three items

tapped *knowledge*, that is, the teacher's understanding of the student and his/her

situation. Example items include "My teacher knows me well" and "My teacher just

doesn't understand me" (reverse coded). Seven items measured *dependability*, that is,

the teacher being there for the student when needed. Example items include "I can rely

on my teacher to be there when I need him/her" and "I can't depend on my teacher for

important things" (reverse coded).

Results

The primary goal of this study is to examine the extent to which teacher

support (i.e., autonomy support versus coercion or involvement versus neglect)

impacts changes in student re-engagement, conceptualized as a process of everyday

resilience, over time. The following analyses address each of the research questions, as

well as an initial discussion of missing data estimation, preliminary data cleaning, and

examination of measurement properties.

Missingness Report

Missing data patterns were examined using SPSS version 16. Missing values

were evaluated using both variable-wise and case-wise analyses to determine whether

the data fulfilled requirements to be considered missing at random (MAR), missing

completely at random (MCAR), or not missing at random (NMAR). For this study, at

both times points each of the 1020 participants in the dataset had the opportunity to

respond to 59 items, and teachers completed 26 items about each student (170 total

items). These items were a subset of the total items available from a larger study. Two

participants were eliminated from the dataset due to missing grade and/or gender data,

leaving 1018 total participants. A case-wise analysis demonstrated the individual

participants to be missing between 1 and 158 items. The variable-wise analysis

revealed that between 10.3 and 27 percent of participants were missing data for any

given variable. Seventy-five students had data only at one time point, either student-

reported or teacher-reported, 104 students had data for all but one of the possible

measurement types (e.g., missing either student-reported or teacher reported data at

one time point), and 104 students were missing two of the four measurement types
(e.g., data from both reporters at one measurement point, or data from one reporter at
both measurement points). Seven hundred thirty-seven students had data from both
reporters both in fall and in spring.

Further analysis of the missing values did not reveal any distinct patterns, and
thus it was determined that the data were missing at least at random. Nine hundred
seventy-five students had at least some data for the fall measurement point, and 968
students had at least some data for the spring measurement point. This number is
slightly higher than the number of students previously reported to have participated, as
some students were absent during the data collection but still received teacher
evaluations. As recommended by Shafer and Graham (2002), the data were imputed
using maximum likelihood (ML) estimation with an estimation maximization (EM)
algorithm. The imputation was completed using the Missing Values module for SPSS
16. All further analyses were completed using the imputed dataset.

Preliminary Multilevel Modeling

Given the hierarchical structure present in data when students are nested within
classrooms, the relative variance accounted for at the student and classroom levels was
examined. These preliminary hierarchical analyses were completed using SPSS 16.
An intercept-only model (Hox, 1998) revealed that only 6% of the variance in student
re-engagement was explained at the classroom level. In this study, the bulk of the
variance was explained at the individual level. This was expected, because the
students were reporting in a *general* sense about their teachers rather than about their

specific homeroom teacher, and because it was the teacher who claimed to know each student *best* (rather than the homeroom teacher) that provided information about each student. Because considerable variance from class to class was not found, analyses utilized standard multiple regression approaches rather than hierarchical linear modeling techniques (e.g., Raudenbush & Bryk, 2002).

Descriptive Analyses

  Measurement properties and descriptive statistics. All analyses were completed using SPSS 16. Initial descriptive statistics were evaluated for each variable included in the study. All items tapping a particular construct were aggregated to form subscales (i.e., for each time point, teacher- and student-reported autonomy support and involvement, and student-reported re-engagement). Negatively worded items were reverse-coded, and the scores were averaged such that each composite scale score could range from 1 to 4, with higher scores indicating more of that construct. The means, standard deviations, and internal consistencies for each subscale at each time point are presented in Table 4.1.

Table 4.1

Summary of Descriptive Statistics for each Construct in Fall and Spring

Scale	Number of Items	Fall			Spring			t (1017)
		α	M	SD	α	M	SD	
Student Re-Engagement (Student-Report):								
Behavioral Re-Engagement	9	.84	3.43	.52	.84	3.34	.54	1.13
Emotional Re-Engagement	10	.88	2.61	.77	.90	2.71	.78	6.39***
Teacher Support (Teacher-Report)								
Teacher Autonomy Support	9	.93	3.01	.70	.95	3.02	.75	-0.55
Teacher Involvement	17	.89	3.04	.42	.90	3.09	.46	-5.73***
Teacher Support (Student-Report)								
Teacher Autonomy Support	21	.87	2.90	.51	.90	2.88	.54	7.34***
Teacher Involvement	16	.87	3.01	.53	.90	2.92	.60	-4.68***

Note. N = 1018. Scores could range from 1-4. Higher scores indicated higher levels of the construct. * $p < .05$. ** $p < .01$. *** $p < .001$.

Examination of these values revealed that all scales demonstrated excellent internal consistency (i.e., $\alpha >.80$), which was assessed using Cronbach's alpha. One item from the emotional re-engagement scale relating to anxiety was dropped due to a low item-total correlation (<.30). The mean levels of student re-engagement and teacher autonomy support and involvement were evaluated to better understand the overall functioning of the sample. In general, students reported high levels of behavioral re-engagement and significantly lower levels of emotional re-engagement, $t(1017) = -31.70$, $p <.001$ (fall); $t(1017) = -24.06$, $p <.001$ (spring). Both teachers and students reported that teachers were generally more involved than autonomy supportive [$t(1017) = -11.62$, $p <.001$ (student-report: fall); $t(1017) = -4.22$, $p <.001$ (student-report: spring); $t(1017) = -1.68$, $p = .09$ (teacher-report: fall); $t(1017) = -4.31$, $p <.001$ (teacher-report: spring)], but that both were relatively high. Interestingly, students reported decreases in teacher support from fall to spring, whereas teachers reported providing more support in spring than in fall.

Examination of the range statistics for each scale revealed that two scales had a restricted range, as no teachers endorsed the lowest response option (1.0) for the involvement scales at either time point, and no students endorsed the lowest response option (1.0) for the behavioral re-engagement scale in fall. All scales had moderate standard deviations, ranging from .42 to .78, which suggested somewhat limited variability in responses between subjects, potentially limiting the power to detect significant effects. Additionally, no floor or ceiling effects were detected, as would be indicated by the minimum or maximum scale scores falling within one standard

deviation of the scale mean.

Analyses of differences in mean levels were used to examine whether teachers are more involved or autonomy supportive according to teachers' perspectives or to students' perspectives. Dependent samples t tests were used to evaluate mean level differences in student and teacher reports to examine whether teachers view themselves as more autonomy supportive and involved than do students. Significant differences were found between student- and teacher-reports of the provision of autonomy support in both fall and spring [$t(1017) = -4.85, p <.001$; $t(1017) = -5.47$, $p <.001$], such that the teachers reported providing more autonomy support than the students reported experiencing. Similarly, significant differences were found between student- and teacher-reported involvement in spring [$t(1017) = -8.31, p <.001$] but not in fall.

Inter-construct correlations. Correlations among all teacher support subscales and their cross-time stabilities are presented in Table 4.2. Correlations between teacher- and student-reported autonomy support and involvement were moderate, ranging from .24 to .29. This was expected, because although they reflected the same construct, they were from two different perspectives. The cross-time stabilities for each construct were high, ranging from .70 to .83, which could make it more difficult to predict change over time. Correlations between autonomy support and involvement were high for both reporters, approaching levels of internal consistency; thus, the impact of multi-collinearity must be considered when interpreting the results.

Table 4.2
Intercorrelations Among Teacher Support Constructs in Fall and Spring

	Teacher Autonomy Support (SR)	Teacher Involvement (SR)	Teacher Autonomy Support (TR)	Teacher Involvement (TR)
Student-Report (SR)				
Teacher Autonomy Support (SR)	**.71**	.81	.26	.26
Teacher Involvement (SR)	.84	**.70**	.25	.24
Teacher-Report (TR)				
Teacher Autonomy Support (TR)	.29	.27	**.83**	.60
Teacher Involvement (TR)	.27	.28	.68	**.78**

Note. N = 1018. Correlations for fall are above the diagonal. Correlations for spring are below the diagonal. Cross-time stabilities are reported in bold on the diagonal. All correlations were significant at $p < .01$. TR = Teacher-report. SR = Student-report.

Correlations between the behavioral re-engagement and emotional re-engagement measures are presented in Table 4.3. Here, too, the cross-time stabilities were high, potentially making detection of change over time difficult. Additionally, examination of these constructs revealed a relatively low correlation between the behavioral and emotional facets of re-engagement at both time points, which precluded the combination of the two scales to form one composite re-engagement scale for each time point. Thus, all subsequent analyses were conducted individually for behavioral and emotional re-engagement.

Table 4.3
Intercorrelations Between Re-Engagement Constructs in Fall and Spring

	Behavioral Re-Engagement	Emotional Re-Engagement
Student Re-Engagement (Student-Report)		
Behavioral Re-Engagement	**.71**	.20
Emotional Re-Engagement	.22	**.59**

Note. N = 1018. Correlations for fall are above the diagonal. Correlations for spring are below the diagonal. Cross-time stabilities are in bold on the diagonal. All correlations were significant at $p < .01$.

Research Question 1. When teachers provide autonomy support, are students more

likely to re-engage following encounters with academic setbacks? In a similar vein,

when teachers show more coercion, are students more likely to give up?

    Hypothesis 1a. Teacher autonomy support (vs. coercion) and student re-

    engagement (vs. giving up) will show the kind of positive concurrent relationship

    one would expect if autonomy support were important to students' ability to

    bounce back following encounters with academic setbacks, both in fall and in

    spring.

        The first research question examined whether teacher autonomy support is

important to students' ability to bounce back from encounters with academic

challenge, setback, or adversity. This hypothesis was evaluated by looking at the

correlations between teacher autonomy support and student re-engagement (both

behavioral and emotional) at both time points. As expected, these constructs were

positively and significantly related to one another both in fall and in spring (see Table

4.4). Behavioral re-engagement demonstrated a stronger relationship with teacher

autonomy support than did emotional re-engagement.

Table 4.4

Relationship Between Autonomy Support (TR) and Re-Engagement

	Behavioral Re-Engagement (SR)		Emotional Re-Engagement (SR)	
	Fall	Spring	Fall	Spring
Teacher-Report (TR)				
Teacher Autonomy Support (TR): Fall	.35	.31	.09	.09
Teacher Autonomy Support (TR): Spring	.37	.38	.09	.10

Note. N=1018. All correlations were significant at *p* <.01. TR = Teacher-report. SR = Student-report.

Hypothesis 1b. Teacher autonomy support (vs. coercion) will predict changes in

student re-engagement (vs. giving up) from fall to spring.

Hypothesis 1b, in which teacher autonomy support was expected to predict

changes in student re-engagement from fall to spring, was tested using linear multiple

regression analyses. Specifically, student re-engagement in spring was regressed on

teacher autonomy support in fall, controlling for student re-engagement in fall. As can

be seen in Figures 4.1 and 4.2, this relationship was positive and significant for

behavioral re-engagement (β = .07, p <.01), accounting for 51% of the variance in the

change in student behavioral re-engagement from fall to spring. For emotional re-

engagement, the relationship was positive but only marginally significant (β = .04, p =

.09), accounting for 35% of the variance.

Figure 4.1. Relationship Between Autonomy Support (TR) and Behavioral Re-
Engagement Over Time
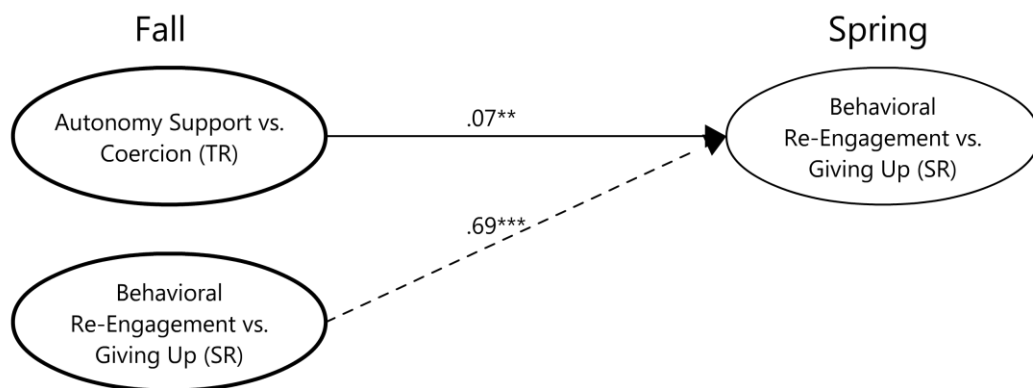
Note. * p < .05. ** p < .01. *** p < .001.

Figure 4.2. Relationship Between Autonomy Support (TR) and Emotional Re-Engagement Over Time
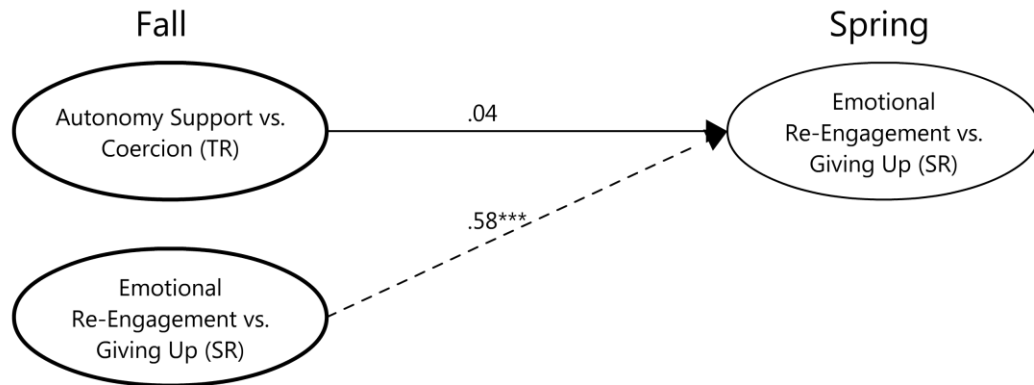
*Note. * p < .05. ** p < .01. *** p < .001.*

Research Question 2. Is autonomy support important over and above the effects of teacher involvement to student re-engagement versus giving up?

> *Hypothesis 2a1.* Teacher involvement (vs. neglect) will concurrently predict student re-engagement (vs. giving up) both in fall and in spring.

Next, hypothesis 2a1 looked at whether teacher involvement concurrently predicts student re-engagement in fall and in spring. Correlations between teacher involvement and student re-engagement (both behavioral and emotional) were examined at both time points. As expected, behavioral re-engagement was positively and significantly related to teacher involvement both in fall and in spring. However, the correlations between emotional re-engagement and teacher-reported involvement were not significant (see Table 4.5).

Table 4.5
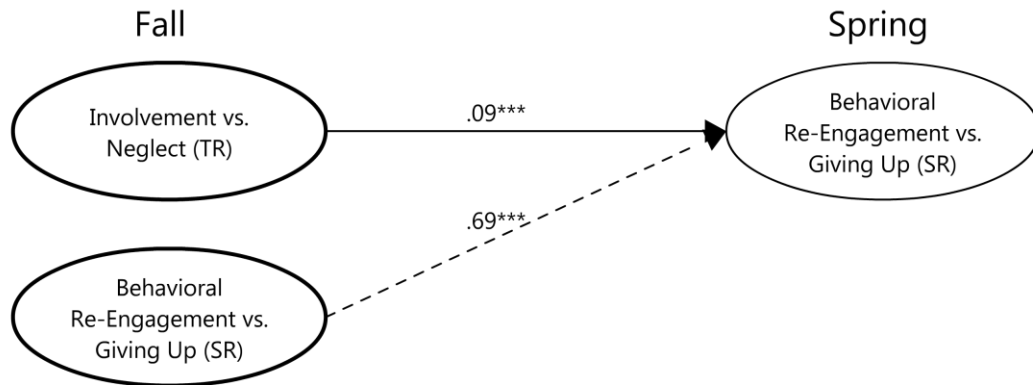*Relationship Between Involvement (TR) and Re-Engagement*

	Behavioral Re-Engagement (SR)		Emotional Re-Engagement (SR)	
	Fall	Spring	Fall	Spring
Teacher-Report (TR)				
Teacher Involvement (TR): Fall	.26	.27	$.03^{ns}$	$.03^{ns}$
Teacher Involvement (TR): Spring	.28	.30	$.02^{ns}$	$.06^{ns}$

Note. $N=1018$. Unless indicated, all correlations are significant at $p < .01$. TR = Teacher-report. SR = Student-report.

