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Agentic Engagement, Teacher Support, and Classmate Relatedness— A Reciprocal Path to Student Achievement

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AGENTIC ENGAGEMENT, TEACHER SUPPORT, AND CLASSMATE RELATEDNESS—
A RECIPROCAL PATH TO STUDENT ACHIEVEMENT.

By

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ABSTRACT

The present study is informed by self-determination theory and explores the relatively new construct of agentic engagement. Measures of agentic engagement, teacher support for autonomy and competence, and relatedness (teacher and classmate) were collected from 172 high-school students in a three wave short term longitudinal design. Regression statistics demonstrated that (a) initial students’ agentic engagement predicted perceived teacher autonomy and perceived teacher relatedness, (b) perceived teacher autonomy, perceived competence, perceived teacher relatedness and perceived classmate support predicted agentic engagement at the end of the semester and (c) reciprocally mid-semester agentic engagement predicted perceived teacher relatedness at the end of the semester.

Educational implications of this study are as follows: Teachers can facilitate agentic (willing, intentional and proactive) engagement by developing positive teacher-student (teacher relatedness) and student-student relationships (peer relatedness); by giving students perceived choice over one’s own actions (autonomy); by matching the level of difficulty to the skill level and understanding of the students and increasing student confidence (competence); and by transparently teaching the expectations and guiding principles of agentic learning. These variables reciprocally build upon one another and further support or thwart effective learning in the classroom.
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CHAPTER 1: INTRODUCTION

To be an agent is to proactively and intentionally make things happen by your own actions (Bandura, 2001). Students are often viewed by others and themselves as having little or no control to intentionally make things happen in the classroom. Learning environments, motivations, interactions, and engagement can change for the better when teachers, classmates, and the individual students view and are viewed as agents who proactively and intentionally make things happen. A learner who is given the opportunity to proactively and intentionally control his or her own learning, within the social context of the classroom, is empowered to learn effectively as well as help those around him or her learn effectively.

The natural setting of the classroom is dynamic and interactive. One aspect or variable of the dynamic and interactive classroom influences another, which in turn influences the first aspect or variable of the classroom setting. Student engagement in the classroom is facilitated or thwarted in part by the support of social partners, namely teachers and classmates (Schunk & Pajares, 2009). Understanding the social support of a teacher and classmates on student engagement allows educators and researchers to understand the appropriate classroom climate for proactive engagement and learning to take place. As student engagement takes place in the classroom, achievement follows (Appleton, Christenson & Furlong, 2008; Jang 2012; Klem & Connell, 2004; Ladd & Dinella, 2009; Skinner, Kindermann, Connell, & Wellborn, 2009). Therefore, coming to an understanding of the dynamic relationships between students’ perception of support by social partners in the classroom provides a pathway for engagement and achievement. Additionally, student engagement can allow a student to be an agent (one
who makes things happen by one’s own action) and therefore improve the overall learning environment (Skinner et al., 2009; Lee & Reeve, 2014; Reeve, 2013). Engagement is a social signal that can elicit and shape supportive reciprocal reactions from social partners (Furrer & Skinner, 2003; Skinner et al, 2009; Birch & Ladd, 1996) which results in engaged students being more motivationally supported by their teacher (Skinner and Belmont, 1993). Consequently, student engagement, specifically engagement that allows a student to be an agent, is a variable that is both influenced by teacher and classmates and influencing of teachers and classmates.

Using a self-determination theory (SDT) framework, the purpose of this short term longitudinal study is to determine the importance of perceptions of support from multiple social partners in school on student agentic engagement (students’ proactive contribution to the classroom); to describe the direction and strength of reciprocal influence among student agentic engagement and perceptions of support from teachers and classmates; and to investigate whether agentic engagement mediates the relationships among perceived support and student achievement. This chapter will introduce student engagement, including the concept of agentic engagement. Next, the importance and influence of basic psychological needs as found in the self-determination theory will be delineated. Furthermore, the influence of teachers and peers as salient social partners will be addressed. Finally, these constructs will be connected by understanding the reciprocal nature of real life learning. This chapter will conclude by highlighting current gaps in the literature and the importance of this study.
Student Engagement

Student engagement is a student’s active involvement in a learning activity (Christensen, Reschly, & Wylie, 2012). Engagement can be viewed as a visible manifestation of energy in action (Ainley, 2012; Skinner & Pitzer, 2012). Student engagement in the classroom has garnered attention and support because it is linked to higher student achievement (Appleton, Christenson & Furlong, 2008; Jang 2012; Klem & Connell, 2004; Ladd & Dinella, 2009; Skinner, Kinddermann, Connell, & Wellborn, 2009). This link thrusts student engagement into the forefront for both researchers and educators and has been an increasing focus of reforms in secondary education (Marks, 2000). The idea that engagement is malleable (Fredricks, Blumenfeld, & Paris, 2004; Furlong & Christenson, 2008) makes this construct all the more desirable to educators because it can be facilitated by interpersonal and task characteristics (Skinner & Pitzer, 2012). Furthermore, because engagement is a manifestation of motivation (Skinner, Kinddermann, Connell, & Wellborn, 2009) it can be a barometer for understanding latent characteristics in students. This study will consider student engagement in secondary education, as well as the influence of teachers and peers on student engagement.

Agentic engagement

Agency means having a sense of one’s own voluntary behavior (Deci & Ryan, 1991, Bandura, 2001). As stated, agency is to proactively and intentionally make things happen by one’s own actions (Bandura, 2001). Building upon this concept, Reeve and Tseng (2011) introduced a dimension of engagement called agentic engagement. Agentic engagement is defined as being proactive and intentional. In practical terms agentic engagement is when a student seeks to constructively influence the teacher and actively contribute to the overall
learning in the classroom. A student who agentically engages in the classroom does not wait for
the teacher to ask the class questions, but proactively contributes to the classroom by asking
relevant and applicable questions. Reeve (2013) describes how agentically engaged students
work transactionally with the teacher to create learning conditions in the classroom that create
an environment that supports their own motivational needs. Therefore, agentically engaged
students work collaboratively with their teachers using their agency to seek to make things
happen by their own actions. An agentically engaged student understands his or her role in the
classroom is not to be a passive observer who simply reacts, but one who seeks to influence
and contribute to the classroom proactively.

**Self-determination Theory**

Self-determination theory describes the characteristics and conditions that need to exist
for agentic engagement to flourish in the classroom. At the roots of self-determination theory
(SDT) is the organismic perspective. This perspective states that individuals naturally and
innately have propensities to develop an elaborate and unified sense of self and autonomous
responsible behavior (Deci & Ryan, 2002). This theory states that people are born with the
desire and capacity to engage in activities for their own sake that are often spontaneous,
creative and enjoyable (Skinner, Kindermann, Connell & Wellborn, 2012). Motivation is
therefore seen as intrinsic to the person because all humans possess inborn psychological
needs. These basic psychological needs are: autonomy, competence, and relatedness (Deci &
Ryan, 1985). When activities meet these basic psychological needs, then they are seen as
intrinsically motivating (Skinner et al., 2012). This interaction is specified in SDT as dialectical.
This organismic-dialectical framework combines the inherent, basic, psychological needs of the
individual with the social environment that either thwarts or facilitates these needs. In this study, the basic psychological needs of autonomy, competence and relatedness are viewed as needs, that when satisfied via social partners, contribute to the overall learning in the classroom. Therefore, when students perceive support from their teacher and classmates then it is theorized that a student will be agentically engaged.

**Engagement and Basic Psychological needs**

According to the Self-System model of motivational development (Connell & Wellborn, 1991; Deci & Ryan, 1985), which is derived from SDT, engagement is a reflection of how well a particular context is able to meet an individual’s needs of relatedness, competence, and autonomy. Therefore, SDT asserts that these innate and autonomous needs are either thwarted or facilitated based on specifiable social-contextual factors. Moreover, these social-contextual factors interact with the individuals’ active and integrating human nature. Engagement is a reflection of a student’s motivational state, which in turn is influenced in large measure by social partners including family, school practices, and peer interaction (Sinclair, Christenson, Lehr, & Anderson, 2003). A student who feels comfortable with his or her classmates will be more likely to proactively engage in the classroom (Ryan & Patrick, 2001). Therefore, it is imperative to understand how teacher and peer interactions in the classroom facilitate or thwart basic psychological needs and agentic engagement.

**Reciprocity**

To understand the influence of social partners and agentic engagement there is a need to view the classroom as naturally recursive and dynamic. In other words, in the classroom
students are an integral part of the learning experience as they respond in overt and subtle ways. Therefore, it is important to understand the reciprocal relationships that exist in the classroom. Reciprocal relationships concern how two variables over time act as both a cause and an effect on each other (Marsh & Craven, 2006). Marsh and Craven (2006) espouse a reciprocal-effects model in their research on self-concept and performance. This reciprocal-effects model (REM) demonstrates that two variables are reciprocally related and mutually reinforcing. REM goes beyond simplistic models where one variable either affects or is affected by the other variable. One variable A will lead to variable B, and variable B will in turn lead to variable A. Jang, Kim, and Reeve (2012) refer to reciprocal effects as the extent to which a variable in the model feeds back to influence its hypothesized cause.

Engagement in essence organizes the motivational system because of its reciprocal relations with interpersonal and intrapsychic factors (Skinner et al., 2012). This reciprocal connection, between engagement and psychological needs that are supported by social partners, provides a better understanding of the motivational system as a whole. This reciprocal model has the potential to illuminate the underlying cause and effect of student engagement and salient contextual factors.

**Current Gaps**

There is a need to see the motivational system as a dynamic whole (Skinner et al. 2012). This study will seek to do that by focusing on the motivational and contextual factors of the classroom. This study seeks to understand the reciprocal nature of the following variables: a) teacher support of perceived autonomy, perceived competence and perceived relatedness and
agentic engagement, and b) peer support of relatedness and agentic engagement. This theorized reciprocal process between the facilitation of basic needs, engagement and salient contextual factors will provide a means of viewing the dynamics of the classroom in a more holistic way. This holistic view will allow researchers and educators to come to further understanding of how to facilitate engagement and ultimately achievement in the classroom.

Furthermore, there is a need to understand classroom peer interaction in the classroom as part of the overall motivationally supportive context. Several studies (Murray & Greenberg, 2000; Jang, 2012; Reeve & Lee, 2014; Skinner & Pitzer, 2012; Stipek 2002; Wentzel, 2009) have espoused the importance of teachers as facilitating engagement in the classroom. However, they failed to focus on the salient contextual factor of classroom peer interaction in the classroom as part of the overall motivationally supportive context. Student engagement is influenced by the teacher, as well as the other students in the classroom. Although peer support in the classroom has been studied (Goodenow 1993; Furrer & Skinner, 2003; Kindermann & Skinner, 2012; Gest, Rulison, Davidson & Welsh, 2008) it has never been studied in connection with agentic engagement. Nor has peer support and engagement been viewed reciprocally. Because of the potential influencing benefits of agentic engagement on student support as well as the effects of student support on agentic engagement, this study will provide further understanding of perceived peer support in the classroom.

In conclusion, this study will determine if agentic engagement really does add to our understanding of the overall concept of engagement in the classroom and achievement. Specifically, it is theorized that agentic engagement will demonstrate a dynamic and reciprocal influence with social partners in the classroom. Furthermore, this study will seek to determine
whether agentic engagement functions as a mediator between social partners and overall academic achievement. Agentic engagement is a new construct that has only been deeply researched in Taiwan and Korea. Therefore, this study will seek to illuminate this construct within western education. Furthermore, agentic engagement needs to be more understood in multiple domains. To date agentic engagement has been studied among adolescents within the following domains: Combination of all classes (Reeve, 2011), PE class (Reeve, 2013), Combination of English, Math, Social Science, Japanese, and Korean (Reeve and Lee, 2014). This study will seek to expand understanding of agentic engagement in western educational setting and within the domain of history.

Summary

Students in the classroom possess motivational needs that, when satisfied by social partners, are reflected as engagement in learning activities (Reeve, 2012). These inner motivational needs are facilitated or thwarted as students interact with teachers and peers and involve themselves in the learning environment and then perceive support from these social partners. The aim of this study is to understand if students’ basic needs, as espoused in self-determination theory, are being met. Accordingly, support from multiple social partners will be perceived by the students as either supporting or thwarting relatedness, autonomy, and competence. It is theorized that if students perceive that these needs are being met through interactions with social partners, then there will be a facilitation of engagement in the classroom. If these needs are not being met, then engagement will be thwarted. Furthermore, when a student engages in the classroom they reciprocally influence their teacher and classmates. Anecdotally, teachers know that their influence as well as the influence of the
students co-create the learning conditions in the classroom. Figure 1 is a conceptual model that summarizes this *reciprocal* influence.

![Diagram of the reciprocal process](image)

*Figure 1. Conceptual model of reciprocal process.*

Therefore, this study seeks to explain an aspect of this reciprocal process in which students and teachers co-create the classroom experience. Lastly, it is hypothesized that these reciprocating influences lead to student achievement.
CHAPTER 2: LITERATURE REVIEW

Self-determination Theory

Self-determination theory (SDT; Deci & Ryan, 1985, 2002) has implications and applications in many contexts within the social science fields. Specifically, self-determination theory is seen as a major theory of academic motivation (Reeve, 2012; Richard & Levesque-Bristol, 2014; Ryan & Deci, 2000; Taylor, Jungert, Mageau, Schattke, Dedic, Rosenfield, & Koestner, 2014). According to Reeve (2012) self-determination theory is a macrotheory of motivation that includes the following interrelated theories: basic needs theory, organismic integration theory, goal contents theory, cognitive evaluation theory and causality orientation theory. SDT remains one of the most comprehensive of all the motivational theories. The basic premise of self-determination theory is that human beings are inherently proactive and have an inborn tendency to learn and develop (Ryan & Deci, 2009). Furthermore, “SDT focuses on the social conditions that support or thwart these natural and inherent tendencies” (Ryan & Deci, 2009, p. 171). This study will focus specifically on the basic needs theory and how social partners facilitate a student’s inborn tendency to learn and develop.

Basic Psychological Needs.

As previously stated, there are three basic psychological needs—autonomy, competence, and relatedness. Autonomy is the psychological need to experience behavior endorsed by the self and being the perceived origin of one’s own behavior (Ryan & Deci, 2002; Deci & Ryan, 1985). People experience autonomy when the social context of learning affords
them a sense of psychological freedom and perceived choice over one’s own actions (Reeve, 2012). Coercion and rigidity in the classroom thwart one’s autonomy.

Competence is the basic need to be effective in one’s interactions and pursuits with the environment (Deci, 1975). Students perceive themselves as competent when they feel that they are able to effectively meet the demands of their schoolwork (Niemiec & Ryan, 2009). Accordingly it is a basic need to demonstrate one’s capability and to seek out environmental challenges. These challenges are optimal when they match an individual’s capacity. Furthermore, competence is not a skill but a perceived sense of confidence (Deci & Ryan, 2002).

Relatedness can be described as having a need for connections with individuals or those that make up one’s community (Deci & Ryan, 2002). In the school setting this ‘community’ is the school, at the macro level, and is the classroom at the micro level. Deci and Ryan (2002) describe relatedness as the secure unity or overall psychological sense of being within the social context. This psychological need reflects the desire to establish warm, caring and responsive relationships as well as being emotionally connected and involved in these relationships (Reeve, 2012). Accordingly, if a student felt autonomous and competent, but the need of relatedness was not met, he or she would most likely not feel comfortable in engaging in the classroom by asking questions and contributing to a discussion. This highlights the need for understanding how teachers and peers can create a climate where an individual’s need for relatedness can be met and therefore they feel safe and connected with those around them.

Autonomy, competence and relatedness are distinct, yet they are uniquely important basic psychological needs (Sheldon & Filak, 2008). All three basic needs are intertwined in that
one basic need supports the other. Relatedness provides a context in which one can pursue autonomous needs. This autonomy facilitates the completion of tasks which promotes competence. This in turn provides confidence to relate to others and to be accepted by them (Urdan & Schoendelder, 2006).

**Intrinsic, Extrinsic, and Amotivation.**

There are three global types of motivation in connection with SDT—intrinsic motivation, extrinsic motivation, and amotivation (Deci & Ryan, 2002). These three aspects of motivation are on a continuum with intrinsic motivation being the most self-determined and desirable and amotivation being the most undesirable. When an individual is intrinsically motivated, that individual’s inner motivation needs of autonomy, relatedness, and competence are in some way met. As such, one of the keys to facilitating intrinsic motivation is to create a contextual environment that supports these foundational needs. Extrinsic motivation (Deci & Ryan, 2002) according to SDT includes external regulation or coercion (to satisfy an external demand), introjected regulation (partially internalized, to avoid guilt or gain feelings of worth), identified regulation (when a person consciously values a behavioral or goal), and integrated regulation (most autonomous, done to attain personally important outcomes). In the classroom it is impractical to think that a student will always be intrinsically motivated, therefore a teacher must seek to help students value a behavior (identified regulation) and see the personal benefit (integrated regulation). Amotivation is a state of lacking intention to act. This continuum, intrinsic to amotivation, makes up the core of SDT. Understanding the salient support and influence of social partners on a student is fundamental in facilitating an individual's inner motivation.
The social partners (teacher and classmates) either facilitate or thwart a student’s need for autonomy, competence and relatedness which leads to intrinsic or extrinsic motivation. As a teacher supports the basic needs of autonomy, relatedness and competence students’ motivation can move from extrinsic to internalized. In other words, because they feel important, autonomous, and competent, they want to internalize the knowledge and practices around them, (Ryan & Deci, 2009) which leads to integration of extrinsically motivated activities. For example, if a teacher seeks to control students’ behavior by the use of rewards, evaluations, punishments or other controlling ways, then the students would be extrinsically motivated. On the other hand if the teacher offers choice and supportive feedback (Ryan & Deci, 2009) then students would tend to be more intrinsically motivated. Lastly, if the learning environment consistently neglects to support autonomy, competence and relatedness then amotivation may be the result.

As social partners support the basic needs of the student, thereby enhancing the student’s inner motivation, the student then responds by engaging in the classroom. Reciprocally, the student’s engagement can be seen as a signal to the teacher to continue and increase current motivating style. Furthermore, student’s engagement affects his or her own subsequent motivation, which in turn influences further engagement (Reeve, 2012). As can be seen, the reciprocal dynamic between a student’s basic psychological need for learning and the affordances of support as facilitated by the teacher is at the core of the SDT perspective. Reeve (2012) refers to this reciprocal relationship as the student-teacher dialectical framework. As a student perceives that his or her needs are appropriately met, a student will engage in learning. As a student engages in the learning environment, he or she proactively contributes to the
overall learning environment and experiences the self as more autonomous, competent, and related. Student engagement will be discussed in greater detail in order to further explain this reciprocal relationship.

**Student Engagement**

Furrer and Skinner (2003), define both the concept of engagement as well as the contrasting action of disaffection. Accordingly, engagement is goal-directed and persistent interactions with the physical and social environment (Furrer & Skinner, 2003). Whereas, disaffection is characterized by an individual being apathetic, burned out, and alienated. As stated, engagement can be considered the manifestation of motivation. As such, action that is energized and directed is reflective of motivation (Skinner et al., 2012). Engagement or disaffection has an influence in the classroom because of the feedback’s effects on social partners (Skinner et al., 2009). For example, engagement is seen as a valued energetic resource that students and teachers notice and may respond in kind with warmth and involvement (Skinner et al., 2009).