Hypothesis 2a2. Teacher involvement (vs. neglect) will predict changes in student re-engagement (vs. giving up) from fall to spring.

Hypothesis 2a2 asserted that teacher involvement would predict changes in student re-engagement from fall to spring. Linear multiple regression was used to evaluate this hypothesis. Separately for the behavioral and emotional components, student re-engagement in spring was regressed on teacher involvement in spring, controlling for the amount of student re-engagement in fall. As hypothesized, the relationship between behavioral re-engagement and teacher-reported involvement was positive and significant ($\beta = .09$, $p < .001$), accounting for 51% of the variance in the change in student behavioral re-engagement from fall to spring (see Figures 4.3). For emotional re-engagement, however, the relationship was not significant ($\beta = .02$, $p = .56$; see Figure 4.4).

Figure 4.3. Relationship Between Involvement (TR) and Behavioral Re-Engagement Over Time

Figure 4.4. Relationship Between Involvement (TR) and Emotional Re-Engagement Over Time
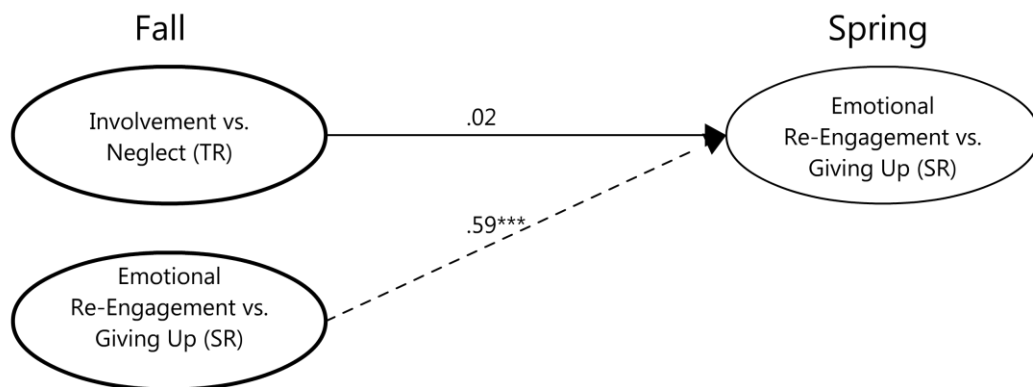
Hypothesis 2b1. Teacher autonomy support (vs. coercion) will predict student re-engagement (vs. giving up) over and above teacher involvement, both in fall and in spring.

Hypothesis 2b1 was tested using linear multiple regression, with separate analyses for

behavioral and emotional re-engagement for both fall and spring. Within each time

point, student re-engagement was regressed on teacher involvement and teacher

autonomy support. As predicted, teacher autonomy support demonstrated unique

effects over and above those of teacher involvement in all analyses (see Figures 4.5

and 4.6). Surprisingly, however, after entering autonomy support as a predictor of

emotional re-engagement, involvement did not make a unique contribution to

emotional re-engagement. This may be due to multi-collinearity between autonomy

support and involvement.

Figure 4.5. Unique Effects of Autonomy Support (TR) and Involvement (TR) on
Behavioral Re-Engagement

*Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 4.6. Unique Effects of Autonomy Support (TR) and Involvement (TR) on Emotional Re-Engagement
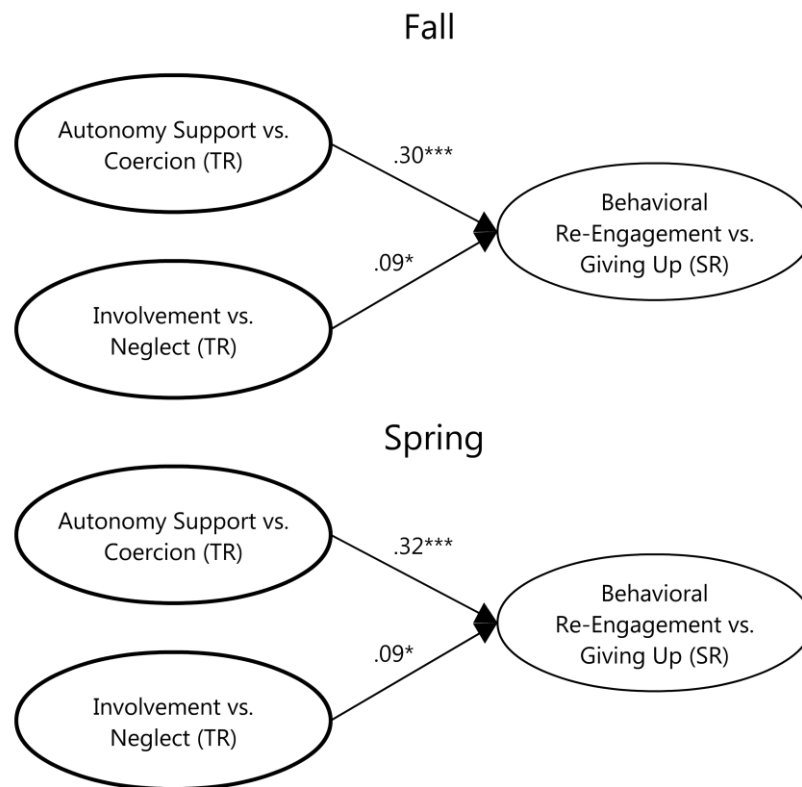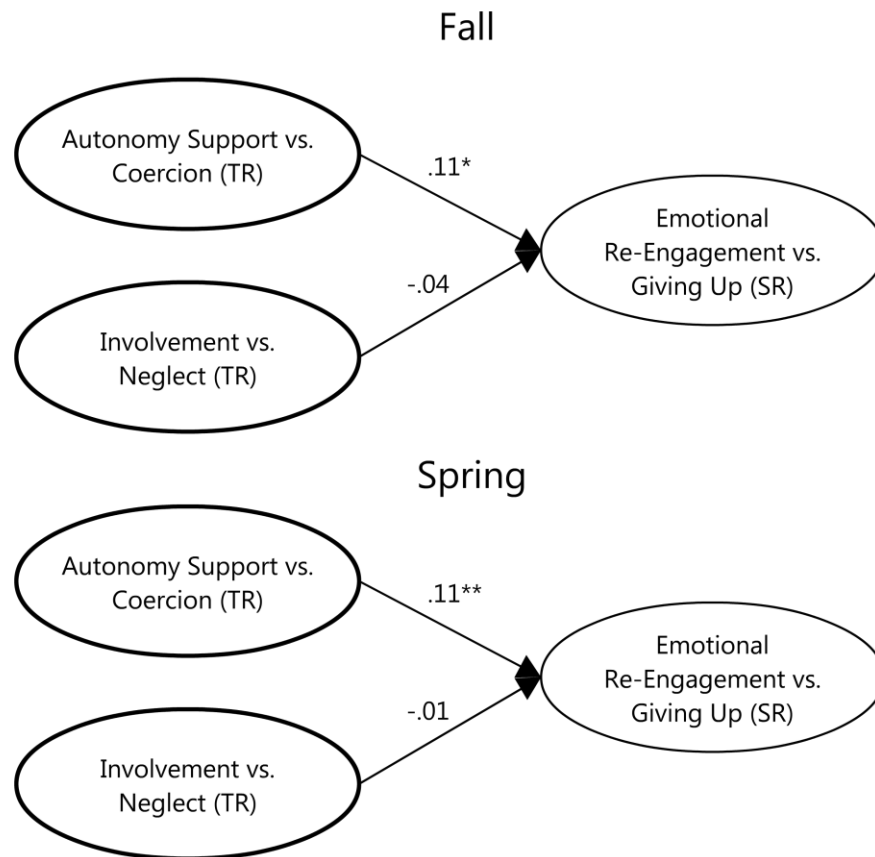

Fall

Spring

Note. * *p* < .05. ** *p* < .01. *** *p* < .001.

Hypothesis 2b2. Teacher autonomy support (vs. coercion) will predict changes in student re-engagement (vs. giving up) from fall to spring, over and above involvement.

To evaluate whether teacher provision of autonomy support predicts changes in students' re-engagement from fall to spring over and above those predicted by teacher involvement, two hierarchical linear multiple regressions were conducted in which student re-engagement in spring (behavioral and emotional) were the dependent

variables. Teacher involvement in fall was the first predictor variable in the models, followed by teacher provision of autonomy support in fall, controlling for student re-engagement in fall. Hypothesis 2b2 was not supported. Teacher-reported autonomy support did not significantly predict changes in behavioral re-engagement over and above those predicted by teacher involvement (see Figure 4.7). Moreover, neither autonomy support nor involvement predicted changes in emotional re-engagement from fall to spring (see Figure 4.8).

Figure 4.7. Relationship Between Autonomy Support (TR), Involvement (TR), and Behavioral Re-Engagement Over Time
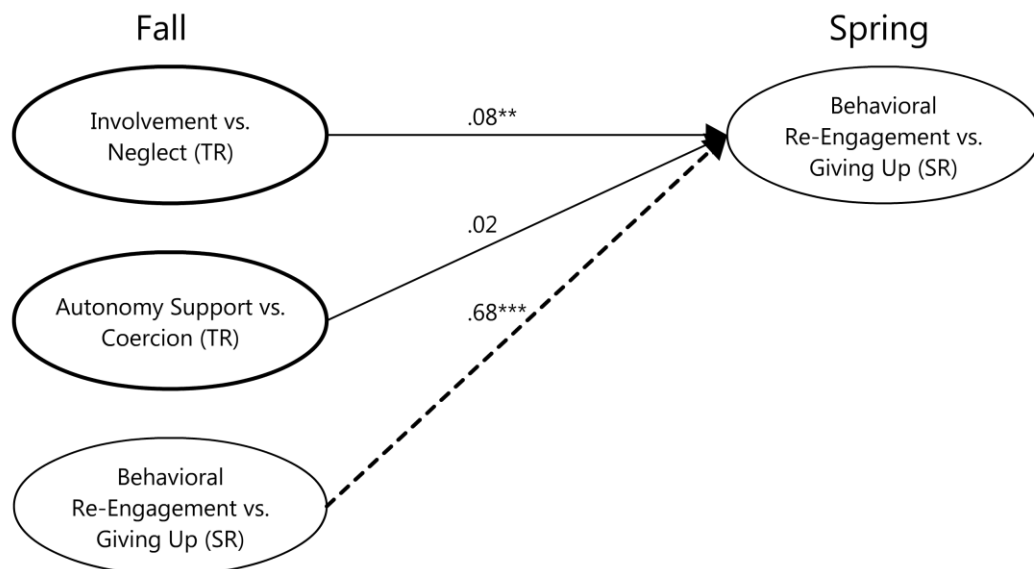
Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 4.8. Relationship Between Autonomy Support (TR), Involvement (TR), and Emotional Re-Engagement Over Time
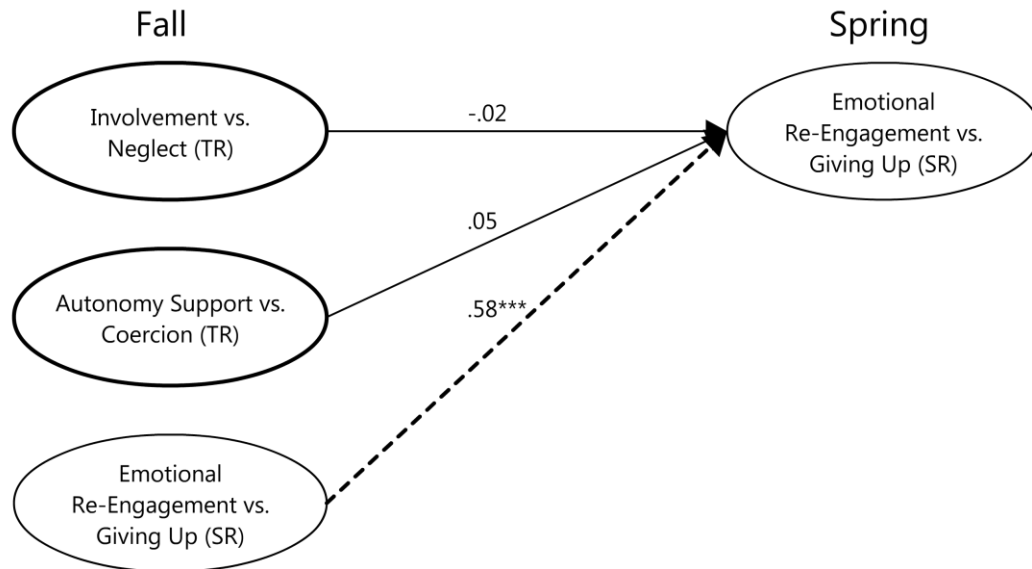
*Note. * p < .05. ** p < .01. *** p < .001.*

Research Question 3. Are there grade and/or gender differences in the relationship between teacher autonomy support and re-engagement versus giving up?

Hypothesis 3a. Teacher autonomy support (vs. coercion) will be a more important predictor of re-engagement (vs. giving up) for boys than for girls.

The sample used in this study was approximately equally divided among male ($n = 508$) and female participants ($n = 510$). Independent-measures *t* tests were used to examine whether levels of teacher support (teacher-reported) and student re-engagement (student-reported, behavioral and emotional) differed significantly for boys and girls. The results can be found in Table 4.6. Significant gender differences were found for all constructs, such that girls received significantly more involvement and autonomy support from their teachers than boys at both time points. Additionally,

girls reported significantly more behavioral re-engagement at both time points, but

boys reported higher levels of emotional re-engagement.

Table 4.6
Mean Level Differences by Gender (Teacher-Report of Support)

	Fall			Spring		
	Girls	Boys		Girls	Boys	
	M	*M*	*t*	*M*	*M*	*t*
	(SD)	*(SD)*		*(SD)*	(SD)	
Teacher Support (Teacher-Report)						
	3.13	2.89		3.18	2.86	
Teacher Autonomy Support	(.64)	(.73)	-5.72***	(.68)	(.79)	-6.96***
	3.10	2.98		3.16	3.02	
Teacher Involvement	(.40)	(.43)	-4.65***	(.45)	(.47)	-4.97***
Student Re-Engagement (Student-Report)						
	3.53	3.34		3.44	3.25	
Behavioral Re-Engagement	(.47)	(.55)	-5.73***	(.49)	(.57)	-5.82***
	2.56	2.65		2.65	2.77	
Emotional Re-Engagement	(.75)	(.78)	1.94	(.80)	(.76)	2.36*

Note. N = 1018. * *p* < .05. ** *p* < .01. *** *p* < .001.

Linear multiple regression analyses were conducted to test whether teacher

autonomy support is a more important predictor of re-engagement for boys than for

girls. Teacher autonomy support was grand mean centered to reduce issues of multi-

collinearity. For each time point, each form of student re-engagement (behavioral and

emotional) was regressed on teacher autonomy support, gender, and the interaction

between teacher autonomy support and gender (created by calculating the cross-

product of autonomy support and gender). Hypothesis 3a was not supported; no

significant interaction effects were found at either time point for behavioral or

emotional re-engagement (see Figures 4.9 and 4.10). The association between teacher-

reported autonomy support and student re-engagement does not depend on the

student's gender.

Figure 4.9. Interaction between Autonomy Support (TR) and Gender on Behavioral Re-Engagement
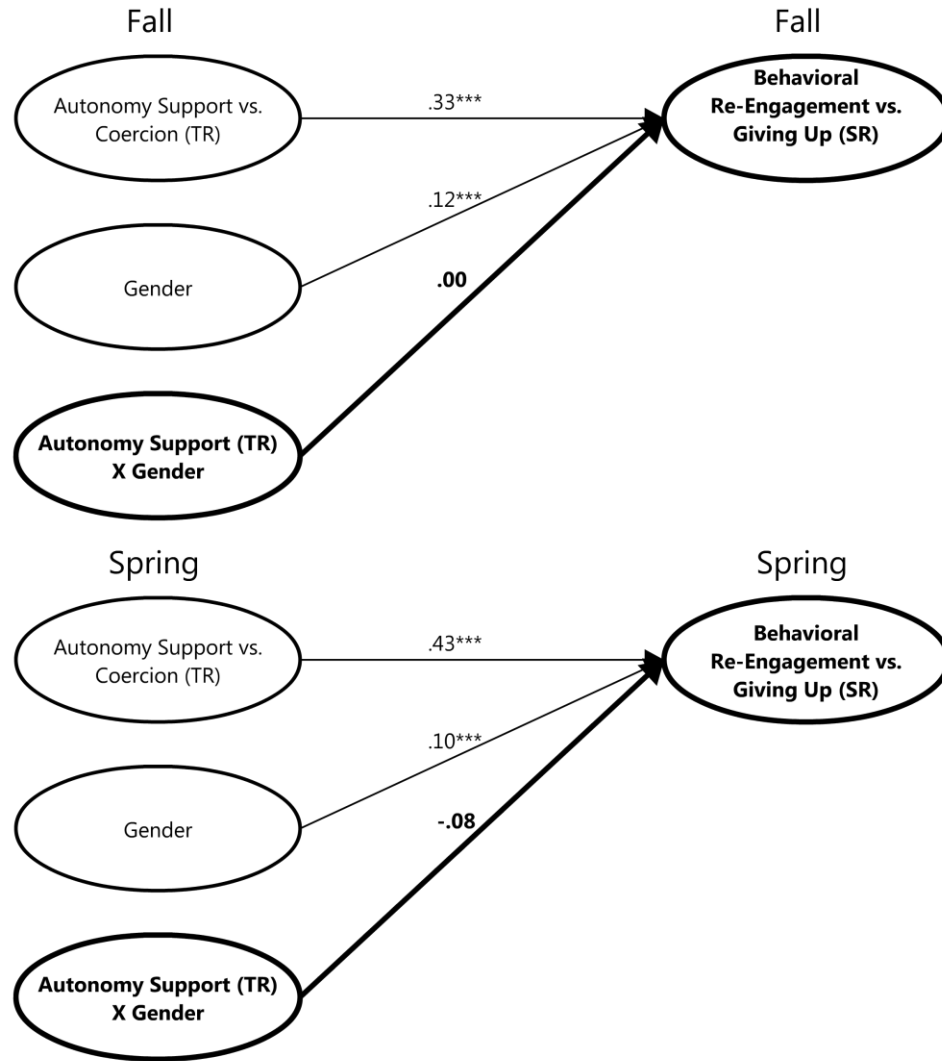
Note. * *p* < .05. ** *p* < .01. *** *p* < .001.

Figure 4.10. Interaction between Autonomy Support (TR) and Gender on Emotional Re-Engagement
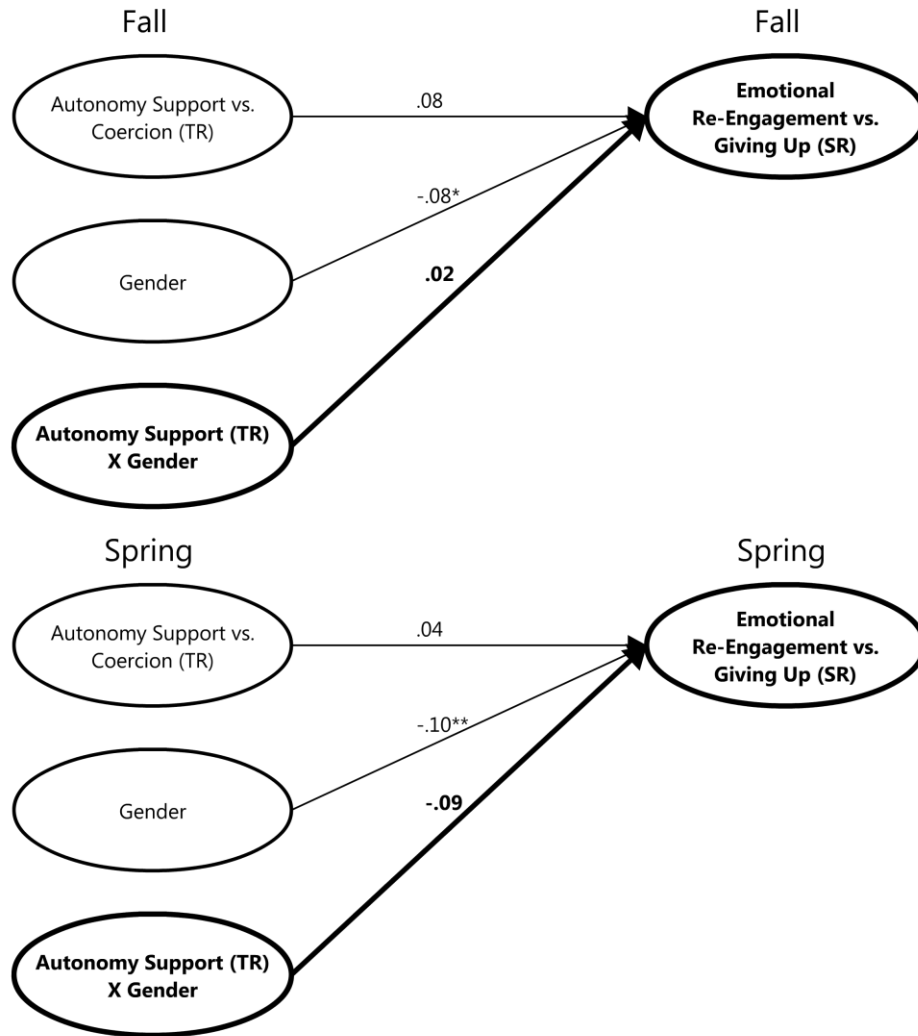
Note. * *p* < .05. ** *p* < .01. *** *p* < .001.

Hypothesis 3b. Teacher autonomy support (vs. coercion) will be a more important predictor of re-engagement (vs. giving up) for older students than for younger students.

Mean level differences as a function of grade were examined using analyses of variance (ANOVAs). The results can be found in Table 4.7. For fall, mean teacher autonomy support (teacher-reported) ranged from 3.01 to 3.15, $F(3, 1014) = 3.81$, $p = .01$, while teacher involvement (teacher-reported) ranged from 3.00 to 3.17, $F(3, 1014) = 7.00$, $p < .001$. Student behavioral re-engagement in fall ranged from 3.28 to 3.56, $F(3, 1014) = 18.55$, $p < .001$, whereas emotional re-engagement ranged from 2.51 to 2.69, $F(3, 1014) = 3.38$, $p < .05$. For spring, mean teacher autonomy support (teacher-reported) ranged from 2.88 to 3.24, $F(3, 1014) = 9.41$, $p < .001$, while teacher involvement (teacher-reported) ranged from 3.02 to 3.25, $F(3, 1014) = 8.88$, $p < .001$. Student behavioral re-engagement in spring ranged from 3.14 to 3.49, $F(3, 1014) = 29.24$, $p < .001$, whereas emotional re-engagement ranged from 2.61 to 2.93, $F(3, 1014) = 6.07$, $p < .001$.

As all overall ANOVAs were significant, post hoc Scheffe analyses were conducted to determine more precisely how the groups differed from one another. Teacher-reported autonomy support was lower for 6th than 5th graders in fall and spring; in addition, in spring 3rd graders were higher than 4th graders and 6th graders were lower than 4th graders, but 5th graders were higher than 4th graders. For teacher-reported involvement, 5th graders were higher than both 3rd, 4th, and 6th graders at both time points. In both fall and spring, behavioral re-engagement was lower for 6th graders than for younger students. Finally, for emotional re-engagement, 6th graders were lower than both 4th and 5th graders in fall, and 3rd graders in spring; 3rd graders were also higher than 4th graders in spring.

Table 4.7
Mean Level Differences by Grade (Teacher-Report of Support)

	Fall					Spring				
	3rd	4th	5th	6th	F	3rd	4th	5th	6th	F
	M (SD)	M (SD)	M (SD)	M (SD)		M (SD)	M (SD)	M (SD)	M (SD)	
Teacher Support (Teacher-Report)										
Teacher Autonomy Support	3.02^{ab} (.69)	3.02^{ab} (.74)	3.15^{a} (.67)	3.01^{bc} (.70)	3.81*	2.99^{ab} (.75)	3.06^{a} (.74)	3.24 (.72)	2.88^{b} (.75)	9.41***
Teacher Involvement	3.03^{ab} (.38)	3.02^{ac} (.46)	3.17 (.32)	3.00^{bc} (.42)	7.00***	3.02^{ab} (.47)	3.05^{ac} (.48)	3.25 (.35)	3.08^{bc} (.47)	8.88***
Student Re-Engagement (Student-Report)										
Behavioral Re-Engagement	3.45^{a} (.52)	3.53^{a} (.48)	3.56^{a} (.46)	3.28 (.54)	18.55***	3.40^{a} (.52)	3.49^{a} (.50)	3.43^{a} (.51)	3.14 (.53)	29.24***
Emotional Re-Engagement	2.62^{ab} (.81)	2.66^{a} (.78)	2.69^{a} (.78)	2.51^{b} (.72)	3.38*	2.93^{a} (.76)	2.72^{b} (.81)	2.71^{ab} (.75)	2.61^{b} (.76)	6.07***

Note. $*p < .05, **p < .01, ***p < .001$. Grade 3 ($n = 138$). Grade 4 ($n = 342$). Grade 5 ($n = 171$). Grade 6 ($n = 367$). Mean levels within a row that have the same superscripts are not significantly different from one another.

Linear multiple regression analyses were used to examine whether teacher autonomy support is a more important predictor of re-engagement for older students than for younger students. Both teacher autonomy support and grade were centered around their means. For each time point, student re-engagement was regressed on teacher autonomy support, grade, and the interaction between teacher autonomy support and grade. Hypothesis 3b was not supported; the interaction between teacher autonomy support and grade was not significant (see Figures 4.11 and 4.12). Teacher-reported autonomy support was not more important for older students than for younger students.

Figure 4.11. Interaction between Autonomy Support (TR) and Grade on Behavioral
Re-Engagement
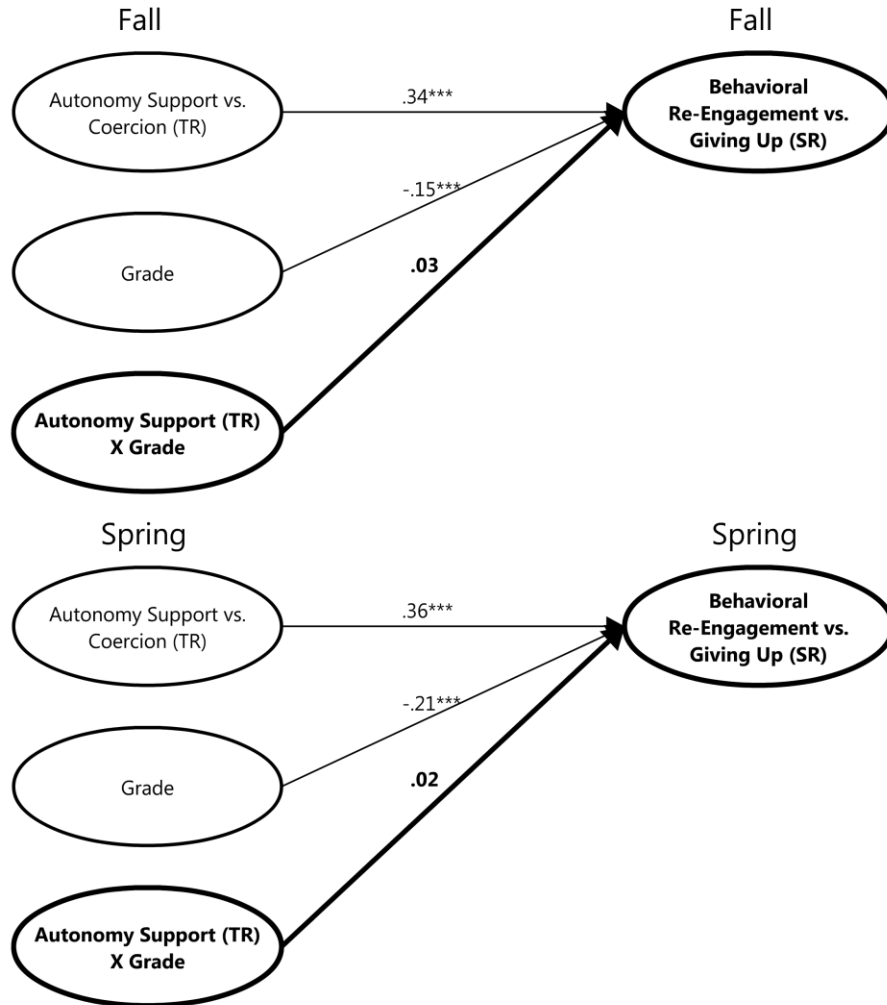
Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 4.12. Interaction between Autonomy Support (TR) and Grade on Emotional Re-Engagement
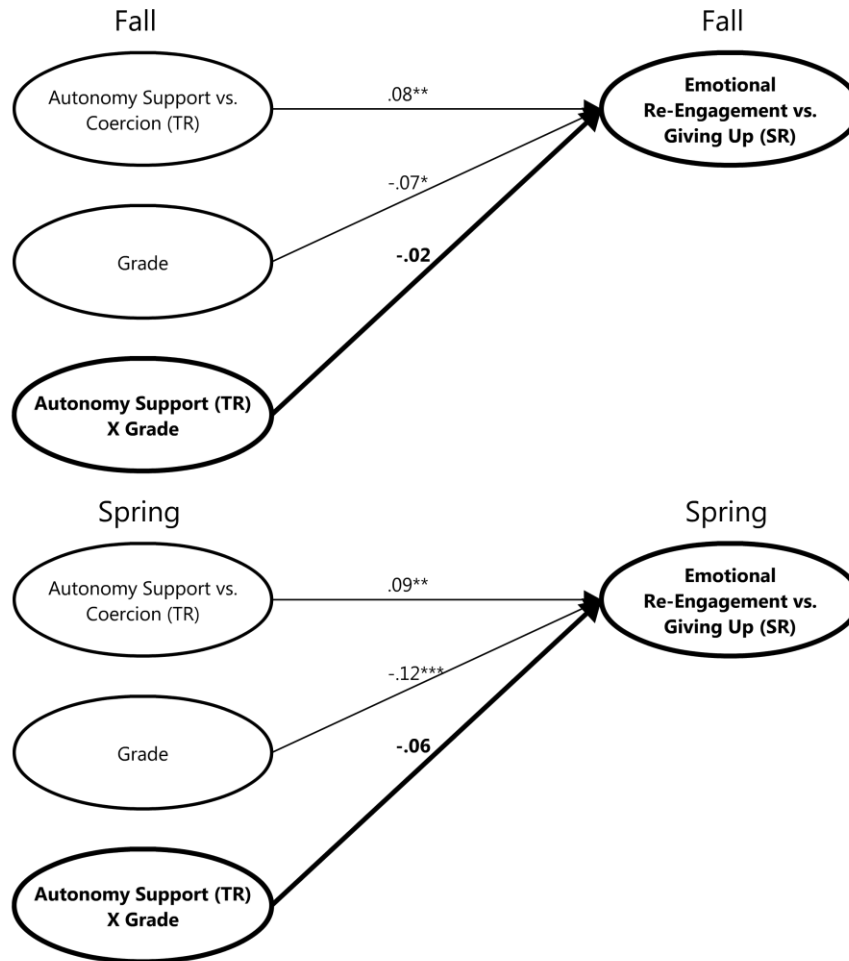
*Note. * p < .05. ** p < .01. *** p < .001.*

Research Question 4. Do these connections hold for student perceptions of teacher autonomy support versus coercion?