**Traditional dimensions of student engagement.** Most researchers designate three different aspects of student engagement, namely behavior, emotion, and cognition (Fredricks, Blumenfeld, & Paris, 2004; Skinner, Kindermann, & Furrer, 2009). Additionally, Reeve (2011) introduced a new dimension of student engagement, namely agentic engagement. Each dimension will be described below. However, it is important to note that there are many differing opinions in regard to the conceptualization of student engagement (Sinatra, Heddy, & Lombardi, 2015).
Behavioral engagement is centered mostly with the idea of participation in school related tasks and entails positive conduct, effort, persistence, concentration, attention and asking questions. This would also include an absence of disruptive behaviors and involvement in learning tasks (Wang & Eccles, 2013). Contributing to class discussions and asking questions and general participation also describe this type of engagement (Fredricks, Blumenfeld, & Paris, 2004). Although participation is a desirable outcome, it is reactive rather than proactive. For example, a teacher asks a question, and the student responds. Behavioral engagement most often comes as a response or a reaction to the teacher and the learning activity.

Emotional engagement denotes affective reactions in the classroom. These include such things as interest, boredom, happiness, sadness, and anxiety (Fredricks, Blumenfeld, & Paris, 2004). Emotional cognition would also include valuing of school activities (Voelkl, 1997). Furthermore emotional engagement in general terms could be emotional reactions to teacher or toward the school.

Cognitive engagement according to Fredricks et al. (2004) is bifurcated into two groups, strategic learning and a psychological learning. Strategic learning would include self-regulated strategies and willingness to exert effort (Wang & Eccles, 2013). Additionally, cognitive engagement is a desire and preference for a challenge or to positively cope in the face of failure (Fredricks, Blumenfeld, & Paris, 2004). Cognitive engagement could also be describes as initiative-taking and metacognition.

**Agentic engagement.** Reeve and Tseng (2011) introduced agentic engagement and defined it as students’ constructive contribution into the flow of the instruction they receive.
Reeve and Tseng introduced this dimension of engagement to explain how students intentionally contribute to the classroom instruction. Their contention is that classroom interaction is indeed reciprocal and that the traditional dimensions of engagement fail to capture students’ proactive and intentional contributions to the flow of instruction in the classroom.

The definition of agency by Bandura (2001) at the introduction of this paper is foundational to this construct. The definition describes an individual’s proactivity and intentionality in making things happen by one’s own actions. The words Reeve and Tseng (2011) use to describe this engagement as they introduce this concept best encapsulate the meaning: proactive, intentional, personalized, purposeful and influencing. In short, agentic engagement is exhibited when a student seeks to constructively influence a teacher during instruction. Additionally, this is when a student actively rather than passively pursues his or her own learning. Agentic engagement can be hard for researchers to distinguish from the other dimensions of student engagement because each researcher has a different definition of behavioral, cognitive, and emotional engagement (Reschly & Christenson, 2012; Lawson & Lawson, 2013). As such, many researchers do not see agentic engagement as different or apart from the three traditional dimensions of engagement. However, it is the contention of this study that agentic engagement indeed does add to the overall understanding of engagement. Diagram 2 illustrates both the uniqueness and the overlap of the four dimensions of engagement.
As can be seen in figure 2 there is obvious overlap between some of the traditional dimensions (behavioral, cognitive, and emotional) of student engagement and agentic
engagement. Words that are in two different engagement dimensions in diagram 2 represent the overlap of these dimensions. Words that are only in one engagement dimension represent a lack of overlap between dimensions. Sinatra et al. (2015) goes as far as to argue that agentic engagement subsumes all of the other dimensions. However, there is also certainly overlap between behavioral, cognitive, and emotional engagement (Lawson & Lawson, 2013; Sinatra et al., 2015). This overlap does not diminish the unique contribution of each dimension to our overall understanding of engagement in the classroom. Agentic engagement is proactive rather than reactive and as such it is distinctly different from behavioral and emotional engagement (Reeve, 2013). Cognitive engagement certainly has aspects of initiative and proactive attributes, However, there is one subtle difference. Cognitive engagement, like emotional engagement, is described as something that happens and resides within the individual. It is “deep thinking” or metacognition that certainly has some influence on the overall learning environment (Greene, 2015). However agentic engagement is a student’s collaboration with the teacher and others to proactively create an optimal learning environment (Reeve, 2013). It is something that happens with others to facilitate learning.

It becomes important to note that the level in which engagement is conceptualized, observed and measured can be key to distinguishing between the various dimensions (Sinatra et al., 2015). Sinatra, Heddy, and Lombardi (2015) suggest that researchers should pinpoint the source of engagement in connection with the measurement of said engagement. They present a continuum that ranges from person oriented to context oriented, with person-in-context in the middle. Cognitive and emotional engagement would fit more with Person-oriented measurement, whereas behavioral and agentic engagement would fit more with Person-in-
Context and/or context-oriented measurement. This is important for this study because this study is measuring engagement in a person-in-context view. Students may be cognitively proactive (person-oriented), this study seeks to understand the interaction between a student and his or her context (the classroom including teacher and classmates).

Anecdotally, agentic engagement would look like the following interaction between a student and a teacher.

Student: “Teacher, What does the T. stand for in Booker T Washington’s name?”

Teacher: “I am not sure, that is a great question.” (Teacher goes to the internet and looks up the name for the student) “His middle name was Taliaferro.”

The same student asks another question a minute or two later.

Student: “What does that flag stand for? Was this a flag for the whole African continent?

Teacher: “What a great question. I do not know the answer, I will have to do some research. As you guys keep working I will look that up.

Teacher: “It seems that this flag…..”

This student was participating. However the student was doing more than just participating. This student was proactively contributing and influencing the classroom and the learning that was taking place. It was more than just asking a question to understand what the teacher was teaching or to understand what would be on the test. This student intentionally and proactively asked a question that changed the learning for the entire class. Students can
and do constructively contribute to the overall learning by being agentically engaged in the classroom.

Reeve (2013) delineates agentic engagement by referring to Bandura’s (2006) description of the learning environment as motivationally supportive. In other words, as students engage agentically, they are not simply passively being taught but they create a more motivationally supportive environment for themselves and others. Agentic engagement, according to Reeve (2013), is dialectical. “With dialectical activity student-initiated questions and communication affect change in and transforms the quality and quantity of the student’s engagement” (p. 580). Accordingly, students who are agentically engaged join forces with the teacher and proactively create and foster a unique and desirable learning environment. In essence, agentically engaged students seek to enhance their learning and create or negotiate for interpersonal support. When compared empirically with other dimensions of engagement, agentic engagement only had a modest correlation with the other aspects of engagement and explained unique variance in students’ achievement even after taking out the variance in achievement that that was explained by behavioral, cognitive, or emotional engagement (Reeve & Tseng, 2011).

To date only two studies (Reeve and Tseng, 2011; Reeve, 2013) have solely focused on the outcomes of agentic engagement. Using multiple regression and structural equation modeling Reeve and Tseng (2011) compared the four aspects of engagement and found the agentic engagement predicted independent variance in achievement among 365 Taiwanese high school students. Reeve (2013) used multilevel structural equation modeling with 302 middle school students in Korea to demonstrate the outcomes of agentic engagement.
Employing a 3-wave longitudinal design, Reeve validated that agentic engagement was positively associated with autonomous motivation as well as explained variance in student achievement that the other three aspects of engagement were unable to explain. Lastly, Reeve demonstrated that agentic engagement predicted change in perceived autonomy support at midsemester as well as at the end of the semester. Summarizing this study, Reeve explains that agentic engagement leads to greater achievement and motivational support because agentic engagement proactively allowed students to create supportive learning environments for themselves. This study seeks to further understand the potential for agentic engagement to reciprocally influence constructive change in the learning environment, as well as demonstrating how agentic engagement contributes to achievement.

Two additional studies (Jang, Kim, & Reeve, 2012; Reeve & Lee, 2014) used agentic engagement as part of their conceptualization and definition of engagement, but have not looked solely at agentic engagement. These studies will be described later in this paper. To date no studies have specifically detailed predictors of agentic engagement. This study seeks to add to the understanding of both predictors and outcomes of agentic engagement.

Agentic engagement has been described by other researchers, but the nomenclature is different. Crick (2012) describes a need to go beyond the three traditional dimensions of engagement to something described as deep engagement. Deep engagement is described as intentional participation, authentic inquiry, purposeful, and taking responsibility as agents of one’s own learning (Crick, 2012). Danielson, Breivik, and Wold (2011) use the term initiative to describe learning above and beyond traditional engagement. Initiative is defined as autonomous action or capacity for agency and is defined by three elements that are all
intrinsically motivated. First, it is the experience of investing in and wanting to do an activity. Second, it is associated with concerted engagement in the environment. And lastly, the concerted engagement must occur over time. These definitions are not meant to muddy the conceptual water, however they are to highlight the importance of describing engagement above and beyond simply behavioral, cognitive, and emotional engagement. Because the present study seeks to understand the role of volition in classroom engagement, agentic engagement is used to quantify proactive, intentional, and purposeful engagement in this study. Furthermore, agentic engagement best describes the collaboration with the teacher and others to proactively create an optimal learning environment that is dialectical in nature.

**Engagement as a Product of Classroom Transactions**

Models of student engagement are rooted in the notion that student engagement arises from classroom transactions and that the quality of engagement is reflective of contributions from both social partners and individual students. Four models that highlight the transactional nature of student learning and development are reviewed in this section to situate the present study within the broader study of student development and highlight the reciprocal processes of the theoretical models of engagement. These four models include: participation-identification model, ecological model of development, transactional model, and self-system model of motivational development. The first two models are foundational, the latter two models demonstrate direct utility to this study. The details of each model, as well as the importance of each model to this study, will be delineated.
Janosz (2012) stated that being engaged in classroom learning facilitates not only how much is learned, and how well intellectual skills are developed but, also how long a student persists in their schooling. Finn (1989) suggested that students will most likely successfully complete 12 years of schooling if he or she actively participates or engages in school more generally, and in the classroom more specifically. Finn introduced the Participation-Identification model which has become a foundational theory of student engagement. This seminal model focuses on the student engagement dimensions of behavioral and affective components. Participation refers to the school activities such as classroom participation, homework, as well as athletic, social and extracurricular aspects of the school (Rumberger & Rotermund, 2012). This participation leads to school success, which leads to identification. Identification is defined as successfully completing the school year as well as a sense of belonging and valuing with school. Lack of participation leads to poor school performance which leads to emotional withdrawal or dropout (Reschly & Christenson, 2012). This model highlights the long term process of student engagement as well as its counterpart, disengagement. In other words, a student’s participation in school, his or her identification with the school, as well as his or her development before coming to school all influence potential completion and dropout. The combination of participation (behavioral engagement) and identification has become the foundation for how we view engagement today. This ongoing process of participation, school success, and identification (as well as its counterpart) is at the macro level of engagement. This perspective of the process provides the big picture of the importance of engagement. It is the goal of this study to understand engagement at the micro level of school, the classroom.
The ecological model of development is a foundational model that describes a reciprocal process between the individual and his or her context that underlies development (Bronfenbrenner, 1977). Bronfenbrenner’s theory regarded context not only as the classroom, but the multiple social and historical contexts that influence students both as microsystems (family, classroom) and their interaction (mesosystems), as well as exosystems and macrosystems, the influence of neighborhoods and value and cultures respectively. This broad developmental lens is not the focus of this study; however it is important to note that the contextual factors that influence student engagement are broader and more complex than what is found in the classroom. These contextual factors reciprocally influence each other. As a student has positive interactions in school then he or she may develop a positive disposition toward school. This positive disposition toward school in turn leads the student to participate more in school. This reciprocal process continues on larger and smaller scales both positively and negatively. This foundational model paved the way for our current understanding of the individual and his or her context.

The second model of reciprocity is the transactional model (Sameroff, 1975) which primarily describes the development of children. At the foundation, this model explains that children affect their environment and the environment affects children (Culp, 2010). A child’s developmental outcome is the total sum of the complex relationship between the child and the environment over time, not solely the child’s individual contribution (Sutherland & Oswald, 2005). Furthermore, this model challenges the efficiency of unidirectional data analysis, and espouses the need for bidirectional data analysis. This model can be productively applied to complex interactions in the classroom within the self-determination theory. As stated, the
dialectical view of self-determination theory regards the interaction between integrating human nature and the social contexts that thwart or facilitate the organism’s active nature (Deci & Ryan, 2002). Simply put, student motivation and the learning environment affect one another (Reeve, 2012). Specifically applying the transactional model to the self-determination theory would indicate that motivation affects the learning environment and the learning environment affects motivation. Therefore, motivation (as manifested by engagement) and the learning environment need to be viewed as the product of the interaction, not as individual experiences.

The Self-System Model of Motivational Development also describes this reciprocal relationship between context and engagement (Connell & Wellborn, 1991). The purpose of describing yet another model is to demonstrate the utility and precedence of the reciprocal nature of motivation and context. The self-system model of motivational development supports the view that there is a dynamic relationship between the context and the student. This model describes that it is the overall and combined social context that shapes motivational development. Moreover, this model assumes that engagement reflects the degree in which the context is able to nurture internalization of motivation that was originally extrinsically motivating as well as tap into the student’s intrinsic motivation (Skinner et al., 2012). If the context (teacher, student, classroom activities, etc) supports a student’s basic need for autonomy, competence and relatedness, that student moves from nonself-determined to more self-determined. Said differently, if social partners support an individual’s need for relatedness, competence, and autonomy then students will be more likely to actively engage in the classroom.
The participation-identification model describes the overall and seminal picture of engagement at the school level. The inclusion and subsequent description of the self-systems model of motivation establishes the precedence for the relationship between context and motivation. Furthermore the application of the transactional model can be productively applied to this reciprocal process. As can be seen, the importance of viewing motivation, engagement and context reciprocally, as they natural occur in the classroom, is key to this study. Self-determination theory will be the lens for this study, however the transactional model will be employed to understand the product, not only the parts of the dynamic classroom.

**Context-Engagement Reciprocal Effects**

Reciprocal relationships concern how two variables over time act as both a cause and an effect on each other (Marsh & Craven, 2006). Marsh and O’Mara (2008) delineate the needed data and statistical design when demonstrating reciprocal effects. First, correlations cannot be based on a single wave of data, but must be measured at least at two different occasions. Therefore, when testing reciprocal effects there is a need for a longitudinal panel design. Secondly, Marsh and O’Mara (2008) suggest that most studies which seek to understand reciprocity should use research based on structural equation models (SEM) based on multiple indicators. The studies highlighted below have met this criteria.

One of the few studies regarding reciprocal process underlying student engagement is that of Hughes, Kwok and Lloyd (2008). Hughes et al. used this concept in part as they studied transactional influence among 1st graders. Participant (n=671) were tested on the following
three constructs every year for three years; achievement, effortful engagement, and teacher-student relationship quality. Using separate latent variable structural equation models the authors tested to see if student engagement at year 2 mediated between year 1 teacher-student relationship quality and year 3 reading and math skills. Reciprocal effects of effortful engagement on teacher student relationships were modeled using latent variable structural equation modeling. Findings supported the relationship between effortful engagement and teacher/student relationships from year 2 to year 3, but not from year 1 to year 2. Additionally reciprocal effects of achievement on engagement were modeled, however math and reading achievement was invariant from year to year. Hughes et al. (2008) found that achievement, effortful engagement and teacher student relationships are part of a dynamic system of influences in a child’s academic life. This study highlights the need to further understanding of reciprocal relationships are needed to understand the contextual environment, student engagement and achievement. Additionally, more is needed to understand reciprocal processes among adolescents.

Jang, Kim and Reeve (2012) and Reeve and Lee (2014) best illustrate the reciprocal process in the classroom as outlined above. These studies each used a 3-wave short term longitudinal design and a multilevel structural equation model to test the stated variables in each study.

Jang and colleagues (2012) demonstrated the importance of longitudinal design by looking at autonomy support, autonomy need satisfaction, engagement, and achievement from 500 8th graders in Korea. All four dimensions of engagement (behavioral, emotional, cognitive, and agentic) were observed indicators of engagement. Jang et al. (2012) used a mediational
model to find that perceived autonomy support at the beginning of the semester increased mid-semester autonomy need satisfaction, which then increased engagement. Although this study was mediational in nature, Jang et al. tested for reciprocal causation within the naturally occurring classroom processes. “Reciprocal causation refers to the extent to which a variable in the model feeds back to affect its hypothesized cause” (Jang et al. 2012, p 1177). Two reciprocal effects underscored the utility of reciprocity. First, students’ autonomy need satisfaction and students’ perception of their teachers’ motivating style were reciprocal influences. Autonomy need satisfaction to perceived autonomy support had a slightly stronger path than the reverse path, (.16) compared to (.12). Secondly, students’ mid-semester engagement projected autonomy need satisfaction at the end of the semester. Reciprocally, students’ mid-semester autonomy need satisfaction projected classroom engagement. Autonomy need satisfaction to engagement had the stronger path (.28) as compared to engagement to autonomy need satisfaction (.23).

It is important to note that the reciprocal effect was not stationary. Jang et al. found that it is variable level changes in engagement, not engagement per se, which foreshadowed variable level changes in autonomy need satisfaction. This is key to the current study. Students can be architects of purposeful and intention change (Jang et al. 2012) in their own course-related engagement. Classroom engagement and perceived autonomy support both come before and are consequences of students’ autonomy need satisfaction. Skinner (2009) had similar findings that the influence of engagement flows in both directions, creating amplifying feedforward and feedback loops which reinforce virtuous or vicious cycles in a way that the rich
get richer and the poor get poorer. It is research about this reciprocal causation within the natural occurring classrooms that the current study seeks to extend.

Reeve and Lee (2014) demonstrated that one of the outcomes of student engagement is academic motivation. This study followed findings by Jang et al. 2012, which demonstrated that motivation-to-engagement relation may be reciprocal, that changes in engagement may lead to changes in motivation. Participants were 313 Korean high school students. Multilevel structural equation models demonstrated that changes in engagement led to corresponding longitudinal changes in classroom motivation (psychological need, self-efficacy, and mastery goal). Reeve and Lee did not test reciprocal causation in their study. However, they relied on prior research to posit the reciprocal nature of engagement and motivation. They reasoned that prior research had clearly demonstrated that high-quality student motivation facilitated student engagement. Therefore when their study concluded that engagement facilitated student motivation, the results can be seen as providing evidence of the reciprocal causation of engagement and motivation. Reeve and Lee also theorize that one of the reasons that engagement has an influence on motivation is because of the addition of the dimension of agentic engagement to the conventional definition of behavioral, emotional, and cognitive engagement.

The reciprocal causation found in these studies illuminates the reciprocal effects of student’s perceptions of psychological need provided in the learning environment from social partners and engagement. While these studies took place in Korea, more research is needed to understand this dynamic in other cultures. Additionally, these studies only look at the teacher as the sole reciprocal social partner in the classroom. As stated previously, more research is
needed to understand the reciprocal influence of peers on engagement in the classroom.

Combining the two main social partners of the classroom (teacher and peers) and their reciprocal influence on engagement in the classroom will enable a richer and more accurate view of the natural occurring classroom.

**Teachers as Social Partners**

As stated, self-determination theory identifies the inner motivational needs of all students and offers recommendations on how teachers can nurture and vitalize these needs during the flow of instructional experiences (Niemiec & Ryan, 2009). The fulfillment of these basic needs is fundamentally determined by the social environment and the affordances thereof. When students perceive that their basic psychological needs are being met, they are more likely to engage in learning. Teachers can facilitate engagement by seeking to create caring interactions (supporting relatedness), optimal structure (supporting competence) and autonomy supportive classrooms (Reeve, 2013; Skinner & Pitzer, 2012). Several studies have demonstrated that caring interactions, optimal structure, and autonomy support do in fact facilitate student engagement (Wentzel, 2009; Murray & Greenberg, 2000; Stipek 2002. In a refreshing example of teacher influence, Turner, Christensen, Kackar-Cam, Trucano, and Fulmer (2014) found that teachers were able to improve student engagement when teachers were instructed on basic motivational needs as found in self-determination theory and Brophy’s (2008) concept of meaningful learning. In this study not all of the teachers demonstrated the ability to implement these motivational concepts in their teaching, but those who did showed an increase of teacher motivational support and student engagement. These results should be cautiously regarded because only six classrooms were a part of the study, and
only three of the six successfully implemented the stated interventions. However, it is important to note that Turner et al. (2014) studied these classes for 3 years, and this study demonstrates that teachers can be instructed to implement important motivational factors that will facilitate student engagement. A teacher has the potential to create a classroom where students’ perceive their needs as being meet, which in turn will create the proper motivation and engagement. Autonomy support, optimal structure, and caring interactions, when combined, offer the greatest support and facilitation of student engagement because it fulfills students’ basic needs. As such, an overview of each of these aspects will be delineated.

**Autonomy Support.** Autonomy supportive teachers listen, respond to students’ questions, attend to the needs and wants of the students and are more supportive of students’ initiatives (Ryan & Deci, 2009). Ryan and Deci describe the traditional definition of autonomy support as providing a meaningful rationale, acknowledging the participants’ perspective, and providing choice. When students perceive that they are doing schoolwork because of coercion, their basic need for autonomy is challenged (Urdan & Schoendelder, 2006). Furthermore, teachers can support autonomy by optimizing a student’s opportunity to act, and taking initiative, while asking for and respecting student’s opinions (Legault, Green-Demers & Pelletier, 2006). When teachers employ an autonomy supportive teaching style they facilitate autonomous internalization of educational activities (Guay, Rallelle, & Chanal, 2008) and improve test performance and free-choice persistence (Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). Autonomy supportive teachers are able to facilitate positive developmental and educational outcomes such as intrinsic motivation and perceived competence (Deci, Shwartz, Sheinman, & Ryan, 1981), positive emotionality (Patrick, Skinner, & Connell, 1993), greater conceptual...
learning (Vanseenskiste et al, 2004) and greater self-esteem, competence and mastery motivation (Ryan and Grolnick, 1986). Salient to the current study, students are more engaged when teachers used autonomy support during instruction (Vanseenkiste et al, 2004; Reeve, Jang, Carrell, Jeon, & Barch, 2004). These outcomes provided by autonomy supportive teachers are realized because teachers find a way to satisfy student’s psychological needs for autonomy, competence and relatedness (Reeve et al., 2004,).

Autonomy supportive teaching is the perfect counterpart to agentic engagement. In order for a student to ask questions or to let the teacher know what they need or want, a teacher has to be willing to listen and adapt. Students are more volitional in their learning when teachers respect their wishes, worries, and problems (Vansteenkiste, Sierens, Goossens, Soenens, Dochy, Mouratidis & Beyers, 2012). In essence, a teacher has to be willing to set aside the ‘lesson’ and in that moment listen and teach the students. Learning and student involvement is thwarted as a teacher is controlling. Autonomy supportive teachers facilitate competence, which in turn can lead to positive teacher-student relationships. Therefore, in order to understand the overall motivational contextual environment, one must also understand how a teacher supports competence and relatedness in the classroom.

**Competence Support.** Teachers either facilitate or thwart competence primarily through the structure that is provided in the classroom. Students’ competence is supported when teachers facilitate learning activities that are optimally challenging and that allow students to improve and expand their capabilities (Niemiec & Ryan, 2009). Furthermore, competence is supported when the learning environment is predictable rather than chaotic or unpredictable (Zimmer-Gembeck et al., 2006). Students who feel competent, but not
autonomous will not be able to sustain motivation for learning (Niemiec & Ryan, 2009). Lastly, a student who feels like he or she has control of his or her learning will engage more meaningfully and deeply in learning activities (Mason & Limon, 2002). This translates into the classroom as follows. If a student or a teacher asks a question, those who feel competent will be stimulated to discuss and share their thoughts (Akbari, Pilot, & Simons, 2015). The opposite of this would then be true. If a student does not feel competent, he or she will not actively seek to engage in a classroom discussion. Reciprocally, it is theorized that if a student actively and effectively engages in the classroom then a student would gain a stronger sense of competence.

Teachers need to facilitate both autonomy and competence in order to maintain intrinsic motivation. Findings indicate that both autonomy support and competence support are needed to facilitate agentic engagement in the classroom. Furthermore, competence gives confidence to a student which in turn leads to feelings of acceptance and relatedness with those around them (Urdan & Schoenfelder, 2006).

**Relatedness.** As stated earlier, students thrive in the classroom when the social context facilitates an overall warm and supportive environment. When students feel secure, important and cared for, then they have a desire to internalize what is being taught (Ryan & Deci, 2009). Furthermore, when students feel a sense of belongingness they also accept as their own the values and practices of those around them (Niemiec & Ryan, 2009). In the classroom, relatedness is linked to a student’s perception and feeling that the teacher respects, values and genuinely cares about him or her (Niemiec & Ryan, 2009). Therefore, a teacher who supports relatedness (by being caring, supportive, and respectful) will create a learning context where a
student can effectively engage because their inner motivational needs are being met. Relatedness is essential in facilitating engagement and learning especially when initial motivation is lacking (McHugh, Horner, Colditz, & Wallace, 2013). Positive student-teacher relatedness can foster persistence, engagement, and eventually internalization (Ryan and Deci, 2000; Danielsen, Breivik & Wold, 2011). Relatedness has also shown to predict student engagement and help students persist and sustain academic pursuits in the face of difficulty (Connell & Wellborn, 1991; Skinner & Belmont, 1993). Furthermore, relatedness predicts changes in engagement throughout the school year (Furrer & Skinner, 2003).

Autonomy supportive contexts in the classroom are connected with students’ autonomous motivation, competence and relatedness. This in turn predicts greater engagement and overall learning and psychological well-being (Ryan & Deci, 2009). As demonstrated, teachers have the essential responsibility to provide the overall climate that fosters autonomy, competence, and relatedness in the classroom. The facilitation afforded by the context cannot be overstated. If the teacher facilitates a context where the basic psychological needs of autonomy, competence, and relatedness are perceived, then a student will be more likely to internalize or integrate what is being taught. This will therefore lead to engagement in the classroom. This engagement can reciprocally lead to teacher support.

**Predicting teacher support.** Zimmer-Gembeck et al. (2006) alluded to the possibility that engagement is an antecedent to the qualities of relationships at school and that students may seek out opportunities to meet their needs of autonomy, relatedness and competence. This is consistent with the literature that states, “Students who are more highly engaged solicit increased attention, autonomy support, and high quality teaching from their teachers” (Skinner
et al., 2009). As students agentically engage in the classroom they are creating a more motivational supportive environment for themselves (Lee & Reeve, 2014; Reeve, 2013). This may be because they are signaling to their teacher their desire and propensity to learn. Engagement is a social signal that can elicit and shape supportive reciprocal reactions from social partners (Furrer & Skinner, 2003; Skinner et al, 2009; Birch & Ladd, 1996) which results in engaged students being more motivationally supported by their teacher (Skinner and Belmont, 1993). It is the contention of this study that there will be a reciprocal effect upon agentic engagement and a teacher’s support of autonomy, competence and relatedness. This relationship between agentic engagement and teacher support of autonomy, competence and relatedness has never been studied. This study is needed to understand this dynamic relationship.

**Peers as Social Partners**

Peer interaction and support cannot be overlooked as an important factor in the overall motivational climate in the classroom. The general importance of peers in facilitating student engagement will first be discussed followed by the overall salience of social interaction in school. Next, a comparison of school level peer support and classroom level will be compared, highlighting the need for further understanding on the classroom level. And lastly, the need for understanding reciprocity of engagement and peer relatedness support will be set forth.

Peers are an important influence of student engagement in the classroom (Goodenow 1993; Kindermann & Skinner, 2012; Gest, Rulison, Davidson & Welsh, 2008). Classrooms are social environments where students interact and build relationships with teacher and peers.
(Urdan & Schoenfelder, 2006). As demonstrated, self-determination theory research has been inundated with studies in regard to the influence of teachers on supporting students’ inner motivational needs of autonomy, relatedness, and competency, but the influence of peers has been given far less attention. Within the classroom and school context adolescents establish norms, structures and processes that guide and coordinate activities as they interact with peers (Cairns & Cairns, 1994). Furthermore, peer interaction is a complex social experience where social prominence and acceptance into peer groups and broader social structures can influence learning and the overall classroom experience (Farmer, Lines & Hamm, 2011).

Osterman (2000) in a review of research found that acceptance of peers was a predictor of involvement in class discussions, regardless of the caring or relatedness in connection with the teacher. Students’ relatedness is contingent on the teacher and classmates. This research points to the importance of understanding peer relationships and social dynamics in the classroom.

**Social Interaction.** The social interaction with peers has an impact on academic motivation and learning (Connell & Wellborn, 1991). Research on the social relationships of peers has shown a positive influence on students’ individual motivation and classroom learning (Nelson & DeBacker, 2008). On the other hand, social relationships in the classroom could be deleterious to the learning environment if the majority of students do not view engagement as worthwhile. This is because some students would not engage in learning simply because they would not garner social approval from their peers. Sage and Kindermann (1999) found that student engagement was positively correlated with the overall engagement of the other students in their classroom. Feeling important to key social partners such as peers is
hypothesized to trigger effort and participation (Skinner & Furrer, 2003). Peer interaction is of increased importance during adolescence because peer relationships are a significant source of support as compared to earlier developmental stages (Zimmer-Gembeck, Chipuer, Hanisch, Creed, & McGregor, 2006). As such, there is a link between peer support and academic goals and engagement (Furrer and Skinner, 2003).

**Studies of peer support in the classroom.** Furrer and Skinner (2003) validate that peer relatedness is an important motivational factor by examining 641 children grades 3 to 6. They found that peer relatedness uniquely contributed to student engagement, particularly that of emotional engagement. However Furrer and Skinner (2003) combined perceived classmate relatedness and perceived friend relatedness into one variable. In other words, it is hard disentangle the findings of peer relatedness specifically in the classroom because it is also combined with relatedness to friends that may not be in the classroom. Theoretically this is not a problem if one is looking at the overall effect of peers, however to understand the specific influence of classmates more research is needed.

Danielsen, Breivik, and Wold (2011) considered the influence of peers, specifically in the classroom context. Danielson et al. examined teacher and classmate support, academic competence, school satisfaction and academic initiative of 3,125 Norwegian adolescents ages 13-15. Initiative was conceptualized as engaging in an activity for intrinsic reasons, in an external environment, and being concerted over time. Initiative is similar to agentic engagement, however agentic engagement highlights proactive engagement and an individual constructively contributing to the overall classroom environment. Danilesen et al. demonstrated that teacher and classmate support are related to academic initiative.
Furthermore, it was demonstrated that perceived academic competence partially explained the relationship between initiative and teacher support, but not peer support. Academic competence also partially mediated the connection between school satisfaction and initiative. This study gives compelling evidence of the need to further understand both classmate and teacher support regarding student engagement. Specifically, students who are highly motivated are more likely to be fully engaged within the classroom.

Additionally Nelson and DeBacker (2008) made an important contribution to understanding the support of peers in the classroom. Nelson and DeBacker examined 253 adolescents in the science classroom to understand perceived peer relationships and achievement motivation. Two aspects of peer relationships were examined—classmates and best friends. Nelson and DeBacker (2008) looked at achievement goals such as performance or mastery goals. They also examined student’s self-efficacy to understand personal goals. The authors found that peer climate variables and best friend variables resulted in increases in personal goals such as approval and responsibility goals as well as an increase in mastery goals. Interestingly, peer climate, not best friend variables, accounted for performance goals and self-efficacy. Further understanding of the relationship between peer support and motivation in the class is needed to further understand these results.

Wakefield and Marchand (2015) conducted a qualitative study with adolescents in regard to students’ propensity to agentically engage in the classroom. Students in two separate focus groups described the importance of “feeling comfortable” in the classroom as a precursor to agentic engagement. One student stated it this way, “Well, I also think that it depends on the students in the class. Like if you feel comfortable around the students, because if it is a class
full of people that you don’t feel comfortable around or like you do not have friends you probably aren’t gonna want to talk in front of them. But if it is a class full of people you like and are friends you feel more comfortable sharing.” This quote demonstrates the importance of peer climate and the connection it has with engagement in the classroom. Lastly, another student stated, “You have people that judge what you say so it is hard to voice your opinion.” In order for a student to agentically engage in the classroom he or she must feel comfortable with his or her classmates.

Of most importance to this study, Nelson and DeBacker (2008) affirm that in classrooms where students were accepted and valued, there was an affirmative relationship with adaptive achievement motivation. Nelson and DeBacker (2008) also note that class belongingness and classmates’ involvement as well as best friend’s resistance to school norms were higher for high school participants as compared to middle school participants. This finding points to the increasing need to understand peer support in classroom within the high school setting. Lastly, Nelson and DeBacker fail to view the social support of peers as reciprocal influences in the classroom. This reciprocal process is fundamental to understanding the role of peers as social partners in the classroom.

**Reciprocity of peer support and engagement.** As can be seen, feelings of relatedness, belonging and acceptance have been connected to many academic outcomes such as effort, interest, task goal orientation and engagement (Furrer & Skinner, 2003). Furrer and Skinner also theorize that a sense of relatedness is a catalyst of engagement or disaffection and that relatedness should promote engagement. Furthermore, as peers support relatedness, students in the classroom will be more likely to proactively engage in the learning with interest and
effort. This theorized reciprocity of relatedness support by peers and engagement should lead to greater achievement in the classroom. In fact, Furrer and Skinner (2003) highlight the importance of understanding the relatedness of both teacher and student in order to get the full picture and importance of this construct.

Support of the basic psychological need of relatedness by peers becomes increasingly important within the interactions of the classroom and a possible determinate of engagement in the classroom. This connection between peer relatedness support and engagement may be especially important when studying the more overt and interactive dimensions of student engagement such as behavioral and agentic engagement. This is because a student who feels comfortable with his or her classmates will be more likely to feel comfortable enough to outwardly engage in the classroom (Ryan & Patrick, 2001). According to Wentzel (2003), adolescents who have positive relationships with their peers were more positively engaged behaviorally and emotionally. Murdock (1999) showed that students who felt that they had high level of academic support from their friends showed higher levels of behavioral engagement.

Peer relatedness support has never been studied as a precursor or outcome of agentic engagement. However theoretically there may be a reciprocal relationship between these two variables. For a student to proactively contribute to the flow of instruction, there must be some level of comfortableness and belonging. The more that students interact in the classroom via engagement, the more that they build a sense of relatedness with each other. This study seeks to determine this important relationship between peer relatedness support and agentic engagement.
Summary and extension of peer research. As previously noted, peers as social partners has been studied in many different ways and in many different contexts. However three salient aspects set this study apart from previous research. First, peer support and engagement will be studied in the classroom setting, not overall peer support in the school or overall engagement. Second, peer support to date has never been studied in connection with agentic engagement. And lastly, the reciprocal process of peers as social partners and engagement will bring to light the interactive and reciprocal nature of the classroom setting. As demonstrated, many studies listed have focused on student’s perceived relatedness with peers. The aim of this study is not to understand a students’ perception of relatedness, but to understand if the basic students perceive their peers as supportive. It is theorized that if this psychological need is met, then there will be a facilitation of agentic engagement in the classroom. If this need is not meet, engagement will be thwarted.

Present Study

Peer support (of relatedness), teacher support (of autonomy, competence, and relatedness) and agentic engagement will be viewed through the lens of self-determination theory in order to ascertain the relevant contextual and motivational aspects of the classroom. Specifically, the reciprocal processes of these variables will be considered to further understand student learning and achievement in adolescents. A three wave short term longitudinal design will inform this study of the reciprocal processes outlined. Four research questions will guide this study:
1. Does perceived support from multiple social partners uniquely influence agentic engagement over time?

2. Does a reciprocal relationship exist among agentic engagement and perceived teacher support for autonomy, competence, and relatedness?

3. Does a reciprocal relationship exist between agentic engagement and perceived peer support for relatedness?

4. Does agentic engagement mediate support between multiple social partners and achievement?

Question one establishes the basis and foundation for the other relevant questions. This question establishes the fact that there is a unique influence between social partners (teacher and peers in the classroom) and agentic engagement. If this influence is not there then question two and three would be irrelevant because without this influence there would be no reciprocity.

Question two and three point to the reciprocal influence that context has with agentic engagement. Question two explores whether student perceptions of teacher support of autonomy, competence and relatedness and agentic engagement share a reciprocal relationship. As a teacher supports the basic psychological needs of autonomy, competence and relatedness students will be more likely to agentically engage in the classroom because their basic psychological needs are being met. Reciprocally, as students agentically engage in the classroom they are creating a more motivational supportive environment (Lee and Reeve, 2014; Reeve, 2013). Also as stated, engagement is a social signal that can elicit supportive reciprocal reactions (Furrer & Skinner, 2003) where engaged students are more motivationally
supported by their teacher (Skinner & Belmont, 1993). Therefore, there is a reciprocal relationship between student perceptions of a teacher’s support of basic needs and agentic engagement as diagrammed below.

**Figure 3. Reciprocal relationship between teacher support and agentic engagement.**

Question three continues to highlight the reciprocal process of the context and engagement by looking how peers contribute to the overall motivational landscape in the classroom. When the need for relatedness is met by their classmates it is hypothesized to be a catalyst for engagement (Furrer & Skinner, 2003). The interactions of peers in the classroom have reciprocal effects on motivation and engagement. As diagramed below as peers support the basic need of relatedness in the classroom there is a reciprocal influence on agentic engagement.

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher support</td>
<td>Teacher support</td>
<td>Teacher support</td>
</tr>
<tr>
<td>Agentic Engagement</td>
<td>Agentic Engagement</td>
<td>Agentic Engagement</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer support</td>
<td>Peer support</td>
<td>Peer support</td>
</tr>
<tr>
<td>Agentic Engagement</td>
<td>Agentic Engagement</td>
<td>Agentic Engagement</td>
</tr>
</tbody>
</table>
Figure 4. Reciprocal relationship between peer support and agentic engagement.

As student’s psychological need of relatedness is supported by their peers, they will be much more likely to proactively engage in the classroom. As they engage in the learning environment they will strengthen their connection and belongingness with one another because they are valued contributors in the classroom.

Lastly, student engagement has been empirically linked with academic achievement (Appleton, Christenson & Furlong, 2008; Jang 2012; Klem & Connell, 2004; Ladd & Dinella, 2009; Skinner, Kinddermann, Connell, & Wellborn, 2009). It is theorized that when basic psychological needs are met by social partners, then a student will agentically engage in learning which will lead to achievement. Therefore question four seeks to demonstrate that agentic engagement mediates between social partners and achievement.

Conclusion

This research seeks to provide a snapshot of the complex learning environment of the classroom and view the motivational system as a dynamic whole. Understanding the reciprocal processes of basic psychological needs, social partners and agentic engagement will provide a perspective of the classroom that has never been seen. Understanding of these reciprocal variables is important to furthering our understanding of real life learning in the classroom. Lastly, this study adds to our overall understanding of the relatively new concept of agentic engagement. This knowledge will inform the overall concept of student engagement in the classroom.
CHAPTER 3: METHOD

Participants

This study used convenience sampling to measure stated variables. Participants who assented to participate in this study were 277 high school students (ages 15-18) who were a part of 19 different classes. Classes were situated within two different high schools in a midsize city in the western area of the United States. The size difference between each high school stemmed from the fact that one is a traditional high school and the latter is a charter school. Surveying two high schools mitigated the effects and influence of a specific school culture. Each high school provided permission for research to take place during the fall semester. A power analysis using G*power (Faul, Erdfelder, Buchner & Lang, 2007; Faul, Erdfelder, Buchner, & Lang, 2009) was performed, and the minimum participants needed to demonstrate statistical power with a medium effect size ($\alpha=.05$) was 107.