Hypothesis 4.1a. Student perceptions of teacher autonomy support (vs. coercion) will concurrently predict student re-engagement (vs. giving up) both in fall and in spring.

The next series of research questions evaluated whether the previously

explored relationships hold true for student perceptions of teacher autonomy support

as well. Hypothesis 4.1a asserted that, both in fall and in spring, student perceptions of

teacher autonomy support and student re-engagement (behavioral and emotional)

would concurrently predict student re-engagement. This hypothesis was evaluated by

examining the correlations between student-reports of teacher autonomy support and

student re-engagement (behavioral and emotional) at both time points. As expected,

these variables were positively and significantly related to one another both in fall and

in spring (see Table 4.8). Behavioral re-engagement demonstrated a stronger

relationship with teacher autonomy support than did emotional re-engagement.

Table 4.8
Relationship Between Autonomy Support (SR) and Re-Engagement

	Behavioral Re-Engagement (SR)		Emotional Re-Engagement (SR)	
	Fall	Spring	Fall	Spring
Student-Report (SR)				
Teacher Autonomy Support (SR): Fall	.56	.50	.26	.24
Teacher Autonomy Support (SR): Spring	.46	.57	.27	.29

Note. $N = 1018$. All correlations are significant at $p < .01$. TR = Teacher-report. SR = Student-report.

Hypothesis 4.1b. Student perceptions of teacher autonomy support (vs. coercion)

will predict changes in student re-engagement (vs. giving up) from fall to spring.

Linear multiple regression analyses were used to test hypothesis 4.1b, in which

student perceptions of teacher autonomy support were expected to predict changes in

student re-engagement from fall to spring. Specifically, student re-engagement

(separately for behavioral and emotional components) in spring was regressed on

student perceptions of teacher autonomy support in fall, controlling for the level of the

respective student re-engagement in fall. This hypothesis was supported. As

demonstrated in Figure 4.13, this relationship was positive and significant for

behavioral re-engagement (β = .15, p <.001), accounting for approximately 52% of the

variance in the change in student behavioral re-engagement from fall to spring.

Student perceptions of teacher autonomy support and emotional re-engagement were

also positively and significantly related (β = .10, p <.001), accounting for

approximately 35% of the variance in the change from fall to spring (see Figure 4.14).

Figure 4.13. Relationship Between Autonomy Support (SR) and Behavioral Re-
Engagement Over Time

Note. * p < .05. ** p < .01. *** p < .001.

Figure 4.14. Relationship Between Autonomy Support (SR) and Emotional Re-Engagement Over Time
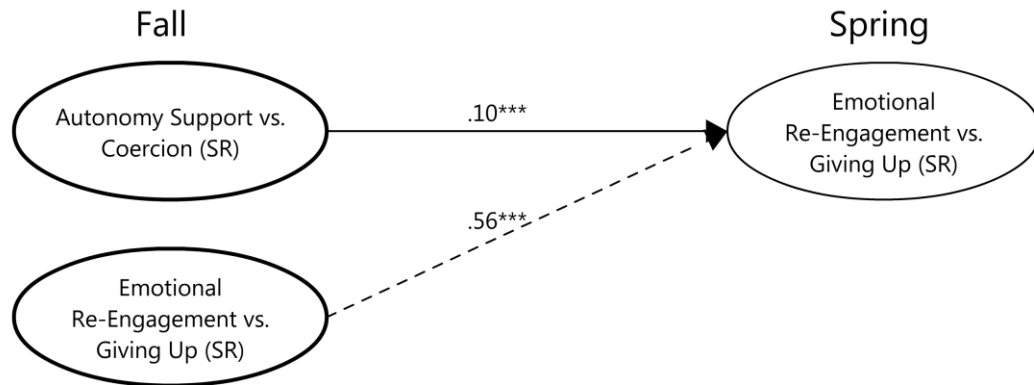
*Note. * p < .05. ** p < .01. *** p < .001.*

Hypothesis 4.2a1. Student perceptions of teacher involvement (vs. neglect) will concurrently predict student re-engagement (vs. giving up) both in fall and in spring.

Next, hypothesis 4.2a1 evaluated whether student perceptions of teacher involvement concurrently predicted student re-engagement in fall and in spring. Correlations between student-rated teacher involvement and student re-engagement (both behavioral and emotional) were examined at both time points. As expected, both behavioral and emotional re-engagement were positively and significantly related to teacher involvement both in fall and in spring (see Table 4.9). At both time points, behavioral re-engagement showed a stronger relationship with teacher involvement than did emotional re-engagement.

Table 4.9
Relationship Between Involvement (SR) and Re-Engagement

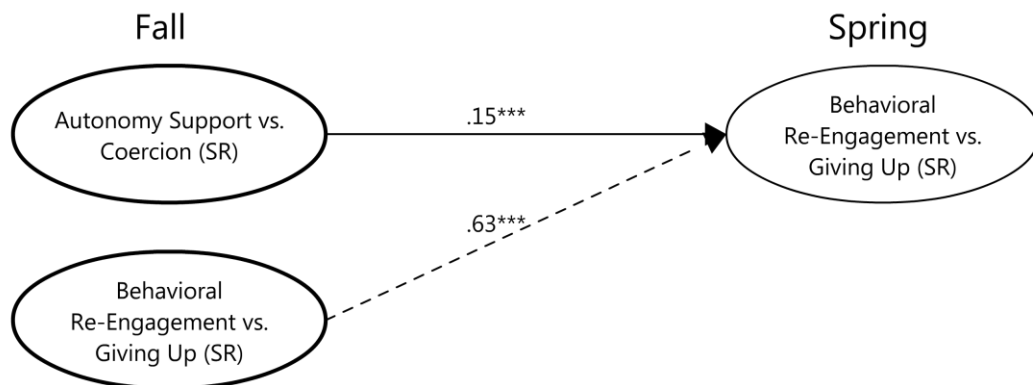|	Behavioral Re-Engagement (SR)		Emotional Re-Engagement (SR)	
	Fall	Spring	Fall	Spring
Student-Report (SR)				
Teacher Involvement (SR): Fall	.55	.50	.21	.17
Teacher Involvement (SR): Spring	.43	.53	.24	.23

Note. $N = 1018$. All correlations are significant at $p < .01$. TR = Teacher-report. SR = Student-report.

Hypothesis 4.2a2. Student perceptions of teacher involvement (vs. neglect) will predict changes in student re-engagement (vs. giving up) from fall to spring.

Hypothesis 4.2a2 asserted that student perceptions of teacher involvement would predict changes in student re-engagement from fall to spring. Linear multiple regression analyses were used to evaluate this hypothesis. Separately for the behavioral and emotional components, student re-engagement in spring was regressed on student perceptions of teacher involvement in spring, controlling for the amount of student re-engagement in fall. As hypothesized, the relationship between behavioral re-engagement and student-reported teacher involvement was positive and significant ($\beta = .15$, $p < .001$), accounting for 52% of the variance in the change in student behavioral re-engagement from fall to spring (see Figure 4.15). For emotional re-engagement, the relationship was also positive and significant ($\beta = .05$, $p < .05$), accounting for 35% of the variation in the change in emotional re-engagement from fall to spring (see Figure 4.16).

Figure 4.15. Relationship Between Involvement (SR) and Behavioral Re-Engagement
Over Time
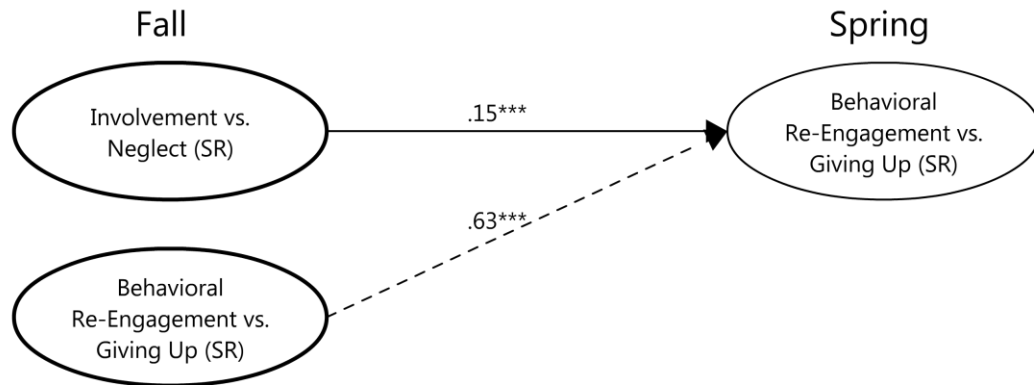
Note. * *p* < .05. ** *p* < .01. *** *p* < .001.

Figure 4.16. Relationship Between Involvement (SR) and Emotional Re-Engagement
Over Time
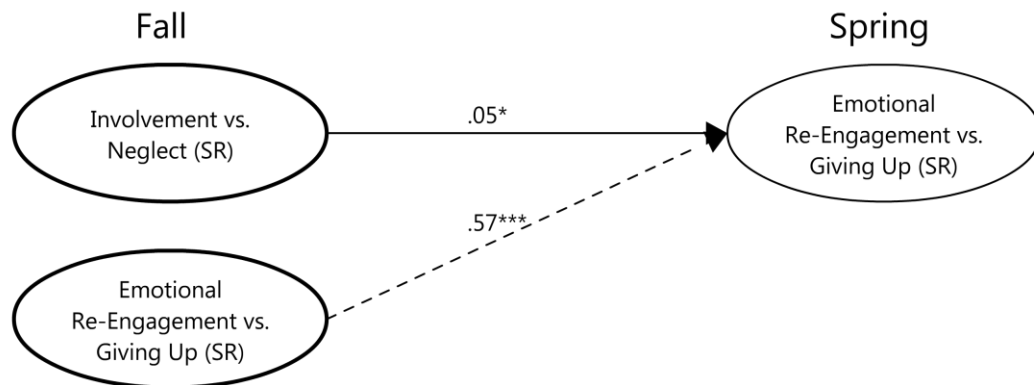
Note. * *p* < .05. ** *p* < .01. *** *p* < .001.

Hypothesis 4.2b1. Student perceptions of teacher autonomy support (vs. coercion)

will predict student re-engagement (vs. giving up) over and above teacher

involvement, both in fall and in spring.

According to hypothesis 4.2b1, student perceptions of teacher autonomy

support would predict student re-engagement over and above teacher involvement, both in fall and in spring. This hypothesis was tested using linear multiple regression, with separate analyses for behavioral and emotional re-engagement for both fall and spring. Within each time point, student re-engagement was regressed on student perceptions of teacher involvement and teacher autonomy support. As predicted, students' perceptions of teacher autonomy support demonstrated unique effects over and above those of teacher involvement in all analyses (see Figures 4.17 and 4.18). Surprisingly, however, teacher involvement did not demonstrate unique effects over and above those of autonomy support for emotional re-engagement.

Figure 4.17. Unique Effects of Autonomy Support (SR) and Involvement (SR) on Behavioral Re-Engagement

Fall

Spring
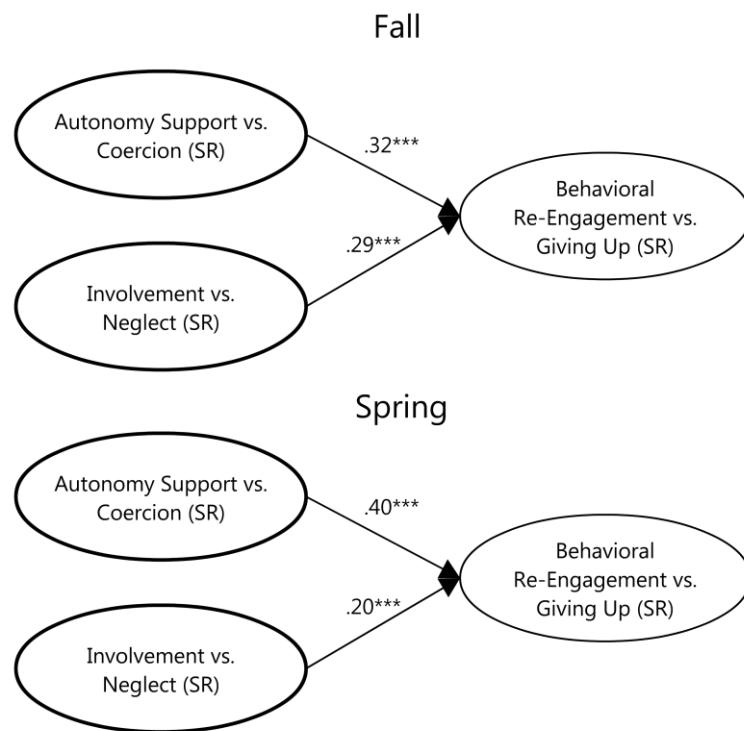
Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 4.18. Unique Effects of Autonomy Support (SR) and Involvement (SR) on Emotional Re-Engagement
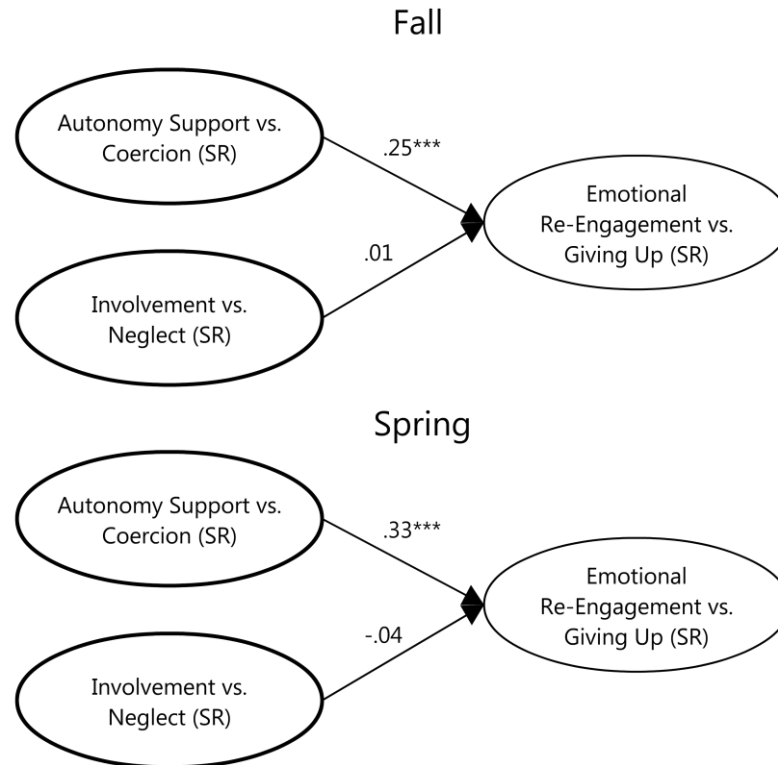
*Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Hypothesis 4.2b2. Student perceptions of teacher autonomy support (vs. coercion) will predict changes in student re-engagement (vs. giving up) from fall to spring, over and above involvement.

To evaluate whether student perceptions of teacher provision of autonomy support predict changes in students' re-engagement from fall to spring over and above those predicted by student perceptions of teacher involvement, two hierarchical linear multiple regressions were conducted in which student re-engagement in spring (behavioral and emotional) were the dependent variables. Student-reported teacher

involvement in fall was the first predictor variable in the models, followed by student

perceptions of teacher autonomy support in fall, controlling for student re-engagement

in fall. Hypothesis 4.2b2 was supported. Student-reported autonomy support

significantly predicted changes in both behavioral and emotional re-engagement over

and above those predicted by teacher involvement (see Figures 4.19 and 4.20).

Surprisingly, however, students' perceptions of teacher involvement were not a

significant predictor of emotional re-engagement over and above autonomy support

and emotional re-engagement in fall.

Figure 4.19. Relationship Between Autonomy Support (SR), Involvement (SR), and
Behavioral Re-Engagement Over Time

*Note. * p < .05. ** p < .01. *** p < .001.*

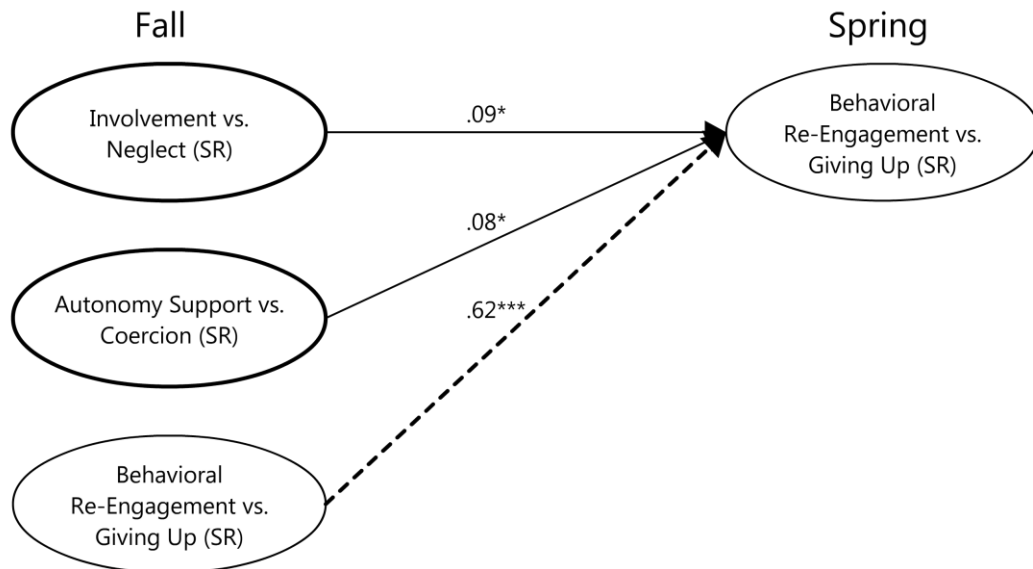*Figure 4.20.* Relationship Between Autonomy Support (SR), Involvement (SR), and Emotional Re-Engagement Over Time
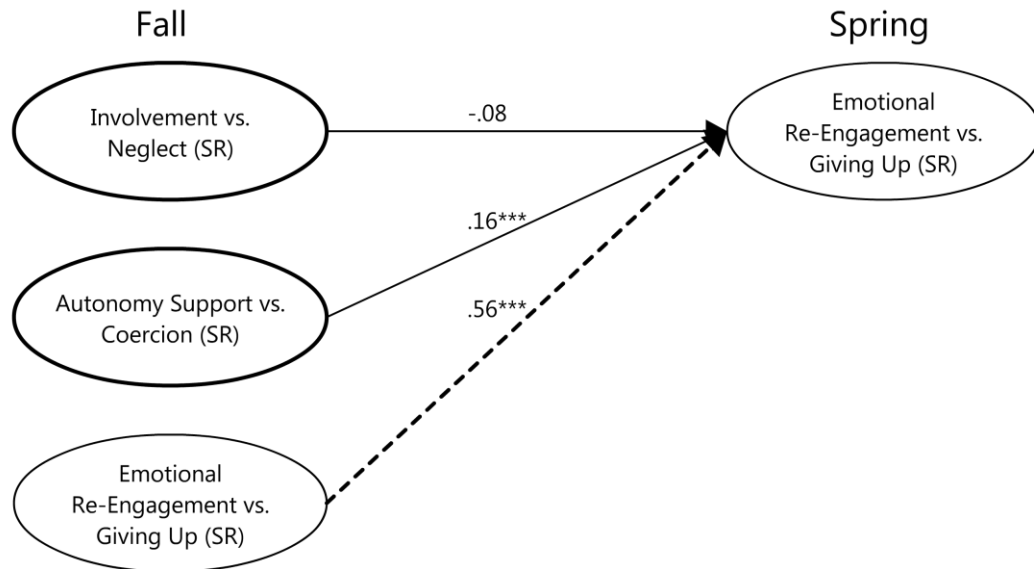
Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Hypothesis 4.3a. Student perceptions of teacher autonomy support (vs. coercion) will be more important predictors of re-engagement (vs. giving up) for boys than for girls.

The sample was approximately equally divided among male ($n = 508$) and female participants ($n = 510$). Independent-measures *t* tests were used to examine whether levels of teacher support (student-reported) and student re-engagement (student-reported, behavioral and emotional) differed significantly for boys and girls. The results can be found in Table 4.10. Significant gender differences were found for all constructs, such that girls reported receiving significantly more involvement and autonomy support from their teachers than boys at both time points.

Table 4.10
Mean Level Differences by Gender (Student-Report of Support)

	Fall			Spring		
	Girls	Boys		Girls	Boys	
	M	M	t	M	M	t
	(SD)	(SD)		(SD)	(SD)	
Teacher Support (Teacher-Report)						
Teacher Autonomy Support	2.96 (.51)	2.83 (.50)	-3.80***	2.93 (.54)	2.84 (.55)	-2.61**
Teacher Involvement	3.10 (.53)	2.92 (.52)	-5.57***	3.00 (.60)	2.85 (.59)	-4.00***

*Note. N = 1018. * p <.05. ** p <.01. *** p <.001.*

Linear multiple regression analyses were conducted to test whether student perceptions of teacher autonomy support were a more important predictor of re-engagement for boys than for girls. Student-reported teacher autonomy support was grand mean centered to reduce issues of multi-collinearity. For each time point, each form of student re-engagement (behavioral and emotional) was regressed on student-reported teacher autonomy support, gender, and the interaction between student-reported teacher autonomy support and gender (created by calculating the cross-product of perceived autonomy support and gender). The interaction between student perceptions of autonomy support and gender was significant for behavioral re-engagement at both time points, such that, as hypothesized, perceived autonomy support was more important for boys than for girls (see Figure 4.21). The interaction between perceived autonomy support and gender was not significant for emotional re-engagement at either time point (see Figure 4.22).

Figure 4.21. Interaction between Autonomy Support (SR) and Gender on Behavioral Re-Engagement
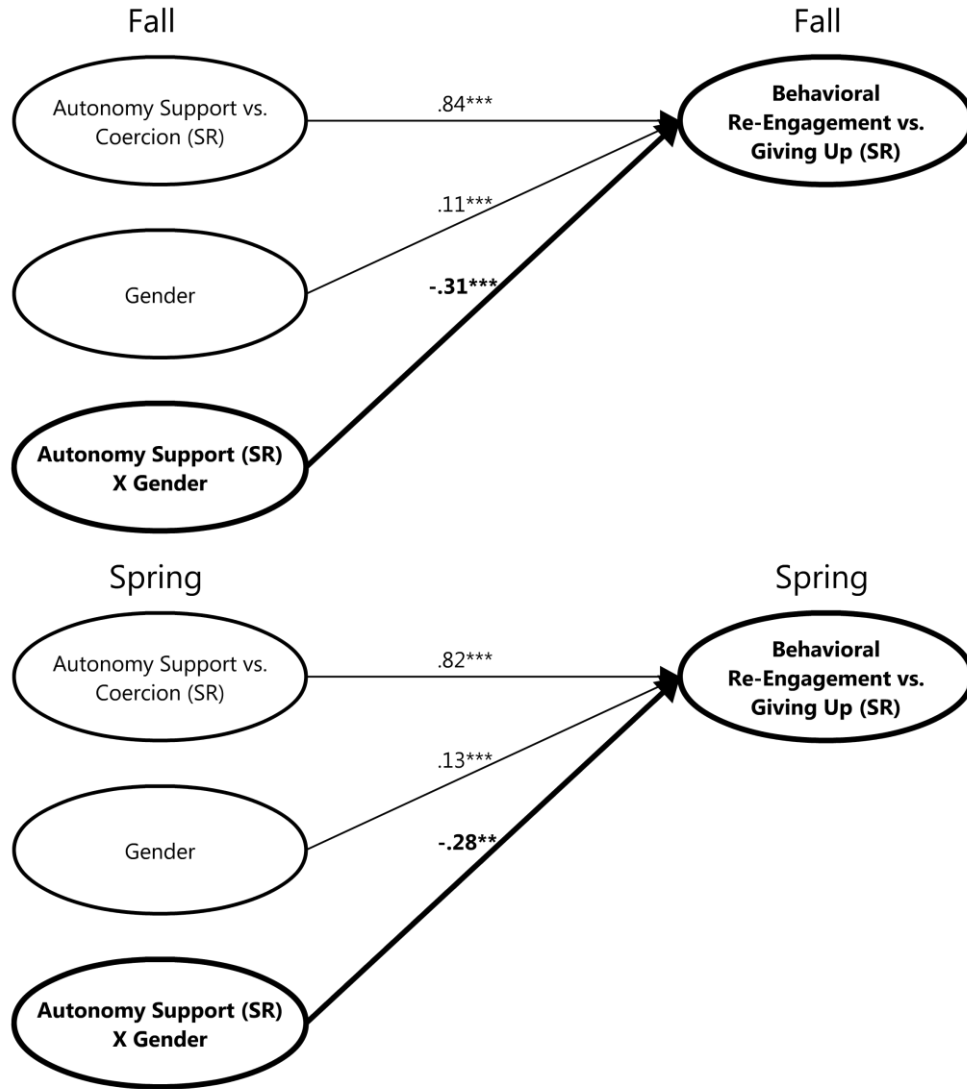
Note. * *p* < .05. ** *p* < .01. *** *p* < .001.

Figure 4.22. Interaction between Autonomy Support (SR) and Gender on Emotional
Re-Engagement

*Note. * p < .05. ** p < .01. *** p < .001.*

> *Hypothesis 4.3b.* Student perceptions of teacher autonomy support (vs. coercion)
>
> will be more important predictors of re-engagement (vs. giving up) for older
>
> students than for younger students.

Mean level grade differences were examined using analyses of variance

(ANOVAs). The results are presented in Table 4.11. For fall, mean teacher autonomy

support (student-reported) ranged from 2.76 to 3.08, $F(3, 1014) = 20.31$, $p <.001$,

while teacher involvement (student-reported) ranged from 2.87 to 3.12, $F(3, 1014) =$

4.34, $p <.001$. For spring, mean teacher autonomy support (student-reported) ranged

from 2.72 to 3.05, $F(3, 1014) = 5.26$, $p <.001$, while teacher involvement (student-

reported) ranged from 2.75 to 3.05, $F(3, 1014) = 6.52$, $p <.001$.

Post hoc Scheffe analyses were conducted to determine more precisely how the

groups differed from one another. In fall, student-rated autonomy support was lower

for 3rd graders than for 4th or 5th graders, and lower for 6th graders than for 4th or 5th

graders; in spring, student-reported autonomy support was lower for 6th graders than

for the younger students. Likewise, for student-reported teacher involvement, 6th

graders were lower than the younger students at both time points.

Table 4.11
Mean Level Differences by Grade (Student-Report of Support)

	Fall					Spring				
	3rd	4th	5th	6th	F	3rd	4th	5th	6th	F
	M (SD)	M (SD)	M (SD)	M (SD)		M (SD)	M (SD)	M (SD)	M (SD)	
Teacher Support (Teacher-Report)										
Teacher Autonomy Support	2.83[a] (.49)	2.97[b] (.50)	3.08[b] (.48)	2.76[a] (.50)	20.31***	2.90[a] (.53)	2.96[a] (.57)	3.05[a] (.55)	2.72 (.49)	5.26***
Teacher Involvement	3.04[a] (.54)	3.11[a] (.51)	3.12[a] (.53)	2.87 (.53)	4.34***	2.94[a] (.59)	3.05[a] (.62)	3.05[a] (.59)	2.75 (.53)	6.52***

Note. *$p<.05$, **$p<.01$, ***$p<.001$. Grade 3 ($n = 138$). Grade 4 ($n = 342$). Grade 5 ($n = 171$). Grade 6 ($n = 367$). Mean levels within a row that have the same superscripts are not significantly different from one another.
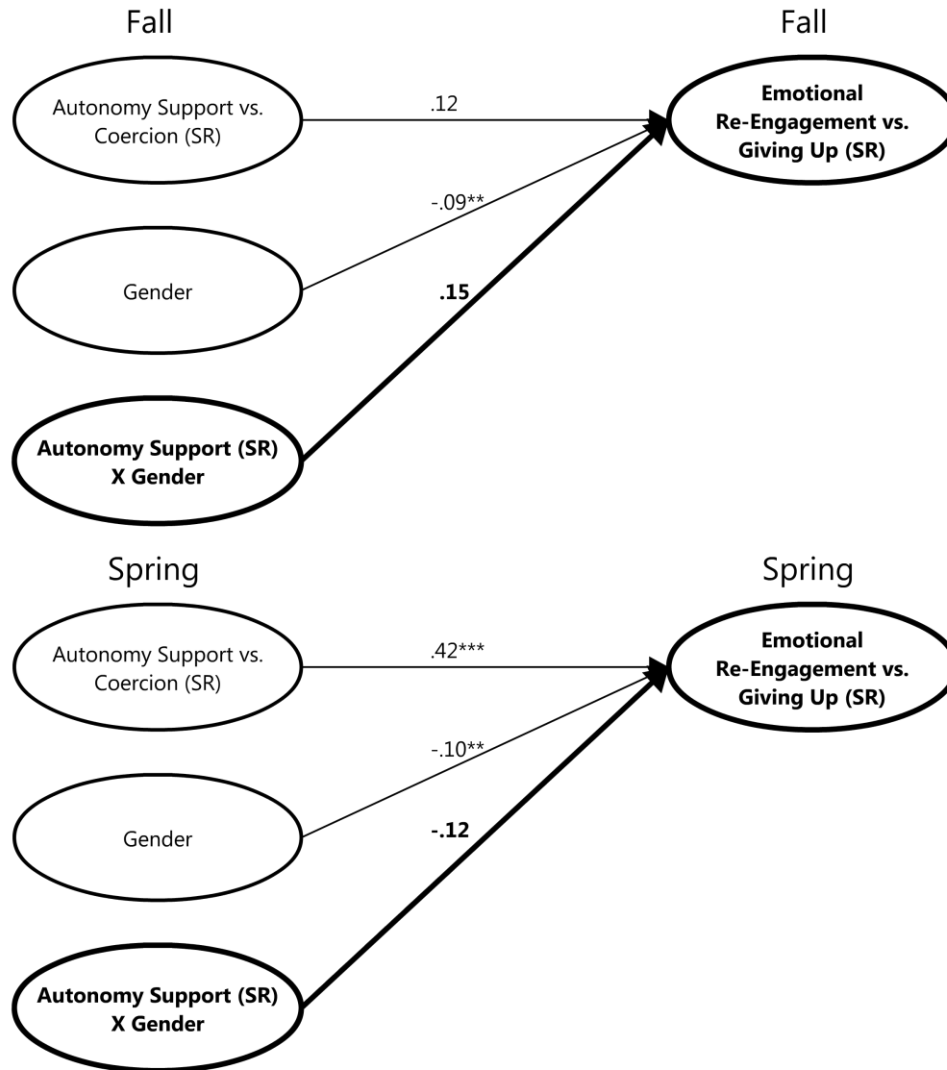
Linear multiple regression analyses were used to examine whether student perceptions of teacher autonomy support are a more important predictor of re-engagement for older students than for younger students. Both perceived teacher autonomy support and grade were centered around their means. For each time point, student re-engagement was regressed on perceived teacher autonomy support, grade, and the interaction between perceived teacher autonomy support and grade. Hypothesis 4.3 was not supported; the interaction between students' perceived teacher autonomy support and grade was not significant at either time point (see Figures 4.23 and 4.24). The relationship between students' perceived teacher autonomy support and their re-engagement (both behavioral and emotional) played out similarly for students of varying grades.