Students who participated in this study were a part of the 11th grade, and all participants gave their assent and received parental consent. The 11th grade was selected because this is the midpoint of secondary school and therefore had the potential to best represent students’ interactions and engagement. Students in 10th grade are transitioning from a previous school, while 12th graders are transitioning into future educational and occupational opportunities. There were 123 students from a traditional high school, and 54 students from a charter high school. Demographically, 128 males and 145 females participated in this study and participants ethnicity ranged from White (81%), Hispanic (10%), Pacific Islander (2.5%), American Indian (2%), Black (2%), and Asian (1%). Ethnically these percentages match almost
exactly to the schools demographic populations which were White (82%), Hispanic (14%), American Indian (2%), Black (2%) and Asian (2%). Demonstrating that although this was a convenience study, the study was well represented with the school’s available ethnic makeup. Additionally, the percentage of the traditional high school with students on free and reduced lunch assistance is (62.8%), and the smaller charter school is (12.1%). This lower percentage of free and reduce lunch for the charter school may be due to the fact that “school lunch” is not provided by the district, but by vendors who come to the school. Therefore, this demographic statistic may be misleading.

U.S. History was the subject used in this study. This was selected because all 11th graders are required to take this course in all of the participating High Schools. According to Sinatra et al. (2015) student engagement can be examined in a wide variety of domains or content areas. Furthermore, Sinatra et al. (2015) stated that there are domain-general aspects of student engagement. History is not an often researched domain in connection with student engagement. However, this domain has the potential for students to interact with each other and the instructor in a meaningful way. Because of the exploratory nature of this study only one grade and one school subject was a part of this study in order to simplify and focus interpretation of results.

Procedure and design.

Participating schools agreed to the current study and facility permission was obtained for the use of IRB approval. IRB approval was obtained for all aspects of this study before it was implemented. Students were recruited in their 11th grade history class at the beginning of the
year. Because of the age of the students, involved parental consent and participant assent was obtained prior to the implementation of this research. The following took place in order to recruit participants:

1. The researcher introduced the study at the beginning of the school year with permission from the academic teacher.
2. All participants were given a parental consent form.
3. Participants were instructed that their participation was voluntary and that this was not a part of their academic grade. Participants signed an assent form to participate in the research study. Additionally, they were informed that they could withdraw from the study at any time without consequence.
4. Participants were informed that all who “returned” the parental consent form would be entered into a drawing for one of four 50 dollar gift cards. It was made clear to participants that anyone who returned the consent form, regardless if permission was granted, would be a part of the drawing. The drawing and subsequent awarding of the four participants with the gift cards was done before the study began.
5. Lastly, participants were informed that the survey would take 10-15 minutes, and that they would be asked to take the survey three times throughout the semester. It was explained to participants that those who voluntarily decide not to participate in this study would be given reading material from the researcher about a topic about education.
This was a three wave short term longitudinal study and variables were measured at each of the three time points. The interwave interval for this study was approximately 6 weeks. Data was collected at three points of the semester, at week 4, 9, and 15. Giving approximately five to six weeks in between each wave, theoretically gives students time to agentically engage and have their basic psychological needs facilitated or thwarted. Additionally, these last two data collection times correlated with midterms and final grades in the semester. Participants completed a self-report questionnaire in regard to perceived basic psychological needs (autonomy, competence, and relatedness) as facilitated by teachers and peers. Participants also completed a questionnaire regarding agentic engagement at each of these three time points. Students completed this survey at the beginning of class and were asked to only think about their overall experience in that class (up to that point), when completing the survey. Students were each given a number to ensure confidentiality as well as making it possible for the researcher to link each student with subsequent data collection. Participants self-reported demographic information on the first survey and self-reported a grade for the second and third time points.

Self-report by the student is frequently used by researchers to understand latent characteristics such as motivation. However, self-report may lack objective and differing perspective of the variable. Therefore, in an effort to quasi-triangulate the data, teachers were assessed and reported on their overall experience with each class. It is understood that the number of teachers (n=6) lacks statistical power. However, teacher reports were not collected for quantitative statistical analysis, but to validate and contextualize student self-report. Teachers were given the same survey items as the students, however the questions were
adapted to the teacher (see appendix for survey). Additionally, teachers provided short answers to help contextualize and understand the variables of agentic engagement, peer support of relatedness and teacher support for autonomy, competence, and relatedness. Teachers were asked to participate in these scales at the third time point. This was done to minimize the time taken away from the teacher, especially considering that a teacher would be asked to fill out a different survey for each class.

Self-report grades were collected to minimize the invasion of privacy of the students and the school. Research has demonstrated differing results on how well self-report grades match with actual grades (Kuncel, Crede, & Thomas, 2005; Teye & Peaslee, 2015). Kuncel, Crede and Thomas (2005) reported that students who have good grade point averages are more accurate than students who have low GPA’s. This simply may be the case because students with lower grade point averages do not want to look bad or be seen as less capable. Kuncel, Crede and Thomas (2005) also suggested that High School self-reported grades were slightly less reliable than college self-reported grades. These results demonstrate a caution and limitation in the results of self-reported GPA and final grades in this study.

Measures

Student perceptions were determined using the following instruments: the Agentic Engagement Scale (AES) and the Basic Psychological Needs Scale (BPNS) adapted for the classroom for both teacher and student. Achievement was measured by students’ self-report of their anticipated final grade. Teacher perceptions were determined by using the same instruments, but simply changing the wording to the context of the teacher.
Participants were asked to respond to questionnaires below using a 1 to 7 Likert scale with the following response options: 1 = strongly disagree; 2 = disagree; 3 = slightly disagree; 4 = neither agree nor disagree; 5 = slightly agree; 6 = agree; and 7 = strongly agree. Additionally, participants were asked to fill out demographic information on the first survey, and self-reported grade on the second and third survey. Refer to the appendix for complete surveys.

**Agentic engagement scale.** The agentic engagement scale (AES) was developed by Reeve (2013) and is a refined scale from the measurement used by Reeve in 2011. This is considered a refined scale because there were originally 10 items. Reeve retained the five items that showed the strongest internal consistency and normal distribution of scores. Following this revision, the five item scale Reeve (2013) tested to see if this refined scale demonstrated construct, discriminant, and predictive validity. Examples of this scale include, “I let my teacher know what I need and want” and “During this class, I express my preferences and opinions.” The validity and reliability of this scale was investigated and reported in a recent study by Reeve (2013). This study surveyed 302 middle school students. This five item scale is psychometrically sound and is internally consistent (alpha = .84) according to Reeve’s (2013) study. Reeve also explained independent variance in achievement when compared to cognitive, behavioral, and emotional engagement. Reeve’s 5 item scale did show strong internal consistency, created a normal distribution of scores, and demonstrated independent variance in student achievement as compared to the other dimensions of engagement. In addition, this scale showed predictive validity in terms of explaining a student-initiated constructive change in the learning environment. However because of the relative newness of this scale, more time and usage is needed to determine the overall utility.
Basic psychological need scale. Teacher support for autonomy, competence, and relatedness. An adapted nine-item version of the Basic Psychological Needs Scale (BPNS) was utilized by Filak and Sheldon (2008) to ascertain if these basic psychological needs were being met. Their nine item scale was based and adapted from, “The Work Motivation Form-Employee scale” (Ilardi, Leone, Kasser, & Ryan, 1993) which looked at the basic needs of autonomy, competence and relatedness in the workplace. Alpha levels are based on Filak and Sheldon (2008) scale which was done in the classroom setting. Because this scale was administered at the end of the semester, all items are in past tense. This has been changed in this current study to present tense to reflect the timetable of this study. The autonomy items were ‘I am free to express my opinions in this class’, ‘I feel like I have a lot of input in deciding how to learn in this class’, and ‘The teacher takes my perspective into consideration in this class’ (α = .79). The competence items were ‘I do not think the tasks I do in this class are very stimulating’ (this item was reversed; α = .81). ‘I enjoy the challenges this class provides’, and ‘Most days I feel a sense of accomplishment from doing work in this class’. The relatedness items were ‘The teacher cares about me and my progress’, ‘The teacher is pretty friendly towards me’, and ‘I don’t feel the teacher understands me’ (the last item was reversed; α = .80). Filak and Sheldon (2008) also created an aggregate need satisfaction variable that combined all nine items. The Cronbach’s alpha for this combined variable was .77. Teacher support for autonomy, competence and relatedness were combined to create a composite score.

Basic psychological needs scale. This scale measures peer relatedness. This scale was further adapted from the Filak and Sheldon (2008) scale. In order to measure relatedness on the peer level the questions were adapted at the peer level. The exact same questions that
were used for teacher relatedness were used, however the word teacher was replaced with classmate. ‘My classmates care about me’, My classmates are pretty friendly toward me’, and ‘I don’t feel my classmates understand me’.

**Teacher Self-report Measurements**

Teachers were asked to respond to survey thinking about the class as a whole at the third and final time point. The teacher survey started with demographic questions. With the agentic engagement scale they responded to the following questions that mirror the questions the students were asked. For example, the students were asked, I let my teacher know what I need and want. The teacher was asked, this class lets me as the teacher know what they need and want. In an effort to contextualize the observations of the teacher, the teacher was asked the following question after each Likert type question. “Please explain why you reported the score that you did, if possible please share any examples from this class that would highlight why you reported the score that you did.” The agentic engagement scale, the peer support scale, and the teacher support scale were all modified as stated above for each question. (See appendix for this scale).

**Data Analysis**

Descriptive statistics and regression were used in this study to answer the four research questions. Regression was used to answer questions one through three. Question four was answered employing path analysis. Regression was used because of the exploratory nature of this study. The construct of agentic engagement is new, therefore regression will sufficiently demonstrate the predictive relationships between constructs. This study can then be used as a
springboard into more complex statistical analysis such as Structural Equation Model (SEM) and Reciprocal effects model (Marsh and Craven, 2006).

Data was screened for entry errors and missing data was analyzed looking for patterns that might influence statistical analysis. Each scale was tested using Cronbach’s alpha to test for reliability at each of the three time points. Furthermore, descriptive statistics for each scale was checked to determine normality of scales at each time point. Furthermore, linearity, homoscedasticity, and multicollinearity assumptions were largely met. A preliminary analyses of correlations between variables was conducted over time (stability) as well as at each time point.

**Question 1.** Regression was used to determine influence of social partners on agentic engagement at time 1 and time 2, as well as time 2 and time 3.

**Question 2.** Regression was employed by comparing time point 1 and 2, as well as to compare time point 2 and 3 for each of the variables. As stated, perceived teacher support for autonomy, competence and relatedness were combined to create a composite score. For each of the comparisons (Time 1, Time 2) and (Time 2, Time 3) each variable was viewed as both a predicting and a predictor variable. In other words, each variable is seen as the independent and dependent variable. This analysis facilitated an understanding of the reciprocal nature of the two variables of perceived teacher support and agentic engagement by answering the following:

Does (time 1) perceived teacher support predict (time 2) agentic engagement controlling for initial agentic engagement?
Does (time 1) agentic engagement predict (time 2) perceived teacher support controlling for initial support?

Does (time 2) perceived teacher support predict (time 3) agentic engagement controlling for previous agentic engagement?

Does (time 2) agentic engagement predict (time 3) perceived teacher support controlling for previous perceived teacher support?

**Question 3.** The same strategy used in question 2 will be used with question three to determine reciprocity of perceived peer support and agentic engagement.

Does time 1 perceived peer support predict time 2 agentic engagement controlling for initial agentic engagement?

Does time 1 agentic engagement predict time 2 perceived peer support controlling for initial perceived peer support?

Does time 2 perceived peer support predict time 3 agentic engagement controlling for previous agentic engagement?

Does time 2 agentic engagement predict time 3 perceived peer support controlling for previous peer support?

**Question 4.** Path analysis was used to statistically demonstrate that agentic engagement is a mediating variable between social partners and achievement.
### Summary Table

Table 1

*Statistical analysis for each question*

<table>
<thead>
<tr>
<th>Question</th>
<th>Statistical Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does perceived support from multiple social partners uniquely influence agentic engagement over time?</td>
<td>Simple regression to determine influence of social partners on agentic engagement at time 1 and time 2, as well as time 2 and time 3.</td>
</tr>
<tr>
<td>2. Is there a reciprocal relationship among agentic engagement and perceived teacher support for autonomy, competence, and relatedness?</td>
<td>Simple regression between time 1 and 2, and time 2 and 3. For each of the comparisons (Time 1, Time 2) and (Time 2, Time 3) each variable was viewed as both a predicting and a predictor variable.</td>
</tr>
<tr>
<td>3. Is there a reciprocal relationship between agentic engagement and perceived peer support for relatedness?</td>
<td>Simple regression between time 1 and 2, and time 2 and 3. For each of the comparisons (Time 1, Time 2) and (Time 2, Time 3) each variable was viewed as both a predicting and a predictor variable.</td>
</tr>
<tr>
<td>4. Does agentic engagement mediate support between multiple social partners and achievement?</td>
<td>Path Analysis</td>
</tr>
</tbody>
</table>
CHAPTER FOUR: RESULTS

Introduction

The purpose of this study was to determine the importance of perceptions of support from multiple social partners in the classroom on student agentic engagement (students’ proactive contribution to the classroom); as well as to describe the direction and strength of reciprocal influence among student agentic engagement and perceptions of the classroom context. Furthermore, this study investigated whether agentic engagement mediated the relationships among perceived support and student achievement. The following research questions guided the investigation.

1. Does perceived support from multiple social partners uniquely influence agentic engagement over time? (Does support time point 1, influence agentic engagement time point two) (Does support time point 2 influence agentic engagement time point 3).

2. Does a reciprocal relationship exist among agentic engagement and perceived teacher support for autonomy, competence, and relatedness? (Agentic engagement time one influence, perceived teacher autonomy, perceived competence, perceived relatedness support time 2) (perceived teacher autonomy, perceived competence, perceived relatedness support time 2, Agentic engagement time point 3)

3. Does a reciprocal relationship exist between agentic engagement and perceived peer support for relatedness? (Agentic engagement time point 1, perceived peer relatedness 2)
4. Does agentic engagement mediate support between multiple social partners and achievement?

This chapter is organized in the following manner in order to explicate results of each of the four questions. First, statistics will be properly organized and cleansed. Next Cronbach’s alpha for each instrument will be discussed. Following this, participant attrition will be discussed followed by the descriptive statistics of participants. After the description of participants, correlations will show the possible relationship between variables. Correlations will include intra-correlations as well as correlations that show reciprocal relationships between variables. Next, regressions and appropriate assumptions will be delineated. Subsequently, statistical analysis and results will be explained and demonstrated for each of the four questions. Finally, analysis of the teacher survey will be given.

Data Cleaning

Following data collection, the data was cleaned to ensure proper interpretation. First, the items that were reversely stated were recoded. This included the items 9, 14 and 17 (see appendix for instrument) for all three time points. Next, the data was reviewed to see if there was data that was entered incorrectly. Any grade that was recorded below a 50 was changed to a 50 in order to keep the statistics clean and data understandable. There were only 6 grades that were self-reported below a 50. This was changed because there is no need to distinguish anything below a 50. This is because anything below this number constitutes a non-passing grade.
Next Cronbach’s alpha was analyzed for each category and at each time point. Table 2 demonstrates the alpha level at each time point for each scale.

### Table 2

**Cronbach’s Alpha Reliability for all Scales**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Time Point 1</th>
<th>Time Point 2</th>
<th>Time Point 3</th>
<th>Total Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agentic Engagement Items</td>
<td>.83</td>
<td>.85</td>
<td>.86</td>
<td>.85</td>
</tr>
<tr>
<td>Autonomy Items</td>
<td>.79</td>
<td>.78</td>
<td>.81</td>
<td>.79</td>
</tr>
<tr>
<td>Competence Items</td>
<td>.77*</td>
<td>.71*</td>
<td>.76*</td>
<td>.75*</td>
</tr>
<tr>
<td>Teacher Relatedness Items</td>
<td>.78</td>
<td>.73</td>
<td>.76</td>
<td>.76</td>
</tr>
<tr>
<td>Peer Relatedness Items</td>
<td>.80</td>
<td>.80</td>
<td>.73</td>
<td>.78</td>
</tr>
</tbody>
</table>

Note. * = Signifies that one of the items of this scale was removed. See below for explanation.

One question was removed in the variable of perceived competence, thereby increasing the alpha level of the instrument. The question that was removed stated: “I do not think the tasks I do in this class are very stimulating.” This item may have been confusing for the students because of the following two factors 1) the word “stimulating” may have been difficult for some to understand and 2) this question was reverse coded in such a way that made it difficult for adolescents to understand. Reliability was increased as this poor fit item was removed. Therefore this item was removed and the new reliabilities are reflected in table 2. As these scales proved to be within the acceptable range when regarding Cronbach’s alpha reliability, statistical analysis moved to the problems associated with attrition.

**Participant Attrition**

In order to analyze the data and provide quality results, an understanding of the possible effects of attrition were considered. Asendorpf, van de Schoot, Denissen, and Hutteman (2014) bemoan the fact that most multi-wave longitudinal studies are plagued by an increasing number of dropouts that are systematically related to the intended variables. Cohen,
Spiro, Young, Gibb, Hankin, and Abela (2015), indicate that missing data is common in multi-wave longitudinal data. This problem is exacerbated by having adolescents as participants. Ellickson (1989) describes three things that plague longitudinal research among children: parental consent, absenteeism during data collection, and students transferring to different schools. This study experienced these same issues, but the research sought to minimize the effects of these problems.

Students had to be in attendance at all three time points in order to use the data. As noted by Ellickson (1989) this proved difficult for the adolescent population, who have the propensity to miss for a variety of reasons including sickness, school activities, and truancy. Additionally, there may have been students who simply decided that they did not want to take part in one of the data collection time points even though they were in attendance. This could be for a variety of reasons, but let it be noted again that the participants of this study were adolescents, who may not have seen the value of doing something that they really did not have to do. Additionally, participants were not compensated on any level, therefore the desire to remain a part of the study, at all three time points, was simply a matter of generosity.

Regardless of the reasons for attrition, 176 (63.1%) of the 277 participants completed surveys for all three time points. Cohen et al. (2015) also had adolescents as participants in a multi-wave longitudinal study and their completion rate was 63.8%. Attrition was expected to be a factor with this population and this was taken into consideration at the beginning of the study. A power analysis that was performed before the collection of data (as stated earlier in this paper, pg. 49) demonstrated that 107 participants were needed for statistical power with a
medium effect size (α=.05). Therefore, regardless of the attrition, there were sufficient participants who completed the survey at all three time points.

However, it is important to the results of this study to understand if there were significant differences between those who completed and those who did not complete the survey at all three time points. In other words, it is important to demonstrate that there is not systematic attrition. Independent sample t-tests were conducted to understand if there were indeed significant differences. Demographics as well as agentic engagement, perceived autonomy, perceived competence and perceived relatedness information were all analyzed and compared with those who did or did not complete the study. Only one of these groups demonstrated a statistically significant difference: overall GPA. Those who dropped out ($M=4.16, SD=1.08$) were statistically different from those who completed all time points ($M=4.51, SD=.86$); $t(270)=-2.90, p < .01$ when comparing overall GPA. There could be many reasons for this difference, one of which would be the obvious correlation that those whose overall GPA is lower may also have attendance issues. Therefore, it stands to reason that those students would have missed one or more of the data collection time points. Regardless of the reason, this is of obvious concern. This issue will be discussed in greater length as a study limitation. It is important to point out that the results of this study may be more generalizable to those who have a higher overall GPA.

Missing Data of those who completed at all three time points was negligible. In other words, those who participated in the study at all three time points almost always completed the entire survey. Given the results of attrition and missing data, analysis proceeded with those who completed the survey at all three time points.
Descriptive Statistics

Descriptive statistics provide the demographics of participants as well as the averages of each variable. Table 3 (see below) shows the overall demographic information of this study as well as the demographics of those who completed the survey at the different time points.
### Table 3

**Overall Demographic Profile of Participants**

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Overall N = 277</th>
<th>Completed all time points N = 176</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>128 (46.2%)</td>
<td>84 (47.7%)</td>
</tr>
<tr>
<td>Female</td>
<td>145 (52.3%)</td>
<td>92 (52.3%)</td>
</tr>
<tr>
<td>Missing</td>
<td>4 (1.4%)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>225 (81.2%)</td>
<td>154 (87.5%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>28 (10.1%)</td>
<td>13 (7.4%)</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>7 (2.5%)</td>
<td>3 (1.7%)</td>
</tr>
<tr>
<td>American Indian</td>
<td>5 (1.8%)</td>
<td>2 (1.1%)</td>
</tr>
<tr>
<td>Black</td>
<td>5 (1.8%)</td>
<td>2 (1.1%)</td>
</tr>
<tr>
<td>Asian</td>
<td>4 (1.4%)</td>
<td>2 (1.1%)</td>
</tr>
<tr>
<td>Missing</td>
<td>3 (1.1%)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>10 (3.6%)</td>
<td>5 (2.8%)</td>
</tr>
<tr>
<td>16</td>
<td>221 (79.2%)</td>
<td>147 (83.5%)</td>
</tr>
<tr>
<td>17</td>
<td>38 (13.6%)</td>
<td>21 (11.9%)</td>
</tr>
<tr>
<td>18</td>
<td>5 (1.8%)</td>
<td>3 (1.7%)</td>
</tr>
<tr>
<td>Missing</td>
<td>5 (1.8%)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Overall Grade Point Average</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.0-3.5</td>
<td>173 (62%)</td>
<td>121 (68.8%)</td>
</tr>
<tr>
<td>3.5-3.0</td>
<td>49 (17.6%)</td>
<td>31 (17.6%)</td>
</tr>
<tr>
<td>3.0-2.5</td>
<td>33 (11.8%)</td>
<td>15 (8.5%)</td>
</tr>
<tr>
<td>2.5-2.0</td>
<td>14 (5.0%)</td>
<td>8 (4.5%)</td>
</tr>
<tr>
<td>Below 2.0</td>
<td>3 (1.1%)</td>
<td>1 (.6%)</td>
</tr>
<tr>
<td>Missing</td>
<td>7 (2.5%)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Completion of all 3 Surveys</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed</td>
<td>176 (63.1%)</td>
<td>-</td>
</tr>
<tr>
<td>Did not complete</td>
<td>101 (36.2%)</td>
<td>-</td>
</tr>
</tbody>
</table>
To add to the overall descriptive statistics, means, standard deviation (SD), skewness and Kurtosis were analyzed. Tables 4-6 give descriptive statistics for each variable at each time point.

Table 4

Descriptive Statistics of Outcome Measures by Group Time point 1

<table>
<thead>
<tr>
<th></th>
<th>$M$</th>
<th>$SD$</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agentic Engagement</td>
<td>4.97</td>
<td>1.07</td>
<td>-0.56</td>
<td>-0.16</td>
</tr>
<tr>
<td>Autonomy</td>
<td>5.00</td>
<td>1.19</td>
<td>-0.71</td>
<td>0.33</td>
</tr>
<tr>
<td>Competence</td>
<td>4.68</td>
<td>1.37</td>
<td>-0.51</td>
<td>-0.27</td>
</tr>
<tr>
<td>Teacher Relatedness</td>
<td>5.37</td>
<td>1.04</td>
<td>-0.48</td>
<td>-0.19</td>
</tr>
<tr>
<td>Class Relatedness</td>
<td>5.05</td>
<td>1.17</td>
<td>-0.74</td>
<td>0.54</td>
</tr>
</tbody>
</table>

Note. $M$ = Mean; $SD$ = Standard Deviation; Self-Reported Grade = Participants were asked to report on what they thought their grade would be in this class because it was so early in the semester.

Participants rated perceived support from multiple social partners on a Likert scale from one to seven, with seven indicating the greatest agreement with the item. It can be seen from Table 4 that results indicate a fairly high mean for each of the variables. Note that the first time point was taken in the first 4-5 weeks of the school semester.
Table 5

*Descriptive Statistics of Outcome Measures by Group Time point 2*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agentic Engagement</td>
<td>4.95</td>
<td>1.10</td>
<td>-0.64</td>
<td>0.36</td>
</tr>
<tr>
<td>Autonomy</td>
<td>4.88</td>
<td>1.22</td>
<td>-0.78</td>
<td>0.75</td>
</tr>
<tr>
<td>Competence</td>
<td>4.52</td>
<td>1.42</td>
<td>-0.43</td>
<td>-0.42</td>
</tr>
<tr>
<td>Teacher Relatedness</td>
<td>5.26</td>
<td>1.08</td>
<td>-0.82</td>
<td>1.15</td>
</tr>
<tr>
<td>Class Relatedness</td>
<td>4.96</td>
<td>1.16</td>
<td>-0.32</td>
<td>-0.26</td>
</tr>
<tr>
<td>Self-reported Grade</td>
<td>93.66</td>
<td>8.53</td>
<td>-2.70</td>
<td>9.30</td>
</tr>
</tbody>
</table>

Note. M= Mean; SD = Standard Deviation

Time point two was taken around week ten in the sixteen week semester. As can be seen in table 5, there are no drastic changes in means from time point one to time point two. Additionally, participants self-reported their grade at time point two. The self-reported grade is also a fairly high average. The distribution of self-reported grades are peaked as can be seen with the kurtosis score of 9.30 as well as skewness -2.70 in table 5. Therefore, it was concluded that class grades were non-normally distributed.
Table 6

Descriptive Statistics of Outcome Measures by Group Time point 3

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agentic Engagement</td>
<td>4.93</td>
<td>1.18</td>
<td>-.67</td>
<td>-.07</td>
</tr>
<tr>
<td>Autonomy</td>
<td>4.88</td>
<td>1.27</td>
<td>-.56</td>
<td>-.13</td>
</tr>
<tr>
<td>Competence</td>
<td>4.73</td>
<td>1.38</td>
<td>-.57</td>
<td>-.07</td>
</tr>
<tr>
<td>Teacher Relatedness</td>
<td>5.28</td>
<td>1.01</td>
<td>-.49</td>
<td>.02</td>
</tr>
<tr>
<td>Class Relatedness</td>
<td>4.94</td>
<td>1.10</td>
<td>-.44</td>
<td>.30</td>
</tr>
<tr>
<td>Self-reported Grade</td>
<td>91.17</td>
<td>9.39</td>
<td>-2.11</td>
<td>5.30</td>
</tr>
</tbody>
</table>

Note. M= Mean; SD = Standard Deviation

Time point three was taken at around week fifteen of the semester. Once again, averages were fairly consistent as compared with time points one and two. Overall, the descriptive statistic provide a window into the demographic information of each participant and the averages of each variable. Once again all variables are normally distributed except for class grades. The next step in statistical analysis is that of correlation analysis.

**Correlation**

In preparation for regression, correlations were run to understand the association between variables (Tabachnick & Fidell, 2013). Correlations were obtained to understand the association between variables as well as intra-correlations (the same variable, but at different time points). Correlations were obtained through SPSS utilizing Pearson Product correlation coefficient. This measure allows the research to see the linear correlation between two variables. This correlation assumes a linear normal distribution. However, because the self-reported grades at both time points were not normally distributed, a nonparametric procedure was necessary. Therefore all correlations involving grades utilized Spearman’s rank order correlation coefficient.
Intra-correlation. Analyses started with the Intra-correlations. Intra-correlations (Table 7) demonstrate the relationship of each individual variable within each time point.

Table 7

Intra Correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Time 1,2</th>
<th>Time 1,3</th>
<th>Time 2,3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agentic Engagement</td>
<td>.70**</td>
<td>.67**</td>
<td>.75**</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.75**</td>
<td>.69**</td>
<td>.79**</td>
</tr>
<tr>
<td>Competence</td>
<td>.68**</td>
<td>.64**</td>
<td>.72**</td>
</tr>
<tr>
<td>Teacher Relatedness</td>
<td>.68**</td>
<td>.65**</td>
<td>.71**</td>
</tr>
<tr>
<td>Classmate Relatedness</td>
<td>.65**</td>
<td>.60**</td>
<td>.68**</td>
</tr>
<tr>
<td>Self-reported class grade</td>
<td>.41**</td>
<td>.57**</td>
<td>.41**</td>
</tr>
</tbody>
</table>

Note. ** = Correlation is significant at the .01 level (2-tailed).

As can be expected the correlations between time points are moderately correlated (Cohen, 1992). Interestingly, correlations between all measures, except class grade, show that the last two time points (2,3) are higher at the variable level as compared to the previous correlations (1,2 and 1,3).

Correlations at each time point. Following the intra-correlations each variable was correlated with all other variables at each time point. Time point one and two are displayed in table 8, and time point three is displayed in table 9.
Table 8

**Correlations of variables at time point 1 and 2**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Agentic Engage.</th>
<th>Autonomy</th>
<th>Competence</th>
<th>Teacher Relatedness</th>
<th>Classmate Related.</th>
<th>Class Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agentic Eng.</td>
<td>-</td>
<td>.59**</td>
<td>.50**</td>
<td>.48**</td>
<td>.47**</td>
<td>-.53</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.53**</td>
<td>-</td>
<td>.58**</td>
<td>.69**</td>
<td>.38**</td>
<td>-.00</td>
</tr>
<tr>
<td>Competence</td>
<td>.50**</td>
<td>.57**</td>
<td>-</td>
<td>.55**</td>
<td>.31**</td>
<td>.07</td>
</tr>
<tr>
<td>Teacher</td>
<td>.48**</td>
<td>.70**</td>
<td>.61**</td>
<td>-</td>
<td>.40**</td>
<td>.09</td>
</tr>
<tr>
<td>Classmate</td>
<td>.41**</td>
<td>.33**</td>
<td>.29**</td>
<td>.41**</td>
<td>-</td>
<td>-.09</td>
</tr>
<tr>
<td>Class Grade</td>
<td>.12</td>
<td>.15*</td>
<td>.18*</td>
<td>.17*</td>
<td>.10</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. Time point 1 (Bottom Portion) and time point 2 (top portion). ** = Correlation is significant at the .01 level (2-tailed). * Correlation is significant at the .05 level (2-tailed). Teacher = Teacher Relatedness; Classmate = Classmate Relatedness.

As can be seen all correlations (Time point 1 and 2) between agentic engagement and perceived support from social partners are significant with a moderate effect (Cohen, 1992). At time point one class grade is also correlated with perceived autonomy, perceived competence, and perceived teacher relatedness, however at time point two this is not the case. Lastly, class grade is not correlated with agentic engagement or classmate relatedness at either of the two time points.
Table 9

Correlations of variables at time point 3.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Agentic Eng.</th>
<th>Autonomy</th>
<th>Competence</th>
<th>Teacher Relatedness</th>
<th>Classmate Related.</th>
<th>Class Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agentic Eng.</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy</td>
<td>.69**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>.60**</td>
<td>.61**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>.64**</td>
<td>.72**</td>
<td>.57**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classmate</td>
<td>.43**</td>
<td>.37**</td>
<td>.57**</td>
<td>.38**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Class Grade</td>
<td>.17*</td>
<td>.18*</td>
<td>.26**</td>
<td>.18*</td>
<td>.05</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. ** = Correlation is significant at the .01 level (2-tailed). * Correlation is significant at the .05 level (2-tailed). Teacher = Teacher Relatedness; Classmate = Classmate Relatedness.

Correlations at time point three are similar to the effect size of time point one and two for agentic engagement and perceived support from social partners. Interestingly, at time point three agentic engagement, perceived autonomy, perceived competence and perceived teacher relatedness are all significantly correlated with class grade. Perceived classmate relatedness is not correlated with class grade at any of the three time points.

**Reciprocal Correlations.** Correlations are also needed to understand the possible reciprocal effects of the stated variables. Reciprocal effects in this paper focus on the influence of agentic engagement (in time point 1) verses all other variables (time point 2). As well as the influence of all variables (time point 1) on agentic engagement (time 2). Table 10 demonstrates the reciprocal correlations between time point one to two. Correlation statistics are a window
into the relationship between variables. This understanding leads to the regressions that will be performed in the next section.

Table 10

*Reciprocal correlations from time point 1 to time point 2.*

<table>
<thead>
<tr>
<th>Variable</th>
<th>AE 2</th>
<th>Auto. 2</th>
<th>Comp. 2</th>
<th>Teacher 2</th>
<th>Class 2</th>
<th>Grade 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE 1</td>
<td>.70**</td>
<td>.53**</td>
<td>.41**</td>
<td>.44**</td>
<td>.35**</td>
<td>.02</td>
</tr>
<tr>
<td>Autonomy 1</td>
<td>.36**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Comp. 1</td>
<td>.37**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Teacher 1</td>
<td>.33**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Class 1</td>
<td>.40**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Class 1</td>
<td>.00</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. ** = Correlation is significant at the .01 level (2-tailed). Row correlations describe Agentic engagement at time point 1 with all variables at time point 2, column correlations describe Agentic engagement at time point 2 with all variables at time point 1. AE = Agentic engagement; Auto. = Autonomy; Comp. = Competence; Teacher = Teacher Relatedness; Class = Classmate Relatedness.

Agentic engagement at time point one correlates with all variables at time point two, except for class grades. The reciprocal is also true, all variables at time point one (except for grades) significantly correlate with agentic engagement at time point two.

Table 11

*Reciprocal correlations from time point 2 to time point 3.*

<table>
<thead>
<tr>
<th>Variable</th>
<th>AE 3</th>
<th>Auto. 3</th>
<th>Comp. 3</th>
<th>Teacher 3</th>
<th>Class 3</th>
<th>Grade 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE 2</td>
<td>.75**</td>
<td>.50**</td>
<td>.44**</td>
<td>.46**</td>
<td>.37**</td>
<td>.05</td>
</tr>
<tr>
<td>Autonomy 2</td>
<td>.56**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Comp. 2</td>
<td>.55**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Teacher 2</td>
<td>.55**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Reciprocal correlation results from time point two to three mirror the results from time point one to two. All correlations are significant except for correlations with class grade. This lack of correlation between class grades and all other variables may prove to be quite noteworthy as regression statistics are performed.

Regression

Multiple regression statistics were employed to answer questions one through three. Regression was employed to assess the relationship between a dependent variable and several independent variables (Tabachnick & Fidell, 2013). According to Tabachnick and Fidell (2013), the investigation of residual scatterplots offer a test of assumptions for normality, linearity, homoscedasticity for predicted dependent variables and errors of prediction. Following this guideline, residual scatterplots were created and viewed in SPSS and assumptions of normality, linearity and homoscedasticity were met for regressions used in answering questions one, two and three. For all regressions, outliers were examined by looking at any standardized residuals that were greater than 3.3. This follows guidelines suggested by Tabachnick and Fidell (2013). If outliers were detected the influence of each outlier was assessed using Cook’s distance. Any case with an influence score larger than 1.00 was removed (Tabachnick & Fidell, 2013). For regression statistics for questions one through three, there were several residuals higher than
3.3, however when the influence of these outliers were examined using Cook’s distance, none of the outliers had sufficient influence (larger than 1.00) to justify removal. Therefore, all cases were included for analysis for questions one, two and three. Lastly, statistical analysis of collinearity indicated that multicollinearity assumptions were met.

**Question 1.** Does perceived support from multiple social partners uniquely influence agentic engagement over time? Perceived autonomy, perceived competence, perceived teacher relatedness and perceived peer relatedness at time point one was predicted to influence agentic engagement at time point two, when controlling for agentic engagement at time point one. However, these variables at time point one did not statistically influence agentic engagement at time point two, $R^2$-change = .20 $F$-change (4,163) = 1.61, $p$ = .174. This indicates that perceived autonomy, perceived competence, perceived teacher relatedness and perceived peer relatedness (time point one) did not statistically predict agentic engagement at time point two. It is to be noted that even though the change was not significant, the overall regression model was statistically significant $R^2$ = .49, $F$(5, 163) = 31.95, $p$ < .005. Interestingly, besides agentic engagement at time point 1 only peer relatedness contributed to agentic engagement, $b$ = .142 (CI: .03, .26), $t$(163) = 2.43, $p$ < .05. Therefore, perceived peer relatedness at time point one may have some influence on agentic engagement at time point two.

Regression was used in a similar fashion to determine the influence of perceived autonomy, perceived competence, perceived teacher relatedness and perceived peer relatedness at time point two with agentic engagement at time point three. Once again agentic engagement at time point two was entered to control for its effect on agentic engagement on
time point three. As compared to the regression in the first part of the question, these results were statically significant. Perceived autonomy, competence, teacher relatedness and peer relatedness predicted agentic engagement at time point three, $R^2$-change= .06 $F$-change (4,162) = 7.34, $p < .01$ The overall influence of perceived autonomy, perceived competence, and perceived teacher relatedness and perceived peer relatedness (time two) on agentic engagement (time three) was small at 6%, however these influences did demonstrate statistical significance. Only two independent variables at time point two contributed to the predicted change in agentic engagement at time point three: perceived competence, $b= .11$ (CI: .01, .21), $t(162) = 2.20, p < .05$; and perceived teacher relatedness, $b= .17$ (CI: .03, .31), $t(162) = 2.34, p < .05$. Therefore, it was demonstrated that for every unit increase in the independent variable of perceived competence (time point two) the predicted agentic engagement (time point three) increased by .11. Similarly, for every unit increase in the independent variable of perceived teacher relatedness (time point two) the predicted agentic engagement (time point three) increased by .17. Although statistically significant these predictions are quite small.

**Question 2.** Is there a reciprocal relationship among agentic engagement and perceived teacher support for autonomy, competence, and relatedness? This question centers on students’ perceived support from their teacher of the variables of autonomy, competence and relatedness. To test for regression, separate regressions were run to determine the reciprocal effects of each individual variable in relation to agentic engagement. To simplify the reporting of the regressions in answering question 2, it is important to note that all regressions controlled for the same predicted variable in the previous time point. For example, if the regression was
done to determine the influence of agentic engagement (time point 1) on perceived autonomy (time point 2) then the regression controlled for agentic engagement at time point two in order to see the unique influence of autonomy. This was done in order to establish change from one time point to the next time point.

**Reciprocity of Autonomy and Agentic Engagement.** Four separate regressions were run to determine the reciprocal relationship between perceived autonomy and agentic engagement at time points one to two and two to three (See table 12). Degrees of freedom for the statistics shown in the table were (1, 167).

Table 12

*Reciprocity of autonomy and agentic engagement times 1 to 2 and 2 to 3.*

<table>
<thead>
<tr>
<th>IV</th>
<th>Time Pt.</th>
<th>DV</th>
<th>Time Pt.</th>
<th>$R^2$</th>
<th>$R^2$ Change</th>
<th>$F$ Change</th>
<th>Sig. $f$ change</th>
<th>$b$</th>
<th>CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto.</td>
<td>1</td>
<td>AE</td>
<td>2</td>
<td>.48</td>
<td>.00</td>
<td>.04</td>
<td>.84</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AE</td>
<td>1</td>
<td>Auto.</td>
<td>2</td>
<td>.58</td>
<td>.02</td>
<td>8.25</td>
<td>.00</td>
<td>.20</td>
<td>.06, .33</td>
<td>.20</td>
</tr>
<tr>
<td>Auto.</td>
<td>2</td>
<td>AE</td>
<td>3</td>
<td>.59</td>
<td>.02</td>
<td>8.71</td>
<td>.00</td>
<td>.20</td>
<td>.06, .29</td>
<td>.20</td>
</tr>
<tr>
<td>AE</td>
<td>2</td>
<td>Auto.</td>
<td>3</td>
<td>.62</td>
<td>.00</td>
<td>1.02</td>
<td>.33</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>


The data suggest that there is not a reciprocal effect within each time point, but may be a reciprocal effect within the time frame of data collection (one school semester, 4 months).