Figure 4.23. Interaction between Autonomy Support (SR) and Grade on Behavioral Re-Engagement
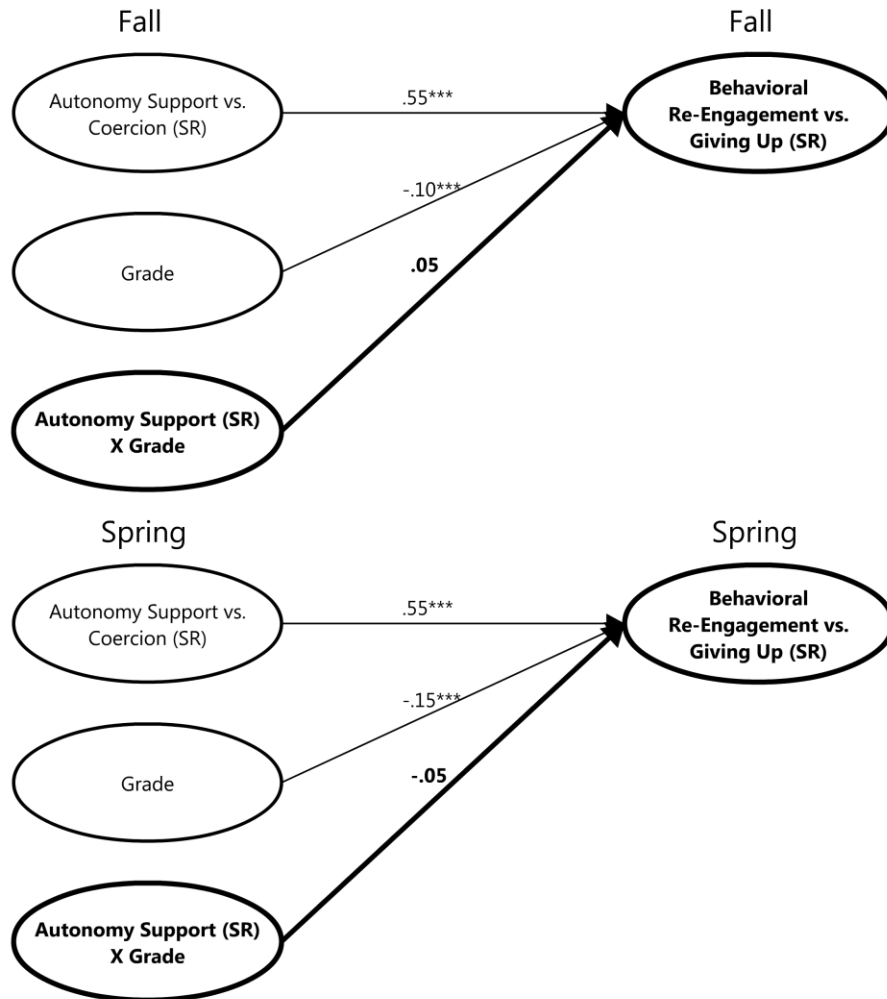
Note. * *p* < .05. ** *p* < .01. *** *p* < .001.

Figure 4.24. Interaction between Autonomy Support (SR) and Grade on Emotional
Re-Engagement
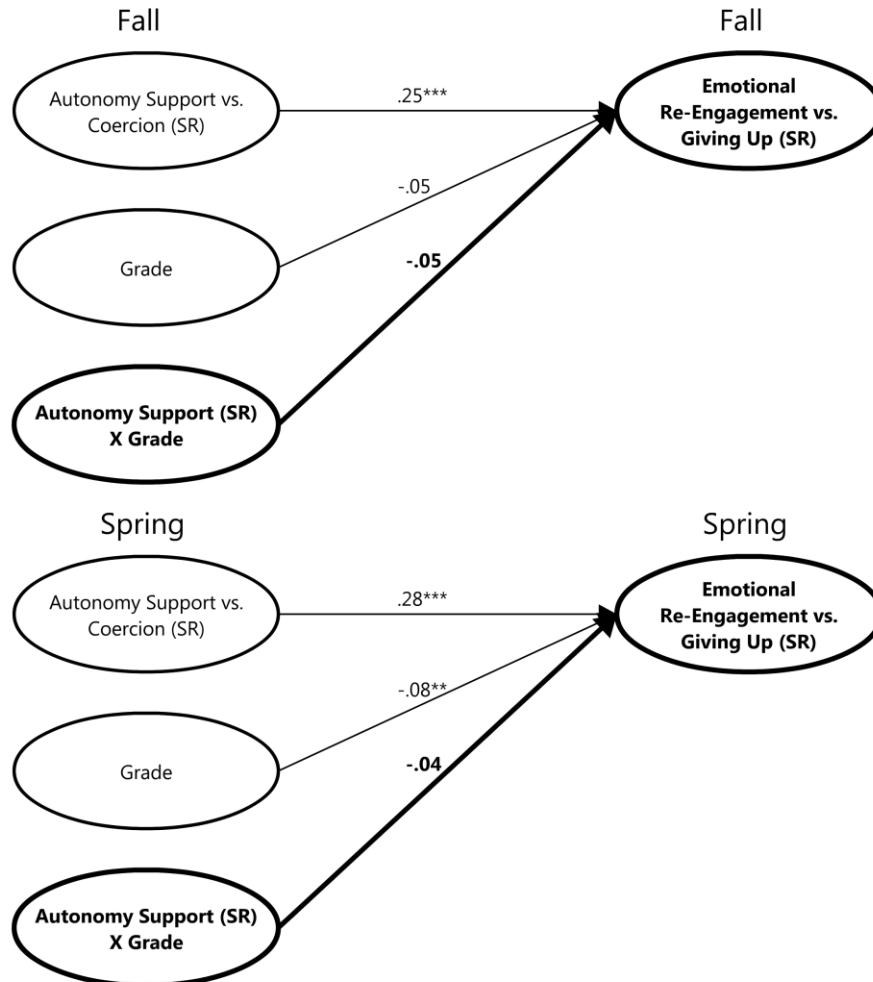
Note. * *p* < .05. ** *p* < .01. *** *p* < .001.

Research Question 5. Do student perceptions of teacher context mediate the

relationship between teacher context and student re-engagement versus giving up?

   Hypothesis 5a. Student perceptions of teacher autonomy support (vs. coercion)

   will partially mediate the relationship between teacher-report of autonomy

   support (vs. coercion) and student re-engagement (vs. giving up).

Four mediation models were used to test whether the effects of teacher autonomy support are transmitted to re-engagement via students' perceptions. Separate analyses were completed for behavioral and emotional re-engagement in fall and spring. Baron and Kenny's (1986) method of testing mediation models was followed, such that, after it was established that the antecedent (teacher-reported autonomy support) was correlated with both (a) the outcome (student re-engagement) and (b) the proposed mediator (student-reported teacher autonomy support) and that (c) the proposed mediator (student-reported teacher autonomy support) was correlated with the outcome (student re-engagement), the analysis of most interest was (d) whether in a regression using both teacher- and student-reported teacher autonomy support to predict student re-engagement, the unique effect of the student-reported teacher autonomy support remained significant, whereas the unique effect of the teacher-reported autonomy support was significantly reduced (indicating partial mediation) or no longer significant (indicating full mediation).

At both time points, student perceptions of teacher autonomy support partially mediated the relationship between teacher-reported autonomy support and behavioral re-engagement (see Figure 4.25). Moreover, the relationship between teacher-reported autonomy support and emotional re-engagement was fully mediated by student perceptions of teacher autonomy support in both fall and spring (see Figure 4.26). The Sobel (1982) test was also utilized to test whether the relationship between teacher autonomy support and re-engagement was significantly reduced when the mediator (student-reported autonomy support) was added to the regression equations; in all

cases, the Sobel test was significant (behavioral re-engagement: fall = 7.90, p <.001;

spring = 8.59, p <.001; emotional re-engagement: fall = 5.86, p <.001; spring = 6.63, p

<.001).

Figure 4.25. Indirect Path Between Autonomy Support (TR) and Behavioral Re-

Engagement

Note. * p < .05. ** p < .01. *** p < .001.

Figure 4.26. Indirect Path Between Autonomy Support (TR) and Emotional Re-
Engagement
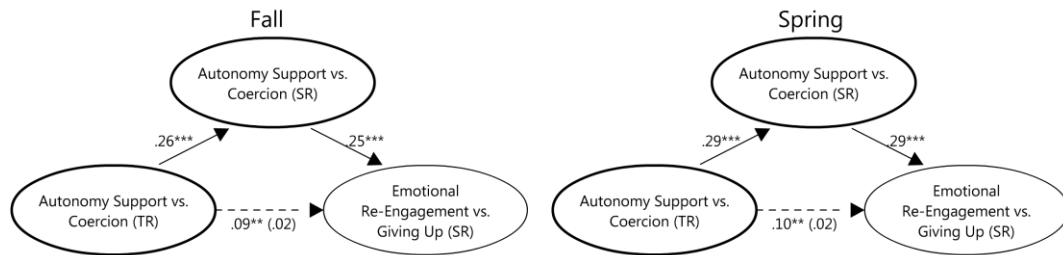
Note. * p < .05. ** p < .01. *** p < .001.

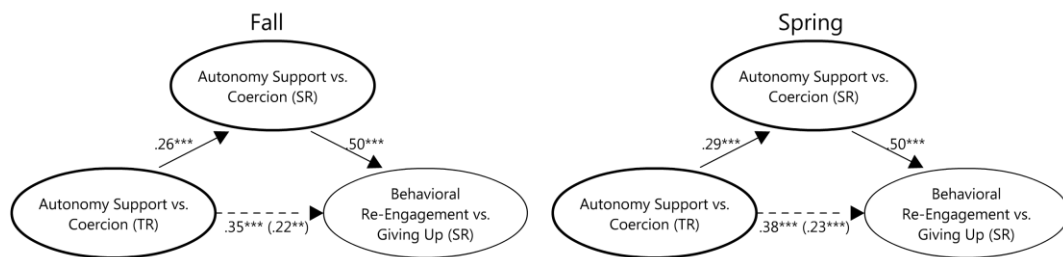*Hypothesis 5b.* Student perceptions of teacher involvement (vs. neglect) will

partially mediate the relationship between teacher-report of involvement (vs.

neglect) and student re-engagement (vs. giving up).

Four mediation models were used to test whether the effects of teacher

involvement are transmitted to re-engagement via students' perceptions, following the

same procedures described in the previous research question. At both time points,

student perceptions of teacher involvement partially mediated the relationship between

teacher-reported involvement and behavioral re-engagement (see Figure 4.27).

However, the mediation models exploring whether the relationship between teacher-

reported involvement and emotional re-engagement was mediated by student

perceptions of teacher involvement were not able to be tested, as the antecedent

(teacher-reported involvement) was not significantly correlated with the proposed

outcome (emotional re-engagement) at either time point. For the indirect effects of

teacher-reported involvement on behavioral re-engagement in fall and spring, the

Sobel (1982) test indicated that the relationship was significantly reduced when the

mediator (student-reported involvement) was added to the regression equation (fall =

7.17, $p <.001$; spring = 8.25, $p <.001$).

Figure 4.27. Indirect Path Between Autonomy Support (TR) and Behavioral Re-
Engagement

Discussion

This study presented a clear conceptualization of re-engagement as a process of everyday resilience, which was used to examine how teachers' provision of autonomy support and involvement can promote or hinder students' ability to bounce back from encounters with obstacles or difficulties in school. The overarching motivational framework, rooted in Deci and Ryan's (1985) self-determination theory, described the interactions among students' social contexts, self-system processes, actions, and outcomes. The present study examined the role of both teacher autonomy support and involvement (via both student and teacher perspectives) in predicting changes in student re-engagement over time. Because behavioral and emotional re-engagement were found to be relatively distinct from one another, these relationships were evaluated separately; their similarities and differences will be discussed.

Summary of Findings

A summary of study results can be found in Table 5.1. Overall, the pattern of results generally supported the hypotheses. However, the most surprising finding was that for both teacher-reported and student-reported teacher support, noticeably different patterns emerged for the behavioral versus emotional components of re-engagement. There was no psychometric evidence that the re-engagement scales were working poorly, as the internal consistencies for all scales were excellent ($\alpha \geq .84$). However, the behavioral and emotional re-engagement scales were not as highly correlated as expected. Hence, findings for behavioral and emotional re-engagement will be summarized separately. Behavioral re-engagement displayed a generally

Table 5.1
Summary of Study Results

	Behavioral Re-Engagement (Fall/Spring)	Emotional Re-Engagement (Fall/Spring)
Research Question 1. *When teachers provide autonomy support, are students more likely to re-engage following encounters with academic setbacks? In a similar vein, when teachers show more coercion, are students more likely to give up?*		
Hypothesis 1a. Teacher autonomy support (vs. coercion) and student re-engagement (vs. giving up) will show the kind of positive concurrent relationship one would expect if autonomy support were important to students' ability to bounce back following encounters with academic setbacks, both in fall and in spring.	Yes/Yes	Yes/Yes
Hypothesis 1b. Teacher autonomy support (vs. coercion) will predict changes in student re-engagement (vs. giving up) from fall to spring.	Yes	No
Hypothesis 2a1. Teacher involvement (vs. neglect) will concurrently predict student re-engagement (vs. giving up) both in fall and in spring.	Yes/Yes	No/No
Hypothesis 2a2. Teacher involvement (vs. neglect) will predict changes in student re-engagement (vs. giving up) from fall to spring.	Yes	No
Research Question 2. *Is autonomy support important over and above the effects of teacher involvement to student re-engagement versus giving up?*		
Hypothesis 2b1. Teacher autonomy support (vs. coercion) will predict student re-engagement (vs. giving up) over and above teacher involvement, both in fall and in spring.	Yes/Yes	Yes/Yes
Hypothesis 2b2. Teacher autonomy support (vs. coercion) will predict changes in student re-engagement (vs. giving up) from fall to spring, over and above involvement.	No	No

Table 5.1
Summary of Study Results (Continued)

	Behavioral Re-Engagement (Fall/Spring)	Emotional Re-Engagement (Fall/Spring)
Research Question 3. *Are there grade and/or gender differences in the relationship between teacher autonomy support and re-engagement versus giving up?*		
Hypothesis 3a. Teacher autonomy support (vs. coercion) will be a more important predictor of re-engagement (vs. giving up) for boys than for girls.	No/No	No/No
Hypothesis 3b. Teacher autonomy support (vs. coercion) will be a more important predictor of re-engagement (vs. giving up) for older students than for younger students.	No/No	No
Hypothesis 4.1a. Student perceptions of teacher autonomy support (vs. coercion) will concurrently predict student re-engagement (vs. giving up) both in fall and in spring.	Yes/Yes	Yes/Yes
Hypothesis 4.1b. Student perceptions of teacher autonomy support (vs. coercion) will predict changes in student re-engagement (vs. giving up) from fall to spring.	Yes	Yes
Research Question 4. *Do these connections hold for student perceptions of teacher autonomy support versus coercion?*		
Hypothesis 4.2a1. Student perceptions of teacher involvement (vs. neglect) will concurrently predict student re-engagement (vs. giving up) both in fall and in spring.	Yes/Yes	Yes/Yes
Hypothesis 4.2a2. Student perceptions of teacher involvement (vs. neglect) will predict changes in student re-engagement (vs. giving up) from fall to spring.	Yes	Yes

Table 5.1
Summary of Study Results (Continued)

	Behavioral Re-Engagement (Fall/Spring)	Emotional Re-Engagement (Fall/Spring)
Hypothesis 4.2b1. Student perceptions of teacher autonomy support (vs. coercion) will predict student re-engagement (vs. giving up) over and above teacher involvement, both in fall and in spring.	Yes/Yes	Yes/Yes
Hypothesis 4.2b2. Student perceptions of teacher autonomy support (vs. coercion) will predict changes in student re-engagement (vs. giving up) from fall to spring, over and above involvement.	Yes	Yes
Research Question 4 (continued). *Do these connections hold for student perceptions of teacher autonomy support versus coercion?*		
Hypothesis 4.3a. Student perceptions of teacher autonomy support (vs. coercion) will be more important predictors of re-engagement (vs. giving up) for boys than for girls.	Yes/Yes	No/No
Hypothesis 4.3b. Student perceptions of teacher autonomy support (vs. coercion) will be more important predictors of re-engagement (vs. giving up) for older students than for younger students.	No/No	No/No
Hypothesis 5a. Student perceptions of teacher autonomy support (vs. coercion) will partially mediate the relationship between teacher-report of autonomy support (vs. coercion) and student re-engagement (vs. giving up).	Partial/Partial	Full/Full
Research Question 5. *Do student perceptions of teacher context mediate the relationship between teacher context and student re-engagement versus giving up?*		
Hypothesis 5b. Student perceptions of teacher involvement (vs. neglect) will partially mediate the relationship between teacher-report of involvement (vs. neglect) and student re-engagement (vs. giving up).	Partial/Partial	N/A

stronger relationship with teacher support than did emotional re-engagement for both teacher- and student-reports, with the student-reported data exhibiting stronger relationships than the teacher-reported data.