The reciprocity of perceived autonomy and agentic engagement within the semester can be delineated as follows; agentic engagement predicted perceived autonomy (time point 1-2), and then reciprocally perceived autonomy predicted agentic engagement (time point 2-3). See figure 5 for a visual of this reciprocal effect within the data collection.
Reciprocity of competence and agentic engagement. Following the regression for perceived autonomy and perceived competence, four separate regressions were run to determine the reciprocity of competence and agentic engagement. Table 13 and diagram 6 demonstrate the reciprocity of these two variables. Once again degrees of freedom were 1, 167.
Reciprocity of competence and agentic engagement times 1 to 2 and 2 to 3.

<table>
<thead>
<tr>
<th>IV</th>
<th>Time Pt.</th>
<th>DV</th>
<th>Time Pt.</th>
<th>( R^2 )</th>
<th>( R^2 ) Change</th>
<th>( F ) Change</th>
<th>Sig. ( f ) change</th>
<th>( b )</th>
<th>CI</th>
<th>( t )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp.</td>
<td>1</td>
<td>AE</td>
<td>2</td>
<td>.50</td>
<td>.00</td>
<td>.27</td>
<td>.61</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AE</td>
<td>1</td>
<td>Comp.</td>
<td>2</td>
<td>.47</td>
<td>.01</td>
<td>3.73</td>
<td>.06</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Comp.</td>
<td>2</td>
<td>AE</td>
<td>3</td>
<td>.06</td>
<td>.04</td>
<td>14.88</td>
<td>.00</td>
<td>.20</td>
<td>.08, .27</td>
<td>.20</td>
<td>.00</td>
</tr>
<tr>
<td>AE</td>
<td>2</td>
<td>Comp.</td>
<td>3</td>
<td>.52</td>
<td>.01</td>
<td>2.67</td>
<td>.11</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. Comp. = Perceived competence support; AE = Agentic Engagement.

For perceived competence, agentic engagement almost predicted competence (.06), but was not statistically significant (time point 1-2). However, competence did predict agentic engagement (time point 2-3). See figure 6 for a visual representation of these four regressions.

Therefore, it can be surmised that there was no reciprocity between competence and agentic engagement within each time point or within the time frame of the study.

Reciprocity of teacher relatedness and agentic engagement. Lastly, four more individual regressions were analyzed to determine the reciprocity of perceived teacher...
relatedness and agentic engagement. Table 14 and diagram 7 demonstrate the reciprocity of these two variables. Once again degree of freedom were 1, 16

Table 14

Reciprocity of teacher relatedness and agentic engagement times 1 to 2 and 2 to 3.

<table>
<thead>
<tr>
<th>IV</th>
<th>Time Pt.</th>
<th>DV</th>
<th>Time pt.</th>
<th>$R^2$</th>
<th>$R^2$ Change</th>
<th>$F$ Change</th>
<th>Sig. f change</th>
<th>$b$</th>
<th>CI</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relate</td>
<td>1</td>
<td>AE</td>
<td>2</td>
<td>.48</td>
<td>.00</td>
<td>.02</td>
<td>.89</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AE</td>
<td>1</td>
<td>Relate</td>
<td>2</td>
<td>.48</td>
<td>.01</td>
<td>4.48</td>
<td>.04</td>
<td>.10</td>
<td>.01,.27</td>
<td>.10</td>
<td>.00</td>
</tr>
<tr>
<td>Relate</td>
<td>2</td>
<td>AE</td>
<td>3</td>
<td>.61</td>
<td>.05</td>
<td>21.78</td>
<td>.00</td>
<td>.30</td>
<td>.16,.40</td>
<td>.30</td>
<td>.00</td>
</tr>
<tr>
<td>AE</td>
<td>2</td>
<td>Relate</td>
<td>3</td>
<td>.52</td>
<td>.02</td>
<td>6.28</td>
<td>.01</td>
<td>.10</td>
<td>.03,.25</td>
<td>.20</td>
<td>.00</td>
</tr>
</tbody>
</table>


Perceived teacher relatedness statistically proved to be the most reciprocal within each time point and throughout the semester. Agentic engagement predicted teacher relatedness at time points (1-2, 2-3). Teacher relatedness predicted agentic engagement from time point 2-3. See figure 7 for visual representation of these four regressions.

![Figure 7](image)

*Figure 7. Reciprocal relationship between perceived teacher relatedness and agentic engagement. Solid lines represent significance and dotted lines represent non-significance.*
It is interesting to note that in most cases agentic engagement predicted the other variable in time points one-two, but not in time points two-three. On the flip side, all perceived support variables predicted agentic engagement in time point two to three, but not in time points one to two. Overall, reciprocity was evident over the entire semester, but not within each of the time points. Only perceived teacher relatedness and agentic engagement at time point 3 was reciprocally significant within a time point (two to three).

**Question 3.** Is there a reciprocal relationship between agentic engagement and perceived peer support for relatedness? Question three focuses on the relationship between a students’ perceived peer support for relatedness and agentic engagement. Regression will be employed to determine reciprocity at all time points. Similar to question 2, four regressions were run to determine the reciprocity of agentic engagement and perceived peer support. Once again this was done to understand the reciprocal relationship between perceived peer support for relatedness and agentic engagement. Each individual regression shows one aspect of the reciprocal process. As with question two, all regressions controlled for the same predicted variable in the previous time point. Table 15 and diagram 8 demonstrate the reciprocity of these two variables. Degrees of freedom were 1, 167.
Table 15

Reciprocity of peer relatedness and agentic engagement times 1 to 2 and 2 to 3.

<table>
<thead>
<tr>
<th>IV</th>
<th>Time Pt.</th>
<th>DV</th>
<th>Time Pt.</th>
<th>$R^2$</th>
<th>$R^2$ Change</th>
<th>$F$ Change</th>
<th>Sig. $f$ change</th>
<th>$b$</th>
<th>CI</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relate</td>
<td>1</td>
<td>AE</td>
<td>2</td>
<td>.50</td>
<td>.02</td>
<td>5.4</td>
<td>.02, .13</td>
<td>.02</td>
<td>.24</td>
<td>.14</td>
<td>2.3</td>
</tr>
<tr>
<td>AE</td>
<td>1</td>
<td>Relate</td>
<td>2</td>
<td>.43</td>
<td>0</td>
<td>1.95</td>
<td>.16</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Relate</td>
<td>2</td>
<td>AE</td>
<td>3</td>
<td>.60</td>
<td>.01</td>
<td>5.07</td>
<td>.03, .13</td>
<td>.02</td>
<td>.23</td>
<td>.13</td>
<td>2.2</td>
</tr>
<tr>
<td>AE</td>
<td>2</td>
<td>Relate</td>
<td>3</td>
<td>.46</td>
<td>0</td>
<td>1.58</td>
<td>.21</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. Relate. = Perceived Peer Relatedness; AE = Agentic Engagement.

Statistical results found in table 15, demonstrate that a students’ perceived relatedness with his or her classmates is not reciprocal with agentic engagement within the specific time point or within the semester. Perceived peer relatedness had influence on agentic engagement at both time points. Whereas, agentic engagement had no statistical influence on perceived peer relatedness. (See figure 8 for visual representation).

Figure 8. Reciprocal relationship between perceived peer relatedness and agentic engagement. Solid lines represent significance and dotted lines represent non-significance.
As can be seen and stated above, there was no reciprocal relationship between agentic engagement and perceived peer relatedness. However it is to be noted that perceived peer relatedness predicted agentic engagement at both time points.

**Question 4.** Does agentic engagement mediate support from multiple social partners and achievement? The variable which was designed to demonstrate achievement was that of class grade. However, as previously stated class grade was not normally distributed but quite homogeneous, it was therefore not suitable to be used for regression because it violated the assumptions of linearity on which regression is based. Logarithmic transformation was therefore employed (Tabachnick & Fidell, 2013) in an attempt to normalize the self-reported class grade data, however this did not repair the normality of the distribution.

As question four identifies, it was hypothesized that agentic engagement would mediate support from social partners and achievement. Mediation is based on the linear model, and therefore requires the assumption of linearity and a homogenous sample. Consequently, it was not statistical possible to determine regression and subsequent mediation with the current data.

Even though mediation was not possible, as stated, correlations can be used to get an idea of the overall relationship of variables. According to Baron and Kenny (1986) the first two steps in demonstrating mediation is to show that the casual variable (perceived support from multiple social partners) is correlated with the outcome (achievement). Additionally, the casual variable must be correlated with the mediator (agentic engagement). Lastly, the mediator (agentic engagement) must be correlated with the outcome (achievement). Therefore, even
though mediation will not be possible with the current data, the correlations can give a basic understanding of the relationship. Some of these correlations have been delineated in the beginning of this chapter, however each correlation will be explained in light of question four.

Correlations in connection with class grading will be analyzed using Spearman’s correlation coefficient as explained previously. In order to see the temporal order of each of the three time points—perceived support from multiple social partners will be from time point one, agentic engagement will be from time point two, and class grade will be from time point 3. Figure 9 indicates the correlations of each of these variables from the specified time points.

![Correlation Diagram](image)

*Figure 9. The casual variables of perceived support by multiple social support is correlated with agentic engagement. **= a significant correlation at the .01 level.*

As can be seen all correlations between perceived support from multiple social partners and agentic engagement are statistically significant, which fulfills the first step in demonstrating mediation.
Figure 10. Only autonomy and competence are significantly correlated with class grades. ** = a significant correlation at the .01 level. * = a significant correlation at the .05 level.

In diagram ten, agentic engagement, perceived teacher relatedness, and perceived classmate relatedness did not correlate with class grade. Only autonomy and perceived competence were significantly correlated. In order for mediation to happen, agentic engagement must be correlated to class grades, and this is simply not the case. Consequently, because there is no correlation with the mediation variable (agentic engagement) and the outcome variable (class grade) no further statistical analysis will be performed. In summation, because the class grade variable is homogenous (making mediation statistics invalid) and no correlation is found between agentic engagement and class grade, the understanding of mediation remains largely unanswered.
**Qualitative Teacher Survey**

In order to give further contextualization to each of the variables in this study, the teachers were asked to respond to a survey. This was done to see the bigger picture of agentic engagement and perceived support from social partners. This quasi triangulation demonstrated the teachers’ perspective on the studied variables.

Although this study is not a mixed methods study, teachers were asked to respond to a survey (see appendix) that was worded with the same questions on the student survey. Teachers were asked to write a short response to each item and give examples if possible. Teachers were asked to respond to the survey thinking about the class as a whole at the third and final time point. The teacher survey started with demographic questions. All teachers whose classes participated in this study also participated in the teacher’s survey. Overall, there were five total teachers, with experience ranging from 10 to 22 years as an educator. Moreover, these five teachers (4 male, 1 female) had been teaching American history for 3, 10, 18, 21, and 22 years respectively. Because of the redundancy of filling out the same survey (17 questions, short answers) for each class, teachers filled out at least one full survey and then simply added additional thoughts to the following survey if applicable. This was done to be respectful of the time of each of the teachers. Overall, there were 13 surveys completed. Obviously the sample size is small, however means and standard deviations are presented in table 16 in order to add to the overall contextualization of each of the variables. As can be seen in table 16 the mean scores for participants at time point three are compared with the mean scores of teachers at time point 3.
Table 16

*Descriptive Statistics variables - Students compared to teachers at time point 3.*

<table>
<thead>
<tr>
<th></th>
<th>Student M</th>
<th>Student SD</th>
<th>Teacher M</th>
<th>Teacher SD</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agentic Engage.</td>
<td>4.93</td>
<td>1.18</td>
<td>5.05</td>
<td>.92</td>
<td>.12</td>
</tr>
<tr>
<td>Autonomy</td>
<td>4.88</td>
<td>1.27</td>
<td>5.26</td>
<td>.83</td>
<td>.38</td>
</tr>
<tr>
<td>Competence</td>
<td>4.73</td>
<td>1.38</td>
<td>4.56</td>
<td>.64</td>
<td>.17</td>
</tr>
<tr>
<td>Teacher Related.</td>
<td>5.28</td>
<td>1.01</td>
<td>5.25</td>
<td>.86</td>
<td>.03</td>
</tr>
<tr>
<td>Class Relatedness</td>
<td>4.94</td>
<td>1.10</td>
<td>5.54</td>
<td>.70</td>
<td>.60</td>
</tr>
</tbody>
</table>

Note. M = Mean; SD = Standard Deviation; Difference = is the between the students’ mean score and the teachers’ mean score for each variable.

Although the sample size of teacher responses is small it can be seen from table 16 that teachers scored engagement, autonomy, competence and teacher relatedness quite similarly to that of students. However that was not the case when it came to scoring perceived classmate relatedness. This may be the case because teachers did not feel that they could understand this variable. As teachers sought to explain perceived peer relatedness, many of them mentioned that they felt that their responses were “not sure” on this construct.

**Content Analysis**

The goal of this content analysis was to contextualize and gain further understanding about agentic engagement, autonomy, competence and relatedness from a different perspective. As stated there were only 5 teachers and each teacher only took time to fully fill out (answer all the short answers) one survey. Several teachers went beyond this minimum requirement and added a few short answer responses for each class. Therefore, the results give
us the ability to see another perspective and contextualize the data, but not enough information to make inferences and implicate overarching themes. However content analysis was utilized to explore what information was given by the teachers.

Content procured from teacher surveys were analyzed based on content analysis. Specifically, the use of directed content analysis (Hsieh and Shannon, 2005) was employed in this study. Directed content analysis was used because agentic engagement and self-determination theory are both grounded in known theory. Additionally, because agentic engagement is a relatively new construct directed content analysis is applicable. Directed content analysis is appropriate to use “to validate or extend conceptually a theoretical framework or theory” (Hsieh & Shannon, 2005, p.1281). This type of deductive research allowed for theory to drive understanding of the concept as well as an opportunity to garner further understanding of these constructs. The content analysis was divided into each of the five variables; agentic engagement, autonomy, competence, teacher relatedness, and classmate relatedness. This was easily done because the survey is already divided into these categories. Once again because the goal of this content analysis was to contextualize and understand an alternate perspective the research selected quotes that best demonstrated the teachers’ perspective. Therefore, quotes may only represent one teacher’s opinion and should not be viewed as representing all teachers in this study. Themes were derived within each category by the researcher as a way to organize the data. Within each theme teachers’ quotes were recorded to demonstrate the overall theme. Please note that almost every applicable quote for each theme was included in the results. Therefore the amount of quotes allows the reader to see the replication or lack thereof of each theme. This was done because it allows the
reader see the perspective of the teacher and contextualize the quantitative findings of this study. One of the limitations of this process is that only the researcher determined what quotes and themes emerged from the teacher survey. More data and further coders would be needed to further understand teachers’ perspective of the selected variables. However the information garnered allows a small window into the perspective of the teacher.

**Agentic Engagement.** Three ideas emerged from teachers’ responses in regard to agentic engagement; 1) a teachers desire to help, 2) things that impede agentic engagement, and 3) indications of what agentic engagement looks like in the classroom. One teacher’s response seemed to encapsulate the overall teachers’ desire to facilitate agentic engagement in the class. The teacher responded as follows, “I hope that they feel free to express their ideas [but I may not] give them enough opportunities to do so.” This teacher seems to know the importance of allowing students to express their ideas, yet does not completely know how to make that happen in the classroom. However, this quote gives the overall feel that he or she has a desire to allow this kind of interaction in the classroom.

The following things were listed as reasons students did not agentically engage in the classroom. They (students) “only ask about things on the test or for their grade.” Another teacher describes the reason why students give limited feedback, “the State pretty well dictates what is to be taught.” In other words, it seems that this teacher is expressing that students cannot give feedback because of the constraints of the curriculum. Another teacher expressed a similar constraint to agentic engagement by bemoaning the fact that students are accustomed to going along with what teachers decide. Furthermore, students only express opinions when they express dislike for something. Additionally, a teacher stated, “most
students will leave class confused or ask their neighbor before they ask questions to the teacher.” One teacher got right to the point and explained that the reason most students do not share things in the classroom is because of students’ apathy. Three words summarize the teachers’ view of things that thwart agentic engagement; rigidity, relatedness, and desire. Rigidity (curriculum or when the teacher decides what happens in the classroom), relatedness (when students do not feel comfortable enough to ask the teacher questions), desire (when the students are apathetic). These three themes represent what teachers view as deterrents to agentic engagement.

The last theme that emerged was examples and affordances of agentic engagement in the classroom. The following phrases from the teachers highlight these examples; “strong desire to learn,” “outspoken class,” “more confident,” “asks frequent questions.” In addition, many teachers indicated that occasionally students would let them know their likes and dislikes on a particular topic. Teachers view desire and confidence as keys to agentic engagement.

In summary, teachers describe what is needed in order for agentic engagement to flourish in the classroom. Agentic engagement may happen when a student’s desire and confidence is complemented with a classroom that is not rigid and allows them to feel comfortable asking questions. From this summary it can be seen that there are many factors that facilitate agentic engagement.

**Autonomy support.** Two similar themes emerged in the response of teachers in regard to autonomy in the classroom. First, teachers’ desire to facilitate autonomy. And second, things that impede autonomy. The phrase that best captures the teachers’ desire is the following; “I’d
love to hear from them and encourage response.” The more prominent theme was what impedes autonomy. One teacher expressed that the reason students do not express their opinion is not for lack of autonomy but because “they are afraid of what their peers think.” Teachers cited several reasons why more autonomy may not be afforded in the classroom. First, a teacher stated the following, “It is difficult to ‘open things up’ because student(s) feel free expression means I can play on my phone or would prefer not do anything.” Another teacher indicated that because they have a consistent routine that they believe students do not have enough opportunities in this area. It would seem that some teachers desire their students to feel autonomous, whereas others fear giving autonomy to students in the classroom.

**Competence.** For whatever reason teachers’ comments on the variable of competence were brief. The only apt thing to note is the comment one teacher said in regard to the question that asked about enjoying the challenges this class provides. The teacher said, “I don’t think a lot of students enjoy learning unless they love the subject.” This connection between competence and a student’s love for the subject is insightful.

**Teacher Relatedness.** Teachers commented even less on teacher relatedness. Many of their responses indicated that they were unsure how to answer questions about teacher relatedness. They hoped that their students felt that they cared for them, but they were not sure. Two quotes from two different teachers highlight this idea; “I have not really asked” and “they never said I was mean.” To sum up, one teacher linked the idea that because he/she had “really good kids who were serious about school” that this created a positive environment. In other words, because of this positive environment (created by his students), his/her students felt that the teacher was pretty friendly towards them. This idea is significant when viewed in
the overall context of this paper, especially how this relates to the reciprocity delineated therein.

**Classmate relatedness.** There were two straightforward themes from the responses from the teachers when considering classmate relatedness; things that they saw that encouraged classmate relatedness and things they felt impeded it. The following quotes indicate what created or enhanced classmate relatedness, “(they are) concerned about each other’s general wellbeing,” “they treat each other nice,” and “they are friendly to each other.” Reasons cited to indicate that there was not classmate relatedness were ideas such as, “they do not talk a lot in class” and “there are some personality conflicts or strong personalities,” and lastly the idea that some students are more outspoken. It is interesting that teachers feel that the lack of talking and personality conflicts are both seen as barriers to classmate relatedness.

Overall, the content analysis indicated that the teachers had a fairly good sense of the variables in this study. Furthermore, the results of this content analysis provide two beneficial things to this study. First, it adds a second perspective to the variables of this study. Second, it provides a rich contextual aspect to the quantitative nature of this study.
CHAPTER 5: DISCUSSION

Overview and interpretations of the findings

The natural setting of the classroom is interactive and dynamic. There are countless influences that contribute to the overall learning and achievement of students in the classroom. Support from social partners, namely teachers and classmates, exert influence on the overall learning environment and manifest changes in student engagement (Schunk & Pajares, 2009). Furthermore, the quality of student participation in learning activities can improve the overall learning environment (Skinner et al., 2009; Lee & Reeve, 2014; Reeve, 2013) and solicit reciprocal reactions from social partners (Furrer & Skinner, 2003; Skinner et al., 2009; Birch & Ladd, 1996). Student engagement also predicts achievement (Appleton, Christenson & Furlong, 2008; Jang 2012; Klem & Connell, 2004; Ladd & Dinella, 2009; Skinner, Kinddermann, Connell, & Wellborn, 2009). Therefore, the purpose of this short term longitudinal study was to determine the importance of students’ perceptions of support from multiple social partners on student agentic engagement (students’ proactive contribution to the classroom). It was the purpose of this study to describe the direction and strength of reciprocal influence among student agentic engagement and perceptions of social partner support. In conclusion, this study sought to investigate whether agentic engagement mediated the relationships among perceived support and student achievement. Overall, there is a need to understand the relatively new construct of agentic engagement. This study seeks to add to the understanding of what facilitates and thwarts agentic engagement. Results from each question are interpreted in order to fulfil this purpose.
**Question 1.** Does perceived support from multiple social partners uniquely influence agentic engagement over time? It was predicted that perceived support (perceived autonomy, perceived competence, perceived teacher relatedness and perceived peer relatedness) would uniquely influence agentic engagement at both time points. However, support from multiple social partners did not uniquely influence agentic engagement from time point one to time point two, but did from time point two to time point three.

From time point two to time point three perceived support (perceived autonomy, perceived competence, perceived teacher relatedness and perceived peer relatedness) had a small effect on agentic engagement. Only two variables added to this overall change, perceived competence and perceived teacher relatedness which had a small effect size. It would seem that when students feel comfortable and confident (in the last half of the semester) with the subject, they are more likely to engage. This was supported from one of the teacher’s comments, “I don’t think a lot of students enjoy learning unless they love the subject.” The importance of competence found in this study also confirms research by Akbari et al. (2015) that students who feel competent will be stimulated to discuss and share their thoughts (agentically engage).

**Perceived relatedness to teachers.** Perceived relatedness to teachers has long been connected to student engagement. Perceived teacher relatedness fosters engagement (Danielsen, Breivik & Wold, 2011), internalization (Ryan and Deci, 2000), and predicts changes in engagement throughout the school year (Furrer & Skinner, 2003). The results from question one, adds to our understanding of the influence of perceived competence and teacher
relatedness. Students who feel competent and related to the teacher at the middle of the semester are more likely to be agentically engaged at the end of the semester.

**Perceived autonomy.** Perhaps of greater importance to current research is to note that perceived autonomy did not significantly predict agentic engagement from time point one to time point two. Autonomy did demonstrate some influence on agentic engagement (question 2) when it was an isolated variable. However, in the combined regression, it had no influence. The fact that autonomy did not predict agentic engagement conflicts with current research that purports that autonomy augments student engagement (Assor, Kaplan, & Roth, 2002; Hyungshim, Reeve, Ryan, Kim, 2009; Reeve et al., 2004). Jang et al. (2012) reported that students’ mid-semester autonomy need satisfaction projected classroom engagement. Specific to agentic engagement, Reeve and Tseng (2011) also maintained that autonomy support has a positive effect on agentic engagement. It is unclear why autonomy did not influence agentic engagement in the overall regression in this study. Hospel and Galand (2016) compared autonomy support and structure with each of the traditional dimensions of engagement (behavior, cognitive and emotional). They contend that in their study (comprising ninth graders in a language art classroom) autonomy support only has a specific association with emotional engagement and not cognitive and behavioral engagement (Hospel & Galand, 2016). This finding that autonomy support only predicts emotional engagement is consistent with Skinner and Belmont (1993) and Wang & Eccles (2013) that found that structure, not autonomy support had a positive main effect. Wang and Eccles (2013) further found that autonomy support had a main effect on emotional engagement. As stated, agentic engagement is theorized to be a distinct dimension when compared to behavioral, cognitive, and emotional engagement.
However, it most closely aligns with behavioral engagement as can be seen in figure 1 at the beginning of this study. Therefore, these results (Hospel & Galand, 2016; Skinner and Belmont, 1993; & Wang & Eccles, 2013) that demonstrate that autonomy support does not have a main effect on behavioral engagement could describe why autonomy support does not have an effect on agentic engagement. Clearly, more research is needed to understand this relationship, however this is a possible reason autonomy support did not predict agentic engagement.

It is interesting that there may be a difference in what influences agentic engagement at different points in the semester. No other relevant longitudinal studies (Jang, Kim & Reeve, 2012; Reeve & Lee, 2014) demonstrate similar findings or illuminate this question. The fact that different things influence agentic engagement at different times may simply bring up further questions. Why does teacher relatedness not influence agentic engagement at the beginning of the semester but does in the middle of the semester? Does it take that long to develop a relationship with a teacher in order for you to feel comfortable in proactively engaging in the classroom? What can be done to enhance teacher relatedness earlier in the semester in order to facilitate agentic engagement? In summary, agentic engagement is influenced by peer relatedness at the beginning of the semester and by competence and teacher relatedness in the middle of the semester. This finding may stem from the timing of the surveys as well as the time that is needed to develop students’ perceptions of these variables.

**Question 2.** Is there a reciprocal relationship among agentic engagement and perceived teacher support for autonomy, competence, and relatedness? Comparing the variables of perceived teacher support with agentic engagement provided an understanding of the possible
reciprocity of variables. Perceived autonomy support and engagement did not reciprocally predict each other within a single time point (see figure 5). However, perceived autonomy demonstrated reciprocity over the entire semester. Only perceived teacher relatedness demonstrated reciprocity (predicted each other) within time point two and time point three (see figure 7). These results build off of findings (Reeve, 2013) that demonstrated that perceived relatedness to teachers at mid-semester predicts semester-end agentic engagement. And also, shows the importance of development between the teacher-student relationships during the last half of the semester. Although, students perceptions of teacher relatedness were not related to agentic engagement at the beginning of the semester (which is to be expected), findings demonstrated that in the last half of the semester perceived teacher relatedness influenced agentic engagement and agentic engagement influenced perceived teacher relatedness. Relevant research (Danielsen, Breivik & Wold, 2011; Ryan and Deci, 2000; Furrer & Skinner, 2003) as cited in the discussion of question one, has confirmed that teacher relatedness influences engagement. However, no other study has focused on teacher relatedness and agentic engagement.

Reciprocity. Reeve and Lee (2014), discuss how all the aspects of self-determination theory contribute to the overall classroom motivation that influences the overall classroom engagement. Reeve and Lee posit that student motivation is important because it facilitates student engagement. This current study adds and extends to this reciprocal model that states: changes in engagement lead to corresponding longitudinal changes in classroom motivation (psychological need, self-efficacy, and mastery goal) and vice a versa. However, the present study specifically conceptualizes agentic engagement as the precursor and the outcome.
Therefore, it is important to note that agentic engagement influences and is influenced by teacher relatedness in the last half of the semester. This finding adds to our overall understanding of agentic engagement and the reciprocity thereof. In other words, teacher relatedness cannot be overlooked as an important factor in the facilitation of agentic engagement. Furthermore, it is interesting that the catalyst for teacher relatedness was shown to be agentic engagement. According to this study, students who report higher levels of agentic engagement at the beginning of the semester predicted perceived teacher relatedness at the mid-point of the semester. This in turn reciprocally led to further agentic engagement and perceived teacher relatedness.

These findings align with research by Skinner et al. (2009) that advanced the idea that the influence of engagement flows in both directions; thereby creating amplifying feedforward and feedback loops which reinforce virtuous or vicious cycles in a way that the “rich get richer” and the “poor get poorer.” The results of question two support this type of reciprocity with agentic engagement and teacher relatedness. The more agentic engagement, the more perceived teacher relatedness. The less agentic engagement, the less perceived teacher relatedness. In the survey given to the teachers, on teacher described this link that because he/she had “really good kids who were serious about school” that this created a positive environment. This teacher is describing this reciprocal influence.

**Perceived autonomy support.** As stated, perceived autonomy support and agentic engagement did not reciprocally predict each other within a single time point (see figure 5). However, perceived autonomy demonstrated reciprocity over the entire semester. Over the semester agentic engagement (time point 1) led to perceived autonomy support (time point 2)
which led back to agentic engagement (time point 3). As stated in question one, theory and research (Assor, Kaplan, & Roth, 2002; Hyungshim, Reeve, Ryan, Kim, 2009; Reeve et al., 2004) have demonstrated that autonomy support enhances engagement. The results of this current study suggest that although perceived autonomy support, when viewed with other variables does not statistically influence agentic engagement, there is statistical influence in the last part of the semester when viewed as a single variable. This may be due to the substantial correlation among the measures. One more time point may be needed to see if autonomy support would again predict agentic engagement.

Agentic engagement predicted perceived autonomy support at both time points. Traditionally, as seen in the self-system model of motivational development (derived from self-determination theory), engagement has been viewed as a reflection of how well a particular context is able to meet an individual’s needs of relatedness, competence, and autonomy. Although this is true in this particular study, that is only part of the equation. Agentic engagement predicted autonomy support, as mentioned by Reeve (2013), as a student engages agentically, they are not passively being taught, but they create a more motivationally supportive environment for themselves and others. Lastly, the reciprocal results from question two of this study are in harmony with the transactional model (Sameroff, 1975) that states that children affect their environment and the environment affects children (Culp, 2010). In other words, this study shows that not only does motivational support influence agentic engagement, but agentic engagement reciprocally influenced motivational support over the entire semester.

In summary, agentic engagement predicted two of the three aspects of self-determination theory (perceived autonomy support and perceived teacher relatedness) from
time point one to time point two. Which in turn predicted agentic engagement at time point three. The only aspect of SDT that agentic engagement did not predict was the aspect of perceived competence. There was a reciprocal relationship over the course of the semester for agentic engagement and perceived autonomy support as well as for agentic engagement and perceived teacher relatedness.

**Question 3.** Is there a reciprocal relationship between agentic engagement and perceived peer support for relatedness? Perceived peer relatedness predicted agentic engagement at both time points. However, agentic engagement did not predict perceived peer relatedness at any of the time points. The finding that agentic engagement did not predict perceived peer relatedness is in line with current research (Furrer and Skinner, 2003; Danielsen, Breivik, and Wold, 2011; Nelson and DeBacker, 2008) and theory. These studies highlight the fact that perceived peer relatedness influences engagement. It was theorized that the more that students interact in the classroom via engagement, the more that they build a sense of relatedness with each other. This in part comes from Kindermann (2011) that there is a reciprocity between student interaction and teacher support. Kindermann (2011) explained the process as follows; students engage in the classroom, this makes the teacher’s life more enjoyable, which leads the teacher to become more involved with the students. This reciprocity was not found in this study. More research is needed to understand this dynamic, especially as it relates to agentic engagement.

**Importance of peer relatedness.** Although peer relatedness did not demonstrate reciprocity, these findings highlight one of the key aspects in facilitating agentic engagement. Peer relatedness, as a predictor of agentic engagement, is pivotal to the understanding of what
facilitates agentic engagement in the classroom. This is because students must feel comfortable with their peers before they will agentially engage in the classroom. To date, this is the first quantitative study that has shown that for agentic engagement to flourish in the classroom, perceived classmate relatedness must be a part of the equation. This may be in part because of the proactive and interactional aspect of agentic engagement. Students will ask questions or share thoughts if they are comfortable with their peers especially among the adolescent population. Research has verified (Christenson, Lehr, & Anderson, 2003) that a student who feels comfortable with his or her classmates will be more likely to proactively engage in the classroom (Ryan & Patrick, 2001).

From the teacher survey, one teacher aptly expressed that the reason students do not express their opinion is not for lack of autonomy but because “they are afraid of what their peers think.” This teacher acknowledges that in order for students to share their thoughts they must be comfortable with their peers in the classroom. This is the first quantitative study to date to show the importance of peer relatedness specifically with the variable of agentic engagement. This adds to the qualitative findings of Wakefield and Marchand (2015), which state that students need to feel comfortable with their peers in order to agentially engage in the classroom.

In conclusion, agentic engagement and perceived peer relatedness were not found to be reciprocal. Although the effect size was small, the importance of peer relatedness as a facilitator of agentic engagement is important to recognize.
The Big Picture

Before moving to the discussion of achievement variable (question four) it is important to see the big picture of the results. The following conceptual diagram illustrates the results as have been discussed.

![Conceptual Diagram](image)

Figure 11. The big picture. Significance is represented by the solid line. The double-headed arrow represents the reciprocal influence of agentic engagement time 2 on teacher relatedness time 3.

Overall, this diagram shows the reciprocity over the span of the semester. Agentic engagement is the catalyst and ending points for each of motivational variables. It is interesting to note that all the variables in time point 2 predict agentic engagement in time point three.

**Question 4.** Does agentic engagement mediate support from multiple social partners and achievement? As seen in chapter four, this question was unable to be answered because the variable class grade was not normally distributed. However, the correlations of this study
as well as the results of other studies will be discussed. Furthermore, an explanation of results will be delineated.

As stated, research has proven that student engagement in the classroom is linked to higher student achievement (Appleton, Christenson & Furlong, 2008; Jang 2012; Klem & Connell, 2004; Ladd & Dinella, 2009; Skinner, Kindermann, Connell, & Wellborn, 2009). With that said, it is important to note that the cited articles included all the traditional dimensions of engagement (behavioral, emotional, cognitive), and not agentic engagement. Reeve and Lee (2014) found that changes in engagement predicted course achievement, using all four dimensions of engagement (agentic, behavioral, emotional, and cognitive). This current study sought to understand the role of agentic engagement and achievement. This followed the research of Reeve and Tseng (2011) that demonstrated that agentic engagement uniquely explained the variance in student engagement above and beyond the other dimensions of student engagement. Reeve and Tseng cited a moderate correlation between agentic engagement and achievement. Furthermore, after controlling for the other engagement variables, agentic engagement explained independent variance. Reeve and Tseng also reported that agentic engagement mediated between psychological need satisfaction and achievement. Because the results have not been replicated in this study or any other study to date, more research is needed. Furthermore, this research was done in Taiwan and so it may not be generalizable to western educational culture. However, the cited research offers a glimpse of possible outcomes of this study.

Correlations from agentic engagement at time point 2 to achievement time point 3 were not significant. However, according to table 9, agentic engagement at time point 3 was
associated with achievement at time point 3. Accordingly, even though there was no correlation between agentic engagement (time point two) with achievement (time point three), students who had high agentic engagement at the end of the semester correlated with those who had high achievement (final grade). Even though the connection between achievement and agentic engagement was not proven in this study this does not necessarily mean that there is no association. One other study (Reeve and Lee, 2014) has demonstrated the connection and even mediation between agentic engagement and achievement. Furthermore, there could be alternative explanations that could clarify why there was not a significant relationship between agentic engagement and achievement. First, agentic engagement, although important for learning, simply may not have a strong of correlation with achievement. And secondly, the lack of correlation could be attributed to the domain (U.S. History) that was being taught. Grades in these classes may be based on tests and memorization that may not be correlated with proactive engagement in the classroom. Much more research is needed to understand the relationship between agentic engagement and achievement.

**Educational implications**

**Agentic Engagement Defined**

In order to understand the educational implications and how to facilitate agentic engagement, it is important to simplify the definition of agentic engagement. The first principle of agentic engagement is that students and teacher share the role and responsibility of successful learning in the classroom. Agentic engagement simply means that in the classroom students are proactive and have the power to influence what happens in the classroom.
Students who are agentically engaged do the following things. They express their preferences during classroom discussions. Students ask questions and let their teacher know what they like, need, and want in regards to their learning. Students who are agentically engaged seek to make the learning environment more interesting to themselves. They work with their teacher to create an ideal learning environment. It happens when a student is given the opportunity to proactively and intentionally control his or her own learning, within the social context of the classroom. Wakefield and Marchand (2015), students defined what agentic engagement would look like with the following three quotes: “Being curious about something,” “Students working along with teachers to produce higher education standards and abilities,” and “Giving students the power to receive the education they desire.” These student definitions encapsulate what agentic engagement might look like in the classroom.

**Benefits of agentic engagement for students and teachers**

First and foremost, how does agentic engagement benefit the student? “To be an agent is to influence intentionally one’s functioning and life circumstances” (Bandura, 2006, p. 164). At the heart of every individual is the desire to have choice and the ability to influence one’s own life. A learner who is given the opportunity to proactively and intentionally control his or her own learning, within the social context of the classroom, is empowered to learn effectively as well as help those around him or her learn effectively. In other words, students participate in class because they enjoy the level of engagement and learning they are experiencing. Students who agentically engages in the classroom is empowered to not only passively react to the educational environment, but to be proactive in the class. As can be seen by this study, when a student agentically engages in the classroom he or she can create motivational support (Reeve
and Lee, 2014) in the form of a good student-teacher relationship (teacher relatedness). Which in turn supports and predicts agentic engagement. This proactive, willing, and intentional environment allows deep learning to take place. Deep learning goes beyond rote memorization and facts, and allows a student to internalize what is being taught. In other words, because they feel important and empowered they want to internalize the knowledge and practices around them, (Ryan & Deci, 2009) which leads to integration of extrinsically motivated activities. In summary, a student can help create a learning environment in which they are both empowered and benefit from deep learning experiences.

The stated definition and explanation of benefits for students also demonstrate how teachers benefit from agentically engaged students. As stated, when students agentically engage they create a motivationally supportive environment. Teachers benefit from this because students are an active and integral part of the classroom. Teachers no longer have to stand at the front of the room and give a lecture, but instead an open dialogue is created that is both exciting and rewarding for teacher and students alike. Instead of teachers feeling like they have to force students to learn, students are willingly participating. Teachers benefit from this proactive, willing and intentional classroom environment. Having established the basis of the benefits for both teacher and student, the implications for facilitating agentic engagement in the classroom will now be discussed.

**Facilitating agentic engagement**

**Teacher relatedness.** According the results of this study, one of the foremost ways a teacher facilitates agentic engagement is through the interpersonal relationship (teacher
relatedness) that is established between teacher and student. The interpersonal relationship between student and teacher can foster persistence, engagement, and eventually internalization (Ryan and Deci, 2000;Danielsen, Breivik & Wold, 2011). Relatedness has also shown to predict student engagement and help students persist and sustain academic pursuits in the face of difficulty (Connell & Wellborn, 1991:Skinner & Belmont, 1993; Furrer & Skinner, 2003). This current study adds to current research that teacher relatedness is one of the key factors in facilitating engagement in the classroom. This is the only variable that was reciprocal within a time point, meaning that agentic engagement predicted a positive interpersonal relationship between student and teacher and this positive relationship predicted agentic engagement. Once again this is in line with Wakefield and Marchand (2015), which found four subcategories that describe the importance of this interpersonal relationship. Each of these subcategories are followed by a quote from a student as they discussed agentic engagement in the High School classroom. First, connection, “teacher makes a connection with somebody.” Second, understanding, “need a willing and understanding teacher.” Third, concern, “the teacher expresses genuine concern.” And last, openness, “the teacher allows and answers questions.” Therefore as found in this current study, one of the keys to the facilitation of agentic engagement is the creation of positive relationships. Teachers can facilitate this relationship through connection, understanding, concern and openness. This implication will likely not surprise educators, however as teachers seek to create warm and caring relationships with their students, agentic engagement will be more likely facilitated. Reciprocally, students’ agentic engagement facilitates and enhances the teacher and student relationship.
This reciprocity parallels the concept by Skinner et al. (2009) that advanced the idea that the influence of engagement flows in both directions creating amplifying feedforward and feedback loops which reinforce virtuous or vicious cycles in a way that the motivationally rich students get richer and the motivationally poor student get poorer. Consequently, a teacher who understands this process should do everything in their ability to facilitate and nourish the “virtuous cycle” of engagement by facilitating warm and caring relationships. Two other variables, autonomy and competence, as found in self-determination theory are also important aspects of this virtuous or vicious cycle. In order to understand how to facilitate agentic engagement each of these variables need to be simply defined.