Behavioral re-engagement. A primary goal of this study was to examine the effects of teacher support on students' re-engagement. Students reported relatively high levels of behavioral re-engagement at both time points, with girls reporting slightly higher levels than boys. Slight grade differences were also found, with sixth grade students reporting significantly less behavioral re-engagement than the younger students. Across all grades and gender, behavioral re-engagement declined slightly from fall to spring, with high inter-individual stability, indicating that the declines are portioned out based on the students' initial starting levels of behavioral re-engagement.

The pattern of correlational results between teacher-reported support and behavioral re-engagement was as predicted, and played out similarly for both genders and at all grade levels. As expected, both teacher autonomy support and involvement (teacher-reported) were positively and significantly related to behavioral re-engagement, indicating that, at both time points, students whose teachers reported providing them with more involvement and autonomy support also themselves reported showing more persistence when they encountered obstacles and setbacks in school. Both types of teacher-reported support also were significant individual predictors of *changes* in student re-engagement from fall to spring, indicating that students whose teachers provided more involvement and autonomy support actually experienced increases in their behavioral re-engagement from the beginning to the end

of the school year.

At each time point, teacher autonomy support demonstrated *unique effects* over and above those of involvement in predicting students' behavioral re-engagement. However, when the two support constructs were entered together, teacher autonomy support did not predict changes in student re-engagement over and above involvement from fall to spring. This finding was likely influenced by the multi-collinearity between involvement and autonomy support (r = .60 in fall; r = .68 in spring). This pattern of effects for teacher-reported autonomy support and involvement held across genders and grades.

For the effects of *student perceptions* of teacher support on behavioral re-engagement, the results were stronger but displayed the same pattern as demonstrated in the relationships with the teacher-reported support. Again, the pattern of correlational results was largely as predicted, and played out similarly at all grade levels. At each time point, students' perceived teacher autonomy support and involvement were positively and significantly related to their behavioral re-engagement, indicating that, in both fall and spring, students who perceived their teachers to be more involved and autonomy supportive showed more behavioral re-engagement when dealing with everyday setbacks in school. However, the effects of students' perceptions of teacher autonomy support on their behavioral re-engagement did depend on the students' gender. Though important for all students, perceived teacher autonomy support was a stronger predictor of behavioral re-engagement for boys than it was for girls.

Additionally, both student-reported teacher involvement and autonomy support predicted changes in students' behavioral re-engagement from fall to spring, such that students who perceived their teachers to be more involved and autonomy supportive in fall also experienced increases in their behavioral re-engagement from the beginning to the end of the school year. Perceived teacher autonomy support *uniquely predicted* students' behavioral re-engagement over and above involvement, but, unlike the findings for teacher-reported support, students' perceptions of teacher autonomy support significantly predicted *changes* in behavioral re-engagement from fall to spring, over and above the effects of perceived teacher involvement.

An additional goal of this study was to examine whether students' perceptions of teacher support might partially mediate the relationship between the support teachers report offering to students and student re-engagement. For behavioral re-engagement, this was the case: for both teacher autonomy support and involvement, students' perceptions of teacher support *partially mediated* the relationship between teacher-reported support and students' behavioral re-engagement. That is, the effects of teacher-reported support on behavioral re-engagement are both direct and carried through students' experiences of teacher support.

Emotional re-engagement. Students reported moderate levels of emotional re-engagement at both time points, with boys reporting slightly higher levels than girls. Slight grade differences were also found, with sixth grade students reporting significantly less emotional re-engagement than the fourth and fifth graders in fall, and the older students reporting significantly less emotional re-engagement than the third

graders in spring. Across all grades and both genders, emotional re-engagement increased slightly from fall to spring, with high inter-individual stability, indicating that the increases are portioned out based on the students' initial starting levels of emotional re-engagement.

The relationships between the teacher support constructs and students' emotional re-engagement showed the same general pattern that was observed for behavioral re-engagement, but were notably weaker. The pattern of correlational results between teacher-reported support and emotional re-engagement was generally as predicted, and played out similarly for both genders and at all grade levels. As expected, teacher-reported autonomy support was positively and significantly related to emotional re-engagement in both fall and spring. However, the relationship between teacher-reported involvement and emotional re-engagement was not significant at either time point. Students whose teachers reported providing them with more autonomy support reported higher levels of emotional re-engagement after encounters with obstacles and setbacks. Interestingly, students whose teachers reported providing them with more involvement did not also report higher levels of emotional re-engagement.

At both time points, teacher autonomy support *uniquely predicted* emotional re-engagement over and above involvement, but neither autonomy support nor involvement (teacher-reported) predicted *changes* in students' emotional re-engagement from fall to spring. Additionally, as was the case with behavioral re-engagement, when both teacher autonomy support and involvement were used

together to predict emotional re-engagement, autonomy support did not predict

changes in re-engagement from fall to spring over and above involvement. This

finding was again likely influenced by the multi-collinearity between involvement and

autonomy support (r = .81 in fall; r = .84 in spring).

Again, *student perceptions* of teacher support offered a slightly different view

of the relationships among emotional re-engagement, autonomy support and

involvement. As was the case for behavioral re-engagement, the results were stronger

but displayed a generally similar pattern as demonstrated in the relationships with the

teacher-reported support. In both fall and spring, the pattern of correlational results

was largely as predicted, and played out similarly for both genders and at all grade

levels. Students' perceptions of teacher autonomy support and involvement were

significantly related to their levels of emotional re-engagement. At both time points,

students who perceived their teachers to be more involved and autonomy supportive

reported higher levels of emotional re-engagement after encounters with academic

setbacks. Both perceived teacher autonomy support and involvement also predicted

changes in students' emotional re-engagement from fall to spring, such that students

who perceived their teachers to be more involved and autonomy supportive also

experienced increases in their emotional re-engagement from the beginning to the end

of the school year.

Perceived teacher autonomy support *uniquely predicted* students' emotional

re-engagement over and above involvement, but, unlike the findings using teacher-

reported support, students' perceptions of teacher support also significantly predicted

changes in emotional re-engagement from fall to spring, over and above the effects of perceived teacher involvement.

The indirect path through students' experiences between the support offered by teachers and students' emotional re-engagement was also evaluated. Though the mediation model for involvement was not able to be evaluated, students' perceptions of teacher autonomy support *fully mediated* the relationship between teacher-reported autonomy support and students' emotional re-engagement, such that the effects of autonomy support on emotional re-engagement are carried through students' experiences.

Summary. Overall, the pattern of results supported the present hypotheses regarding the importance of both teacher autonomy support and involvement to students' ability to bounce back following encounters with academic struggles and setbacks. Surprisingly, however, behavioral and emotional re-engagement were not closely connected, and showed somewhat different patterns of relations with teacher support. As expected, students' perceptions of teacher support were more closely related to their re-engagement, and those perceptions partially mediated the relationship between the teacher-reported support provided and the students' re-engagement.

A few hypotheses were not supported. First, for the teacher-reported support, although both autonomy support and involvement individually predicted changes in students' behavioral re-engagement from fall to spring, they could not predict re-engagement when combined to test for unique effects of autonomy support over and

above involvement on changes in behavioral re-engagement from fall to spring. The combination of these findings suggests they are due to multi-collinearity between the measures of autonomy support and involvement. A likely implication is that it might make sense to combine the two types of teacher support when evaluating change over time.

Second, although the patterns of mean-level grade and gender differences were largely as predicted, the hypothesized grade and gender interactions were not found, with one exception. That is, the processes played out similarly for students of both genders and at all grade levels, with the exception that student perceptions of teacher autonomy support were more important predictors of behavioral re-engagement for boys than for girls. One additional surprise was the finding that boys reported higher levels of emotional re-engagement than did girls.

Third, the lack of significant relationship between emotional re-engagement and teacher-reported involvement was also a surprise. Of the various possible relationships with involvement, it was expected that emotional re-engagement would be highly correlated. As each construct was measured well and the mean levels behaved as expected, this finding was unexpected.

Strengths and Limitations

As with all research, this study contains both strengths and limitations. Specifically, these issues will be discussed in regard to the conceptualization, measurement, design, and generalizability of the study. A discussion of potential third variables and mediating processes will also be included.

Conceptualization. A significant strength of this study is the careful conceptualization of re-engagement within the broader theoretical constructs of academic engagement and resilience, including emerging work on everyday resilience and enriched by past research in the areas of learned helplessness and mastery. Additionally, the overarching motivational model guiding the selection of constructs provided a solid foundation for the study with its self-determination theory perspective.

However, the theories guiding the understanding of the various gender and grade differences in the current study were not particularly well developed, leaving these hypotheses to be formed primarily based on descriptive studies of previous work on engagement. Also, this study did not include all constructs that might be relevant to re-engagement, such as those identified by Martin and Marsh (2006; e.g., self-efficacy, anxiety, planning, etc.), or discussion of teachers' provision of structure to support Deci and Ryan's (1985) third component of SDT, competence. In addition to exploring these additional constructs, future work would benefit from exploration of the possibility that there exist different forms or "flavors" of bouncing back and giving up, identifying a variety of alternate pathways resulting from encounters with obstacles and setbacks that are distinct from persistence.

Measurement. A significant strength of this study is the availability of both teacher- and student-report data. Having multiple reporters helps reduce the effects of common-method bias, and previous studies with this data set suggest that both measures are internally consistent and reliable. Additionally, this study assumes that

the teachers' reports of their own behaviors accurately reflects their objective actions, which is likely not entirely the case. However, since all of the constructs measured are technically observable, future studies could attempt to replicate these analyses using data collected by observation. These additional observations could contribute evidence of construct validity, as well as providing the opportunity to tease out the effects of teachers' actual actions on students' re-engagement.

 Design. Another significant strength of this study is the availability of data from two time points, allowing for prediction of changes in student re-engagement from fall to spring. However, the distance between the time points is somewhat arbitrary. The time frame over which teacher autonomy support influences student re-engagement is likely to be much shorter, perhaps weeks or months rather than across the whole school year. A theoretical basis for the selection of measurement points would be helpful. Future studies might utilize observational methods to document the effects of teachers' actions on student re-engagement during daily interactions. Additionally, change over longer periods of time could be explored via longitudinal studies as well to extend beyond evaluating the grade differences for the within-year changes cross-sectionally. Examining grade differences and within-year changes is helpful for gleaning a snapshot of how teacher support affects student re-engagement, but a more developmental study is necessary to truly evaluate different potential trajectories of re-engagement. For example, future studies could utilize the additional time points available for the present sample, using more advanced data analysis techniques to evaluate students' longer developmental pathways over time.

Generalizability. A particular strength regarding generalizability in this study is that the entire school district participated. However, the students came from mostly working class, Caucasian families, so replication will be necessary in future studies to determine whether the results hold true, for example, in a school that is more ethnically diverse, of a difference socioeconomic status, or located in a different region. Additionally, a school district that allows researchers to conduct a longitudinal study on each of its students for four years can be assumed to be somewhat of a special case; it is possible that the students in this study may be particularly high functioning compared to the general population.

The age of the data is also notable, as they were collected in the early 1990s and are thus almost 20 years old. It is possible that things have changed during that time that would lessen the generalizability to the current population of students. For example, new innovations in technology such as the Internet have certainly changed the process of education, as has new educational legislation such as No Child Left Behind. Again, replication will be necessary to assess the generalizability of the current results across time.

Third variables. When considering potential third variables, the longitudinal design of the study is an advantage, as many of the potential variables are controlled for in the design of predicting change over time. However, it must be considered that there could exist variables that affect *both* teacher autonomy support (the independent variable) *and* the rate of change of re-engagement (the dependent variable) that could impact the results. One example of this could be student emotional engagement or

supportive parents. For example, students who are emotionally engaged in class, who are more enthusiastic and interested in academic work, would be more likely to receive more teacher autonomy support and to learn to bounce back more effectively from obstacles and problems. Future studies could evaluate potential mediating processes that might influence the path between teacher support and student re-engagement, such as students' mastery orientation or autonomous self-regulation. Additionally, the different facets of re-engagement could be explored in more depth to determine whether they might themselves be potential mediators in the path between students' previous educational outcomes and future school engagement.

Implications for Studies of the Effects of Teacher Support on Student Re-Engagement

This study has implications for understanding the social processes, specifically those stemming from teacher support, that affect the development of student re-engagement and, ultimately, educational outcomes. Specifically, this study highlights the importance of considering information about the effects of teacher-student interactions from both teachers' and students' perspectives. Implications of various forms of teacher support (i.e., involvement and autonomy support) will be addressed. Finally, this study also suggests it may be important to separate the construct of re-engagement into behavioral and emotional components.

Teacher- vs. student-reported teacher support. A key goal of this study was to understand the relationships between students' perceptions of the support offered to them by their teachers and the "objective" support their teacher reported providing. As illustrated within the self-system model of motivational development (Connell &

Wellborn, 1991), differing viewpoints and interpretations of the context between the

individuals involved in a dyadic relationship can differentially affect individuals'

actions and outcomes. This model describes the process through which actual

contextual experiences are appraised and impact an individual's view of self, which in

turn have consequences for his or her subsequent patterns of action (e.g., persistence

versus giving up). These patterns of action lead to outcomes that are of interest to

educators and interventionists alike. It is important to recognize that these

interpersonal interactions can be reported from either party involved, and the

perceptions of one party (e.g., the student) can affect the context provided (e.g., by the

teacher) in the future.

The results of the current study demonstrate that although the general story

told within the relationships between teacher support and student re-engagement was

similar for both student- and teacher-reported data, the strength of these relationships

differed substantially. The correlations between student-reported teacher autonomy

support and involvement and behavioral re-engagement were large ($r = .53$ to $.57$), as

compared to still significant but notably lower correlations for the teacher-reported

support ($r = .26$ to $.38$). Likewise, for emotional re-engagement, the correlations with

student-rated teacher support were considerably higher ($r = .21$ to $.29$) than with their

teacher-reported counterparts ($r = .03$ to $.10$), some of which were not significant.

One likely explanation for this discrepancy is common method variance; by

using the same reporter for both constructs, correlations are higher simply because

both reports are coming from the same point of view. However, the mediation models

evaluated in this study suggest that the difference in the relationships between teacher-reported and student-reported teacher support could potentially have additional implications. Beyond teachers' objective provision of autonomy support and involvement, the students' experience of the support matters. Teachers may intend to be involved, but unless students experience their actions as warm and involved, they will not be effective. Likewise, autonomy support that is not experienced as such is not as valuable to student re-engagement. For example, the effects of teacher involvement on students' emotional re-engagement were entirely routed through the students' experiences of that support. However, as the paths between teacher autonomy support and behavioral re-engagement were only partially mediated by students' perceptions of the support, it can also be concluded that the things teachers are doing are also having some impact beyond the students' experience of them. These details of the dyadic relationships could not have been evaluated had only one perspective or the other been sought.

Finally, even by considering both the teachers' reports of their actions and the students' perceptions, the whole story cannot be understood. Teachers are not unbiased reporters of their true actions. Therefore, in addition to self-report measures, future studies could make use of classroom observations to tease apart actual teacher support from the behaviors they reported.