**Autonomy.** People experience autonomy when the social context of learning affords them a sense of psychological freedom and perceived choice over one’s own actions (Reeve, 2012). In other words, autonomy in the classroom is when students experience a sense of self-government in their learning. Autonomy in the classroom is the opposite of coercion. This does not mean that students can do whatever they want, but that they feel that they have some control of what they are learning and how they are learning it. Students are a part of the process and not just forced to do the will and whim of the teacher. A classroom that supports autonomy allows for student led and directed discussions based on students’ questions regarding the learning. This is in contrast the teacher always leading and directing the discussions. Students are giving the opportunity to ask relevant questions rather than the teacher asking all of the questions. Another way that teachers can facilitate autonomy is by allowing students to help decide which topics they might be studying or have choices in regards to projects within certain parameters. They might also help teachers know when they are
ready to move on to the next concept in a math class or suggest ways to help learn new science concept. Teachers should also seek to support autonomy. According to the present study agentic engagement predicted autonomy support at the middle of the semester which in turn predicted agentic engagement.

**Competence.** This was also true with the variable of competence. Competence (middle of semester) predicted agentic engagement at the end of the semester. Students who feel confident in the classroom are more likely to be proactive in the classroom. Competence is the basic need to be effective in one’s interactions and pursuits with the learning environment (Deci, 1975). Students perceive themselves as competent when they feel that they are able to effectively meet the demands of their schoolwork (Niemiec & Ryan, 2009). Accordingly, it is a basic need to demonstrate one’s capability and to seek out environmental challenges. These challenges are optimal when they match an individual’s capacity. Furthermore, competence is not a skill but a perceived sense of confidence (Deci & Ryan, 2002). Teachers need to match the level of difficulty to the skill level and understanding of the students. Teachers need to create a safe environment where students feel comfortable with teacher and peers in asking questions and making mistakes. A student should never feel dumb for asking a question or making a mistake. The learning environment should support the idea that everyone is learning and that mistakes are part of the learning process. This environment prevents students from shutting down when they don’t understand the material or otherwise feel that they cannot ask for clarification. This type of learning environment causes students to feel confident and competent in the learning process. Lastly, teachers facilitate competence in students when they (the teacher) demonstrates that they have confidence in them.
The nuances and skill set of a teacher varies depending on the situation, however teachers should do all in their power to facilitate agentic engagement by providing for students’ basic psychological needs of relatedness, autonomy and competence. Teachers should do all in the power in order to halt the “vicious cycle” referred to by Skiner et al. (2009).

Understandably, individuals in the same class can be going in opposite directions where one student is getting motivationally “richer” whereas another student is getting motivationally “poorer.” Therefore, it is recommended that teachers seek out those who are getting motivationally “poorer” and then do what lies in their ability to set a new trajectory for that student (Kindermann, 2011). This may be as simple as seeking and receiving feedback from a student(s) (via survey, one on one conversation, etc.) on which basic psychological need (teacher relatedness, autonomy, competence) is lacking and then working together to fulfill the needs of that student. This study suggests that much can be gained by supporting the basic psychological needs of the student as espoused in self-determination theory. Reciprocally, when students feel supported they will support the learning environment through agentic engagement.

Peer Relatedness. Peer relatedness is established when students feel comfortable and safe in regards to their fellow classmates in the classroom. This study demonstrates that both teacher-student relationships (teacher relatedness) and student-student relationships (peer relatedness) are vital to the facilitation of agentic engagement. Students who feel comfortable with their classmates, especially at the beginning of the semester, are more likely to agentically engage in the classroom. A teacher should seek to do all that is in their control to facilitate peer relatedness. Kindermann (2011) suggest that teachers “need to (also) be experts in establishing
relationships with students and in guiding children's developing social relationships. In many ways, this is the goal of making a focus on relationships a priority in the classroom” (pg. 307). As this states, teachers need to do all they can to develop positive relationships with their students and facilitate positive relationships amongst their students. This can be done by the use of seating charts, partner or group work, positive classroom discussions, etc. The findings of the present study suggest that if a teacher will seek to facilitate peer relatedness, students will be more likely to agentically engage in the classroom.

Lastly, Wakefield and Marchand (2015) found that students are capable of understanding agentic engagement and engaging in effective conversations about things that facilitate and thwart agentic engagement. One last implication is recommended in light of this finding and Bandura’s (2006) statement that “to be an agent is to influence intentionally one’s functioning and life circumstances.” The implication is that teachers can transparently have consistent conversations with their students about the importance and need for students to be willing, intentional and proactive in the classroom. This transparency, if done consistently, will engender confidence in the students’ ability to rise up to this higher level of engagement as well as set clear expectations for the classroom. In order for students to be proactive and intentional they must know what is expected of them and that the teacher is willing to support autonomy, relatedness and competency in the classroom. This will then allow a student to willingly, intentionally, and proactively engage in the classroom.

In summary, teachers can facilitate willing, intentional and proactive engagement by developing positive teacher-student and student-student relationships; by giving students perceived choice over one’s own actions; by matching the level of difficulty to the skill level and
understanding of the students and increasing student confidence; and by transparently teaching the expectations and guiding principles of agentic learning. As found in the present study, these variables build upon one another and further support or thwart effective learning in the classroom.

**Limitations of the present study**

As with all studies of human behavior, there are several limitations to this study. The following limitations will be discussed in this section; convenience sample, ethnic diversity, domain, attrition, adolescents as participants, other potential variables, achievement variable, statistical analysis. Each of these issues will be discussed.

As stated, the participants of this study constituted a convenience sample in two schools. As can be seen in the descriptive statistics, participants lacked ethnic diversity. The majority of participants (87.5%) were white. Although, this aligns with the overall population of these schools, this could have created a bias to this study. Minority students, depending on the setting, may be less inclined to agentically engage in the classroom if they do not feel comfortable (Ryan & Patrick, 2001) in the class.

Furthermore, only one subject was studied, US History. Therefore, this study cannot be generalized to all school subjects or all ethnicities. Note that Sinatra et al. (2015) stated that there are domain-general aspects of student engagement. Meaning that agentic engagement is a part of the classroom regardless of domain. However it is important to note that the domain is important and students’ agentic engagement could be different depending on the subject matter. History has the potential for students to interact with each other and the instructor in a
meaningful way. However there could be other aspects of the history class that would make it less likely for students to agentically engage in the classroom. One of these factors may include the propensity for teachers to lecture in the history class rather than invite participation. Therefore, more studies that look at specific domains and agentic engagement are needed to understand the unseen benefits and consequences of each domain.

The problem of overall attrition stands as one of the major limitations of this study. Precautions were taken to limit any possible problems of attrition, however because of the adolescent population this proved extremely difficult. The first problem to be noted was the possible selection bias that may have been created because of the need for a parental permission to participate in the study. Secondly, at each of three time points participants either were not in attendance or decided that they did not want to participate in the study. Note, that no compensation was given for their participation so there were some participants who did not desire to be a part of the study. The total number of students in the all of the classes was around 405 students. Of those 405, there were 277 that received permission to be a part of the study. Of those who received permission, 176 completed the survey at all three time points. This unavoidable limitation has major implications. It was statistically demonstrated that there was a difference of overall GPA between those who completed all three surveys and those who did not. Those who completed the survey at all three time points statistically had a higher GPA than those who did not complete the survey. Overall, those who returned the survey and participated in all the surveys may have been different than those who did not. They may have been students who remembered to complete assignments (they returned the survey), who did not have attendance issues (were there at all three time points),
and were persistent. This demonstrated the overall difficulty in doing a short term longitudinal study within the adolescent population. Therefore, results should be understood within this bias. There is a need to understand adolescent population regardless of the possible roadblocks. This study represents a small window into understanding agentic engagement and the basic psychological needs espoused in self-determination theory.

The second major limitation of this study builds from and may be an effect of attrition. That is the limitation of understanding and quantifying achievement. Because of the current law in the United States known as Family Educational Rights and Privacy Act (FERPA) final grades are not as easily accessible to researchers. Therefore as stated, grades were obtained by student self-report. Consequently, grades may have been less accurate because adolescents may have reported a higher grade than they actually earned. As stated previously, Research has demonstrated differing results on how well self-report grades match with actual grades (Kuncel, Crede, & Thomas, 2005; Teye & Peaslee, 2015). Kuncel, Crede and Thomas (2005) reported that students who have good grade point averages are more accurate than those students who self-reported that have low GPA’s. Student self-report may have created biased information.

Furthermore, it was demonstrated above that those who did complete, had an overall higher GPA. This could have added to the overall homogeneity of self-reported grades. Additionally, the subject of history (although there were 5 different teachers) could have been an easier subject to get a higher grade when compared with math, english or science. Regardless of the possible reasons, the homogenous self-reported achievement score proved a limitation to this study, making it difficult to link studied variables with achievement.
Additionally, there could have been other potential variables that influenced agentic engagement that were not included in regression analysis. For example, it may have been helpful to compare all of the different dimensions of engagement including emotional, behavioral, and cognitive engagement (Reeve and Lee, 2014). This would have added to the overall understanding of engagement and would have allowed an overall comparison of the different dimensions of engagement.

Lastly, statistical analysis needs to go beyond simple regression in order to further understand the complexities of the naturally occurring classroom. As intended, the results of this study sought to explore the relationships of the delineated constructs, however multiple regression does not allow for simultaneous evaluation of the variables. With the current study as the foundation, further and more complex statistical analysis is needed. Structural equation modeling would allow for simultaneous analysis of all the variables (Chin, 1998) instead of looking at them separately. Furthermore, residual error in SEM is not accumulated as it is in regression.

Despite these limitations, this study serves as an excellent first step in understanding agentic engagement and reciprocity in the natural classroom setting. Further studies, as discussed in the next section, should be done to overcome some of the aforementioned limitations. More studies are needed to enhance the overall understanding of the construct of agentic engagement and salient psychological needs as found in self-determination theory.
Direction for future research

To date, this is the only short longitudinal study focusing on agentic engagement that has been done in the United States. All other studies were conducted in Taiwan and Korea (Reeve & Lee, 2014; Reeve & Tseng, 2011). Therefore, more studies are needed within the western culture to understand agentic engagement. To add to the understanding of western culture and agentic engagement researchers could include the other dimensions of engagement in an effort to compare and contrast the influence of basic psychological needs. A study that includes more ethnic diversity and/or other school subjects would also further advance the current understanding of the construct of agentic engagement. In addition to the brief suggestions above, three important future studies will be outlined below. They include; facilitating teacher and peer relatedness, furthering understanding or reciprocity, and determining the link between agentic engagement and achievement.

One of the major implications of this study is the importance of peer and teacher relatedness on the construct of agentic engagement. The current study provides the framework for salient interventions and research on facilitating agentic engagement, namely teacher and peer relatedness. Future studies can build on current understanding with further interventions and research. This will allow the relationship between teacher and peer relatedness and agentic engagement to be more fully developed.

Reciprocity (within a single time point) was only found between teacher relatedness and agentic engagement, however as results indicated several variables were reciprocal within the semester. For example agentic engagement predicted perceived autonomy, which in turn predicted agentic. As such, adding a fourth time point would allow researchers to understand if
agentic engagement from the third time point would reciprocally predict autonomy at the fourth time point. It seemed that the first time point was not as meaningful because it was so early in the classroom experience. Therefore, if a fourth point was added it could give further evidence of reciprocity within the naturally occurring classroom. This could also aid in the understanding of reciprocity. Perhaps more importantly, the method in which agentic engagement and perceived support from social partners is reciprocally measured would add greater insight into these relationships. As stated, reciprocal relationships concern how two variables over time act as both a cause and an effect on each other (Marsh & Craven, 2006). Marsh and Craven (2006) espouse a reciprocal-effects model in their research on self-concept and performance. This reciprocal-effects model (REM) demonstrates that two variables are reciprocally related and mutually reinforcing. REM goes beyond simplistic models where one variable either affects or is affected by the other variable. This type of statistical analysis would further illuminate the reciprocal nature of agentic engagement and support from social partners. In sum, more research and more sophisticated statistical analysis such as REM (reciprocal-effects model) or SEM (Structural Equation Modeling) is needed to further understand these underlying and latent relationships.

Research that connects agentic engagement and achievement is needed to further the importance and validity of this dimension of engagement. As stated, only two studies (Reeve & Lee, 2014; Reeve & Tseng, 2011), both outside of the United State, have specifically regarded the connection between agentic engagement and achievement. As such, this study highlights the importance of agentic engagement and a need to further understand the link between agentic engagement and achievement.
In short, due to the newness of this construct there is an ample amount of future research that is needed to further the current conceptualization of agentic engagement. Specifically, studies that consider facilitating teacher and peer relatedness, reciprocity, and identify the link between engagement and achievement are needed.

**Conclusion**

In this study, agentic engagement was both a catalyst and an outcome of motivational variables found in self-determination theory. All motivational variables (perceived autonomy, perceived competence, perceived teacher relatedness, perceived peer relatedness) at time point two predicted agentic engagement at time point three. It can be seen that these salient motivational variables facilitate agentic engagement. Furthermore, agentic engagement (time point 1) predicted perceived autonomy support and perceived teacher relatedness (time point 2). This study further supports that agentic engagement can facilitate an optimal learning environment (Reeve, 2013) and that changes in students’ classroom engagement can lead to changes in classroom motivation (Reeve & Lee, 2014). This study utilized the self-determination theory (SDT) framework, to determine the importance of perceptions of support from multiple social partners in the classroom on student agentic engagement. This study described the direction and strength of reciprocal influence among student agentic engagement and perceptions of the classroom context as well as investigated whether agentic engagement mediated the relationships among perceived support and student achievement. Even though the mediation of achievement was not found, this paper highlights the importance of agentic engagement and recommends further studies that elucidate this relationship.
In conclusion, this study is a call to educators and researchers to view learning and engagement as an outcome and not just a path to achievement. In a world focused on visible results, this recommendation may seem brash. However, this study concludes that when a learner agentically engages in the classroom he or she creates a motivationally supportive environment in the classroom. Perhaps more importantly, as teachers facilitate an environment where a learner can be constructive, proactive, intentional, contributing, influencing and willing then a student can be an agent who makes things happen by their own actions (Bandura, 2001). In short, it puts the responsibility of learning not only on the teacher, but on the student as well. When this shared sense of responsibility for learning is obtained, learning will happen.
APPENDIX

Demographic information will be collected at the first time point, self-reporting of grades will be done at the second and third waves of data collection.

Student survey

Please circle the appropriate response

Age 16 17 18
Gender Male Female
Overall GPA 4.0-3.5 3.5-3.0 3.0-2.5 2.5-2.0 Below 2.0
Ethnicity White Hispanic Pacific Islander American Indian Black Asian

What is your current percentage grade out of 100 for this class? ______/100 (If this survey is given at the beginning of class please put what percentage grade you expect to get for this class.

Please think about this class as you respond to the following questions

1. I let my teacher know what I need and want.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>

2. During this class, I express my preferences and opinions.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>

3. When I need something in this class, I’ll ask the teacher for it.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>
4. During class, I ask questions to help me learn.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>

5. I let my teacher know what I am interested in.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>

6. I am free to express my opinions in this class.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>

7. I feel like I have a lot of input in deciding how to learn in this class.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>

8. The teacher takes my perspective into consideration in this class.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>

9. I do not think the tasks I do in this class are very stimulating.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
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</table>

10. I enjoy the challenges this class provides.
11. Most days I feel a sense of accomplishment from doing work in this class.

12. The teacher cares about me and my progress.

13. The teacher is pretty friendly towards me.

14. I don’t feel the teacher understands me.

15. My classmates care about me.

16. My classmates are pretty friendly toward me.
<table>
<thead>
<tr>
<th>Strongly disagree</th>
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17. I don’t feel my classmates understand me.
Teacher survey

Taken at third (final) time point.

How many years have you been an educator? ________

How many years have you taught American history to 11th graders? ________

Please circle the appropriate response

Please think about this class as you respond to the following questions

1. My students let me know what they need and want.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly Agree</th>
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<th>Strongly agree</th>
</tr>
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</table>

Please explain below why you reported the score that you did, if possible please share any examples from this class that would highlight why you reported the score that you did.

2. During this class, my students express their preferences and opinions.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
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<th>Strongly agree</th>
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Please explain below why you reported the score that you did, if possible please share any examples from this class that would highlight why you reported the score that you did.

3. When students need something in this class, they’ll ask me for it.
4. During class, My students ask questions to help them learn.

5. My students let me know what they are interested in.

6. Students are free to express their opinions in this class.
Please explain below why you reported the score that you did, if possible please share any examples from this class that would highlight why you reported the score that you did.

7. My students feel like they have a lot of input in deciding how to learn in this class.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
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Please explain below why you reported the score that you did, if possible please share any examples from this class that would highlight why you reported the score that you did.

8. My students feel that I take their perspective into consideration in this class.

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9. My students do not think the tasks they do in this class are very stimulating.

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<th>Strongly</th>
</tr>
</thead>
</table>


Please explain below why you reported the score that you did, if possible please share any examples from this class that would highlight why you reported the score that you did.

10. My students enjoy the challenges this class provides.

11. Most days my students have a sense of accomplishment from doing work in this class.

12. My students in this class feel that I care about them and their progress.
Please explain below why you reported the score that you did, if possible please share any examples from this class that would highlight why you reported the score that you did.

13. My students in this class feel that I am pretty friendly towards them.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
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<th>Slightly disagree</th>
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Please explain below why you reported the score that you did, if possible please share any examples from this class that would highlight why you reported the score that you did.

14. My students in this class feel that I understand them.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
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<th>Slightly disagree</th>
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Please explain below why you reported the score that you did, if possible please share any examples from this class that would highlight why you reported the score that you did.

15. Students in this class care about each other.

<table>
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Please explain below why you reported the score that you did, if possible please share any examples from this class that would highlight why you reported the score that you did.

16. Students in this class are pretty friendly toward each other.

<table>
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Please explain below why you reported the score that you did, if possible please share any examples from this class that would highlight why you reported the score that you did.

17. Students in this class feel that their classmates understand them.

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Please explain below why you reported the score that you did, if possible please share any examples from this class that would highlight why you reported the score that you did.

18. Is there anything else you think would be helpful to share in regard to the student engagement in this class?
REFERENCES


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CURRICULM VITAE

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Experience
2004-Present Seminary Instructor, Teacher and administer for the Church of Jesus Christ of Latter-day Saints.
2012-2013, 2016 Online Communication Instructor, Adjunct Faculty
Dixie State University, St. George, Utah. Online course taught:
Converging Media, Communication 1500 and Communication Theory, Communication 1050.

Education
2010-2016 University of Nevada, Las Vegas, Doctor of Philosophy in Educational Psychology

Conference Paper

2009 Southern Utah University,
Master of Arts in Professional Communication

Master’s Thesis

2004 Brigham Young University- Idaho,
Bachelor of Science in Recreation Leadership