Autonomy support vs. involvement. In previous research evaluating the unique effects of autonomy support and involvement on engagement, involvement has consistently been a stronger predictor than autonomy support (e.g., Skinner &

Belmont, 1993). The current study did find that both students and teachers reported

significantly higher levels of involvement than autonomy support at both time points

(with the exception of the teacher-reported support in fall, for which the reported

levels of involvement were higher than autonomy support, but not significantly so).

However, the differences between the levels of the two constructs were small (e.g.,

averaged across time points, the mean level of teacher-reported autonomy support was

3.02, as compared to 3.07 for involvement, and student-reported autonomy support

averaged 2.89 as compared to 2.97 for involvement). Moreover, when both autonomy

support and involvement were evaluated in the same model, autonomy support not

only carried unique effects over and above involvement, but in some cases

involvement was no longer significant at all. Involvement had been expected to be the

stronger predictor of student re-engagement, but this was not entirely the case.

One explanation for this finding is the high overlap between autonomy support

and involvement, as reflected in the high correlation between them. As Reeve (2006)

noted, autonomy support is essential to positive interpersonal relationships between

students and teachers, just as involvement is important to autonomy support.

Autonomy support without warmth is unlikely to be experienced as autonomy support.

Thus, despite important distinctions between the two forms of teacher support, perhaps

they are not as different as initially expected. It is possible that teacher autonomy

support and involvement have such significant overlap that they could be combined

into a general measure of teacher support; after all, a good teacher will provide high

levels of both. Future studies could examine whether teachers can be identified who

provide high levels of autonomy support but low levels of involvement (or vice versa),
to help differentiate the potential effects of one type of support versus another.

Future studies would also benefit from an observational component that could
evaluate the subtler interactions between teacher autonomy support and involvement.
Are there differences that can be observed that were not picked up within the self-
reported format utilized in this study? Does one precede the other? Is one more
important than the other? Although both teacher autonomy support and involvement
have demonstrated solidly positive effects on student re-engagement (especially
behavioral re-engagement), further research is needed to more thoroughly understand
the intricacies of these relationships.

Behavioral vs. emotional re-engagement. The current study proposed a
conceptualization of re-engagement as a component of everyday resilience. Like its
"parent" construct of engagement, it was assumed that re-engagement would be
composed of both behavioral and emotional components. The results indicated that
both components were present and were being measured well, as the internal
consistencies for each construct were high. However, the correlations between
behavioral and emotional re-engagement, which were expected to be high enough to
combine into one measure of re-engagement, turned out to be surprisingly low
(average $r = .21$). Finding that boys, who are consistently lower on engagement,
actually showed *higher* emotional re-engagement than girls suggests that emotional
re-engagement is not unambiguously beneficial. Perhaps feeling fine in the face of
failure could reflect some level of disaffection. Alternatively, higher levels of positive

emotion in the face of obstacles could potentially indicate that boys are less likely to ruminate about setbacks (e.g., Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008).

Further exploration of this low correlation between the behavioral and emotional facets of re-engagement is required. Why are they not highly correlated as expected? One potential explanation is the present study's inability to differentiate people who may have differential pathways between emotional and behavioral re-engagement. For example, being upset after encounters with failure can serve both energizing (leading to behavioral re-engagement) or defeating (leading to giving up) functions.

The interactions among behavioral and emotional re-engagement can be take four possible forms, as illustrated in Figure 5.1. The mastery-orientation and learned helplessness foundation of this study aids in understanding students who do not experience negative emotions when they encounter obstacles, leading them to try harder next time (e.g., mastery orientation), as well as those students who do experience negative emotions and thus give up (e.g., learned helplessness). However, what about the students who fall within the other two potential quadrants? That is, what about students who are upset about their struggles, prompting them to try harder? Additionally, what about students experiencing amotivation, who may feel just fine after a poor performance because they, for whatever reason, did not care about it in the first place, and therefore are not compelled to exert additional effort in the future?

Figure 5.1. Combinations of Behavioral and Emotional Components of Re-Engagement

	Positive Emotion	**Negative Emotion**
Positive Behavior	**Mastery Orientation**	**??** *Perseverance; Distress is energizing; Dissatisfaction*
Negative Behavior	**Amotivation**	**Learned Helplessness**

It is essential to better understand the power of emotion to fuel behavior, as well as the power of behavior to calm emotion. Future studies would benefit from more detailed investigation of the differences between students who fall into the various quadrants identified above. Is there a different quality to an individual's persistence if it is fueled by distress versus not? Does the impact of being upset on re-engagement differ depending on the flavor of distress (e.g., "I'm so stupid!" versus "I know I could have done better!")? Further investigation of the impact of students' appraisals as they encounter obstacles and setbacks is crucial, as emotions can directly impact students' learning. Finally, are there additional mediational processes that influence the relationship between behavioral and emotional re-engagement? For example, do students' feelings of competence or learning orientation influence the relationship between their feelings and behaviors following encounters with obstacles and setbacks? Do their methods of coping, such as self-blame or optimism, impact their actions following academic struggles (e.g., Boekaerts, 1993)?

Implications for Models of Engagement and Everyday Resilience

The current study also has implications for understanding models of engagement and everyday resilience more generally. Specifically, this study proposes that, based on a larger motivational model, self-determined actions are an energetic resource for dealing with obstacles and setbacks. Implications of findings from the current study for the conceptualization of re-engagement within this larger model will be discussed.

Motivational model. The current study modeled the structure of re-engagement after what is known about its "parent" construct of engagement (i.e., that it is composed of behavioral and emotional components, each of which can manifest in positive or negative ways). Predictions of the effects of autonomy support and involvement on students' persistence following academic struggles were also based on this previous research on engagement. The results of the current study suggest that, although this was a logical and valuable place to start, further exploration of the structure of re-engagement on its own terms is needed. Unlike engagement, whose behavioral and emotional components are highly correlated, re-engagement appears to have a different structure. Future studies should closely examine correlations between the re-engagement items and more standard measures of engagement and disaffection to better understand the ways in which the structure of re-engagement differs from that of ongoing engagement. If, for example, behavioral re-engagement is closely connected to ongoing behavioral engagement, and emotional re-engagement is less closely connected to ongoing emotional engagement, this would suggest that follow-

up efforts should focus more on the emotional component of re-engagement.

Additionally, this study suggests the importance of investigating re-engagement in relation to various ways of coping (e.g., help-seeking or self-blame) to tease out the relationships among engagement, re-engagement, and coping, each of which are distinct patterns of action resulting from individuals' interactions with their social contexts and their self-perceptions. For example, perhaps negative emotional re-engagement accompanied by problem-solving or help-seeking coping leads to high levels of behavioral re-engagement, whereas negative emotional re-engagement accompanied by confusion or avoidance coping might lead to lower levels of behavioral re-engagement.

Ultimately, it is important to further understand the importance of the social context provided by teachers as an energetic resource for students who encounter setbacks in school. For the current study, it was somewhat difficult to justify why autonomy support should be particularly important to students' re-engagement; this study demonstrated that it not only matters, but is a significant contributor to students' actions following encounters with setbacks. Future studies could examine more closely why autonomy support seems to be particularly important to students' re-engagement, for example, by examining mediators like students' levels of identified self-regulation.

Everyday resilience. The current study supports the consideration of persistence as a process of everyday resilience, in line with prior research on academic buoyancy (e.g., Martin & Marsh, 2008a; 2008b; 2009) and learned helplessness (e.g.,

Dweck, 1999). However, it will also be important to examine re-engagement in

relation to the other components of everyday resilience identified by Martin and

Marsh (2006), such as control, self-efficacy, planning, and level of anxiety.

      The impact of involvement and autonomy support on re-engagement

emphasizes the importance of the social context on students' actions. As emphasized

in the current work on overall life resilience, it is important to consider additional

predictors of everyday resilience beyond the more frequently studied intrapsychic

constructs (e.g., self-efficacy, uncertain control). The current study emphasizes that it

is not just the presence of a social partner, but the quality of those relationships that

counts. It also supports the consideration of autonomy support as an important

contributor to students' persistence following academic setbacks. A major

contribution of this study is the suggestion to those studying everyday resilience that

autonomy support is an important quality to consider.

      This study makes clear that more research is needed on the relationship

between students' emotions and their re-engagement in school following struggles and

setbacks. For example, in the current sample, anxiety proved to be a complicated

emotion, ultimately resulting in its exclusion from the study. Although Martin and

Marsh (2008a) found the experience of low anxiety to be the strongest predictor of

academic buoyancy more generally, they also described its complex nature, as anxiety

is not unambiguously adaptive or maladaptive. Further study is needed to understand

the potential energizing versus paralyzing effects of anxiety on students' persistence.

      Beyond just anxiety, however, it is also important to consider the impact of

additional emotions on re-engagement. Does feeling frustrated after an academic

failure have a different influence on students' persistence than feeling sad? Is feeling

angry worse than feeling worried? The high internal consistency of the scale

including multiple emotions suggests that there will not necessarily be structurally

distinct emotions, which makes the examination of their separate functions more

challenging.

Finally, it is notable that the current study did not include any items measuring

positive emotions following encounters with failures and setbacks. Future studies

could include these items and examine their relationship to the negative emotions. Are

the two negatively correlated as would be expected based on previous research on

emotional engagement? Likewise, is positive emotional re-engagement positively

correlated with behavioral re-engagement as would be expected? Further investigation

is needed to determine whether certain positive emotional responses to academic

struggles could offer one potential bridge from emotional to behavioral re-

engagement, or whether the two truly are distinct constructs.

Conclusion

The present study provided preliminary support for the conceptualization of re-

engagement as a process of everyday resilience, and demonstrated how teachers'

provision of involvement and autonomy support affect students' ability to bounce back

following encounters with everyday academic setbacks. This study demonstrated that

teacher autonomy support, in addition to involvement, could be a particularly crucial

area for intervention, leading to actual improvements in students' behaviors and

emotions following struggles in school. The provision of an autonomy supportive school environment, in which students are offered relevant choices and feel that their opinions are heard, could be one key to triggering a positive feedback loop that leads to increased positive outcomes such as better achievement, retention, and learning. If, by increasing the autonomy support offered to students by teachers, students' re-engagement is increased over time, and in turn their teachers' actions are found to be affected by the students' continued engagement itself, a virtuous cycle can be created and nurtured.

Overall, this study found support for the importance of both teacher autonomy support and involvement to students' ability to bounce back following encounters with academic struggles and setbacks. Student and teacher perspectives offered unique but corroborating pictures of these relationships, with students' perceptions of teacher support partially mediating the relationship between the teacher-reported support provided and the students' re-engagement. Finally, this study demonstrated the importance of further investigating the structure of re-engagement. Behavioral and emotional components of re-engagement each hold distinct clues about students' patterns of action following encounters with academic struggles and setbacks.

Re-engagement itself is an important concept for teachers and researchers to consider, particularly if everyday resilience is, as Martin and Marsh (2009) suggest, a bridge to overall resilience. All students will encounter struggles and challenges; better understanding of their patterns of action following these circumstances is critical. If teachers are aware of the benefits that teacher support can afford and of the

instructional methods that supply it, they may be better able to support students' re-

engagement. Thus, the current study can benefit both teachers and interventionists

alike.

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Appendix A

Teacher Autonomy Support (Student-Report):
Choice:
- My teacher gives me a lot of choices about how I do my schoolwork.
- When it comes to assignments, my teacher gives me all kinds of things to choose from.
- My teacher doesn't give me a chance to choose anything about my classwork.(-)
- My teacher doesn't give me many choices when it comes to doing assignments.(-)

Control:
- My teacher is always getting on my case about schoolwork.(-)
- My teacher tries to control everything I do.(-)
- It seems like my teacher is always telling me what to do.(-)
- My teacher makes me do everything his/her way.(-)

Respect:
- My teacher lets me decide things for myself.
- My teacher encourages me to do things my own way.
- My teacher listens to my ideas.
- My teacher interrupts me when I have something to say.(-)
- My teacher doesn't encourage me to do things my own way.(-)
- My teacher doesn't listen to my opinion.(-)
- My teacher never listens to my side.(-)

Relevance:
- My teacher talks about how I can use the things we learn in school.
- My teacher talks to me about whether school is useful.
- My teacher encourages me to find out how schoolwork could be useful to me.
- My teacher doesn't explain why what I do in school is important to me.(-)
- My teacher doesn't explain why we have to learn certain things in school.(-)
- My teacher never talks about how I can use the things we learn in school.(-)

Teacher Autonomy Support (Teacher-Report):

Choice:
- I try to give this student a lot of choices about classroom assignments.
- My general approach with this student is to give him/her as few choices as possible. (-)
- It's better not to give too many choices to this student. (-)

Control:
- I have to lead this student through his/her schoolwork step by step.(-)
- When it comes to assignments, I'm always having to tell this student what to do.(-)
- I find myself telling this student every step to make when it comes to schoolwork.(-)

Respect:
- I encourage this student to work out problems his or her own way.
- I let this student make a lot of his/her own decisions regarding schoolwork.
- I can't afford to let this student decide too many things about schoolwork for him/herself.(-)

Teacher Involvement (Student-Report):

Time Spent:
- My teacher spends time with me.
- My teacher talks with me.

Affection:
- My teacher likes me.
- My teacher really cares about me.
- My teacher doesn't seem to enjoy having me in her class.(-)

Availability:
- My teacher is always there for me.
- My teacher is never there for me.(-)
- My teacher never seems to be around for me.(-)

Knowledge:
- My teacher knows a lot about me.
- My teacher knows me well.
- My teacher just doesn't understand me.(-)
- My teacher doesn't know very much about what goes on for me outside of school.(-)

Dependability:
- I can count on my teacher to be there for me.
- I can rely on my teacher to be there when I need him/her.
- I can't depend on my teacher for important things.(-)
- I can't count on my teacher when I need him/her.(-)
- I can't rely on my teacher when I really need him/her.(-)

Teacher Involvement (Teacher-Report):

Knowledge:
- I don't know this student very well.(-)
- I know this student well.
- I know a lot about what goes on for this student.
- I don't know very much about what goes on for this student outside of school.(-)

Time Spent:
- I spend time with this student.
- I talk with this student.

Affection:
- This student is difficult to like.(-)
- This student is easy to like.
- Teaching this student isn't very enjoyable for me.(-)
- I enjoy the time I spend with this student.

Dependability:
- This student needs more than I have time to give him/her.(-)
- When this student does not do as well as s/he can, I can make time to help him/her find ways to do better.
- Sometimes I feel like I can't be there for this student when he/she needs me.(-)
- This student can count on me to be there for him/her.

Availability:
- I don't always have time to follow through with this student.(-)
- I can't always be available to this student.(-)
- I can always find time for this student.

Re-Engagement (Student-Report):

Behavioral:
- If a problem is really hard, I keep working at it.
- When I run into a difficult question, I try even harder.
- If I can't get a problem right the first time, I just keep trying.
- When I do badly on a test, I work harder the next time.
- When I have a hard question or problem in class, I don't even try.(-)
- When I come to a problem that I can't solve right away, I just give up.(-)
- If a problem is really hard, I just quit working on it.(-)
- If I don't understand something right away, I stop trying.(-)
- When I have trouble understanding something, I give up.(-)

Emotional:
- When I get stuck on a problem, it really bothers me.(-)
- When something bad happens in school, it really gets me.(-)
- I get really upset when something bad happens in school.(-)
- When something bad happends in school (like doing badly on a test, or having trouble learning something), I feel frustrated.(-)
- When something bad happends in school (like doing badly on a test, or having trouble learning something), I feel bad.(-)
- When something bad happends in school (like doing badly on a test, or having trouble learning something), I feel angry.(-)
- When something bad happends in school (like doing badly on a test, or having trouble learning something), I feel sad.(-)
- When something bad happends in school (like doing badly on a test, or having trouble learning something), I feel terrible.(-)
- When I can't solve a problem or question in class, I feel anxious.(-) **[removed]**
- When I can't solve a problem or question in class, I feel mad.(-)
- When I can't solve a problem or question in class, I feel worried.(-)